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SPECIALITY: Translation Arabic/English/Arabic

Challenges of Medical translation from English to Arabic: Case of Study chapter II of Ophthobook to Dr Timophy Root

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Dedication
1

All my gratitude praise and thanks to Allah for guiding me to completion of this work, for both his blessings and his tests. Additionally, this work is dedicated to the most significant persons in my life, my mother and my father.

Rabiha

Dedication

2

First of all praises to allah who helps us to finish this work . it would be kind to dedicate this humble work to my parents the source of help and advice and encoragment to my two little brothers to all my familly membre specially to my grandparents who passed away my god have mercy on them . I also dedicate this work to my friends and besties who have supported me without forgetting the supervising professor for accepting to supervise this memarandum and my partner rabiha for their moral support their patience and their understanding throuhout this work .and to every one I love .

Melissa

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General introduction

Translation has evolved into a crucial discipline in contemporary society, serving as a vital conduit for the exchange of ideas across languages. Among the myriad types of

translation, scientific translation, especially in fields like medicine and ophthalmology, has become increasingly complex due to the surge in technological and scientific advancements.

The primary function of translation is to facilitate effective communication between individuals who do not share a common language. This study focuses on the challenges and strategies involved in translating specialized content, specifically in the field of ophthalmology, from English to Arabic.

In recent years, the demand for precise translations has grown, particularly in scientific domains such as medicine, psychology, physics, chemistry, mathematics, and computer science. Scientific translation, especially in ophthalmology, presents unique challenges due to specialized terminology.

The study aims to contribute to the knowledge base by addressing the challenges faced by translators in the English-to-Arabic translation of ophthalmology content. Specific objectives include identifying translation methods, exploring difficulties faced by translators, and proposing solutions to enhance accuracy and relevance.

The chosen subject is ophthalmology, with a focus on a unique case study - the English-to-Arabic translation of "Anatomy of the Eye" by *Dr. Timothy Root*. This chapter introduces terms that may have not been translated before, emphasizing the intricacies of translating specialized content.

The problematic in this study consist to define the translation of medical terms in scientific texts, that we may face, common difficulties in ophthalmology terms such as,the free use of Abbreviation andAcronyms and the complexity of the terms, and the methods we can use when we don’t find the exact terms or when some terms don’t exist in Arabic langange .

This research aims to highlight the difficulties that we may face when attempting to translate medical terms from English into Arabic. This study will show how the translation of medical terms can be a challenge. It also highlights methods they use in translating such terms During this study and analyzis we try to find answers to the following questions:

- What are the difficulties in translating scientific text?

-What procedures and strategies can be employed in translating ophthalmology terms?

-Can a scientific background enhance translators' ability to translate ophthalmology terms?

-What kind of methods students use in translating medical terms?

-Can collaborative efforts and specific translation strategies field translations close to the original?

-Are the Vinay and Darbelenet's methods convenable to this field ?

Finally, in an attempt to answer the questions raised by this study, it is hypothesized that:

-We can be able to comprehend and translate medical terms in scientific texts with difficult terminology by using different methods of translation .

-Translators failure to translate medical terms may be accounted for by his unawareness of the importance of adopting the appropriate method that ensures a high-quality translation

Structure of the Study

The present study consists of two main chapters: a theoretical and a practical chapter. The theoretical is devoted to the definition of ophthalmology and overview of eye and its characteristics and the scientific, specialized and medical translation.

The second chapter consist to translate the corpus and to discuss some examlpes and their translation into Arabic with method used.

The study proposes that a scientific background enhances translators' comprehension of ophthalmology terms and suggests that a combination of procedures and collaboration with specialistes can improve translation accuracy. Specific strategies, such as the comparative stylistics approach, are proposed to enhance translation quality.

The chosen methodology involves a descriptive approach for the theoretical part, based on documentary research covering theoretical concepts related to ophthalmology and eye anatomy. The study is structured two chapters, with the first two focusing on theoretical frameworks and the second involving the translation and analysis of a specific corpus.

Chapter one

Ophthalmology, scientific, medical and specialized translation

I -1- Ophthalmology and eye diseases

Introduction:

The human eye serves as a sensory organ within the sensory nervous system, responding to visible light and enabling humans to utilize visual information for a variety of purposes, including perception, balance maintenance, and regulation of circadian rhythms.

Considered a living optical device, the eye possesses an approximately spherical shape. Its external layers, such as the outermost layer known as the sclera and one of its inner layers called the pigmented choroid, effectively ensure light tightness for all areas except the eye's optic axis. Sequentially along this optic axis, the optical components include a primary lens, namely the cornea (the transparent part of the eye), responsible for the majority of light focusing from the external environment. Following that, there is an aperture, represented by the pupil, controlled by a diaphragm known as the iris (the colored part of the eye), which regulates the amount of light entering the eye's interior. Subsequently, another lens, the crystalline lens, finalizes the focusing of light into images. These images then fall onto the light-sensitive area of the eye, known as the retina, where they are processed. The retina establishes a connection to the brain through the optic nerve. The remaining components of the eye serve to maintain its shape, provide nourishment, and offer protection.

I -2-Etymology and definition of ophthalmology:

The roots of the word ophtalmology are greec (ophthalmos which means "eye") and –logia which means "study, discourse") so ophtalmology is "the study of eyes", it is the specialized field of medicine that focuses on the health of the eye.it is the study of structure ,function and problems of the eye ,it includes the anatomy, physiology and diseases that may affect the eye. Historically, the science of ophthalmology encompassed all aspects of visual function, both in health and in illness.

I -3- The history of ophthalmology:

The field of ophthalmology has a rich history dating back to ancient Greek physicians, Byzantine and Arabo-Islamic specialists, and ancient Rome physicians. Early attempts to treat conditions like strabismus were made as early as the 5th century BC. Notable figures such as Celsus in ancient Rome provided insights into various eye conditions, and individuals like

Antyllus and Rufus of Ephesus were known for their contributions to cataract procedures and eye anatomy.

In the 19th century, clinical experimental studies established the correlation between visual function and the central nervous system, and in the mid-20th century, investigations into the histology, cytochemistry, biochemistry, and immunology of ocular tissue became commonplace

I -4-Characteristics of the eye:

Introduction:

The eye is one of the most precious organs of the human being. With them we can see the world around us and any condition related to this part of the body affects us in our daily lives. Hence the relevance of one of the current medical specialties that specifically treats the eye.

To comprehend the structure of the eye, it is divided into two main segments: the anterior and posterior segments.

The anterior segment encompasses the eyelid, conjunctiva, anterior part of the sclera, cornea, anterior chamber (housing aqueous humor), iris, pupil, lens and zonules, posterior chamber, ciliary body, and the anterior third of the vitreous body.

On the other hand, the posterior segment comprises the posterior two-thirds of the vitreous body, choroid, retina, optic nerve, and the posterior part of the sclera.

For the examination of these segments, distinct machines are employed—one for the anterior segment and another for the posterior segment.

There are some of its characteristics:

Cornea: The transparent front part of the eye that covers the iris, pupil, and anterior chamber. It helps in focusing light into the eye.

Iris: The colored part of the eye that controls the size of the pupil and, therefore, the amount of light entering the eye.

Pupil: The black circular opening in the center of the iris that allows light to enter the eye.

Lens: Located behind the iris, the lens helps to focus light onto the retina. It can change shape to adjust to different distances.

Retina: The innermost layer at the back of the eye, containing light-sensitive cells called photoreceptors (rods and cones). The retina converts light into electrical signals that are sent to the brain through the optic nerve.

Optic Nerve: A bundle of nerve fibers that carries visual information from the retina to the brain.(Marianne levon shahsuvaryan, 2015)

Sclera: The tough, white outer layer of the eye, often referred to as the "white of the eye."

Vitreous Humor: A clear, gel-like substance that fills the space between the lens and the retina, helping to maintain the eye's shape.

Aqueous Humor: A clear, watery fluid between the cornea and the lens that helps maintain the eye's pressure and nourishes the cornea and lens.

Ciliary Muscle: A ring of smooth muscle tissue that adjusts the shape of the lens, allowing for accommodation (the ability to focus on objects at different distances).

Conjunctiva: The thin, transparent membrane that covers the front surface of the eye and the inner surface of the eyelids.

These components work together to capture and process visual information, allowing us to perceive the world around us. The eye is a remarkable organ with a high level of precision in its structure and function.(Zeina Mohamed. Alsabti- 2012-)

I -5- Common eye deseases:

Eye diseases are a group of disorders that affect the eyes and can lead to vision loss or other complications. Some common eye diseases include cataracts, glaucoma, macular degeneration, diabetic retinopathy, and conjunctivitis.

Treatment for eye diseases depends on the specific condition and may include medications, eye drops, surgery, or other interventions. For example, cataracts can be treated with surgery to remove the cloudy lens and replace it with an artificial lens, while glaucoma may require medications to lower pressure in the eye.

I-5-1- Myopia: قصر النظر

It is a condition when a person can see near by objects clearly but cannot see distant objects. It usually develops in childhood or young age. Inthis condition, the light from an object is focussed in front of the retina. The condition is due to elongation of the eyeball or change in curvature of the eye lens.

The main symptom of myopia is blurred vision and an inability to see distant objects. Other symptoms of the visual defect are headache, watery eyes, itching
and dryness in the eyes. Children who suffer from myopia find it difficult to see letters distinctly written on the blackboard when sitting on the back benches of the classroom.

I-5-2 -Astigmatism: اللابؤرية الاستغماتية اللانقطية

(Advanced Arabic –English dictionary)

A person suffering from astigmatism has blurred, distorted or fuzzy vision, as the light rays are focussed on two or more points on theretina (Fig. 3.6).
A person with astigmatism complains of headache or eye strain and blurred vision.
Astigmatism is corrected by the use of acylindrical lens in the spectacles.

I-5-3-The red eye: عين حمراء

The redness of the eyes can stem from various causes, each carrying different levels of significance. While some may warrant immediate attention as medical emergencies, others pose no real threat. Notably, the intensity of redness or the presence of blood may not necessarily reflect the severity of the underlying issue. Rather, the presence of accompanying symptoms such as eye pain or impaired vision tends to be more indicative of the situation's seriousness.

The origins of bloodshot eyes often trace back to the dilation and irritation of vessels on the surface of the eye's white section (sclera). This phenomenon can be triggered by diverse factors including exceedingly dry air, prolonged exposure to sunlight, environmental dust, the presence of a foreign body, allergic reactions, infections, trauma, or other underlying health conditions. (**Zeina Mohamed. Alsabti - 2012 -)**

I-5-4-. Diabetic Retinopathy: اعتلال الشبكية السكري

Retinopathy is the most common eye problem in people with diabetes. High blood sugar damages the retina and may cause it to detach. This can lead to vision loss. You might not have symptoms in the early stages of this disease

I-5-5-Cataracts: اعتام عدسة العين

A cataract is any opacity in the lens.The term cataract comes from the Greek word katarraktes (down-rushing; waterfall) mature cataract (**Zeina Mohamed. Alsabti-2012 -)**

I-5-6-Glaucoma: الزرق

Glaucoma is an eye disease, which causes blindness due to increased intraocular pressure. The color of the optic nerve can be important in determining atrophy of the optic nerve due to glaucoma or other causes. Temporal pallor of the optic nerve (Fig. 5.1) can occur as a result of diseases that damage the nerve fibers, such as brain tumors or optic nerve inflammation, or in conjunction with glaucomatous cupping.**(Marianne levon shahsuvaryan- 2015)**

I -6- General overview of Translation:

The most common understanding of the translation is reduced to its treatment as a means of cross-language communication. Translation is considered a form of linguistic mediation, in which the content of a foreign language text (the original) is transferred into another language by creating in this language an information and communication equivalent text.

The development of transport, the means of information and communication, the increased cultural and educational levels, the awareness of the need of understanding and cooperation, the search for ways and means to address the global problems of the present - all this can be achieved only by the combined efforts of all nations and people. No doubt, all these factors have stimulated the development of translation.

In the 16th century, the term "translate" was introduced by the humanist, lexicographer, and translator Robert Estienne in 1539. The subsequent year saw Étienne Dolet contribute "translation" and "translator" to the linguistic landscape (Cary 1963: 6). Larose (1989: 3) explains that the verb "translate" originates from an ancient irregular Latin verb with the present infinitive forms "transferre" and the past participle "translatus." Additionally, the term

"interpres" denoted the translator in fluent Latin, akin to the Italian "drugman" (drogomanno), which, in turn, derived from the Arabic "turjumân," itself rooted in Assyrian "ragamou." Molière later employed it in the form of "intermediary."

Defining the act of translating proves challenging due to its diverse forms and applications. The term "translation," unlike other words in its family, encompasses varied and evolving realities. It may involve translating from written or oral sources, into one or multiple languages, utilizing paper or electronic media, and employing manual or machine assistance. Translating can occur sporadically or regularly, for pleasure or with a specific objective. In each instance, the term "translation" denotes a particular concept and practice, such as simultaneous translation of a speech, subtitling of a filmed theater play, adaptation of a website, or multilingual monitoring of current affairs.
- Our translation – (Mthieu Guidère-2016)

I-7-<u>What is specialized translation:</u>

Specialized translation, as indicated by Scarpa and referenced in Palumbo's work (: 108), can be characterized as the translation of texts that involve subject-specific expertise, employ specialized terminology, serve a distinct communicative objective, and are intended for a particular audience. Broadly speaking, it pertains to the translation of content within specific domains that necessitate specialized knowledge and understanding. (**Palumbo2009)**

I-7-1 Specialized Translation in the Arab World:

In historical terms, the development of translation studies as a discipline witnessed significant growth in the 1980s, as noted by Bassnet & Lefevere (1990). In the Arab world, this field has seen notable advancements in theory and practice and is expected to continue evolving well into the twenty-first century. Due to rapid societal changes in the Arab world, translation has emerged as a vital means of disseminating knowledge (**Shaheen (1991**).
Moreover, the Arab world has been marked by swift political, social, and economic transformations, which inevitably impact academic disciplines and fields of knowledge. As a creative intellectual endeavor, translation has experienced resurgence thanks to the establishment of private publishing companies and government efforts to provide quality

translations. A group of Arab intellectuals, driven by a curiosity for translating intriguing books, has also played a role in this development.

The current success of Arabic translation studies owes much to its esteemed historical roots and the broader evolution of translation studies globally. Throughout history, translation has played a significant role in the transfer of scientific and technological knowledge, from the Abbasid Rule to the present day. However, contemporary Arabic translation faces challenges, including limited comparisons with its illustrious medieval predecessor and the need for systematic documentation to raise awareness of translation as a discipline and respected profession.

I-7-2 -The specialized text:

The complexity of specialized language translation, challenging the notion that it is a straightforward task compared to literary translation. It emphasizes the multileveled nature of specialized texts and highlights the importance of understanding not only the terminology but also how linguistic designations are activated in syntactic and semantic contexts.

The specialized texts, like scientific articles, often adopt an impersonal stance, concealing the relationship between the text and the reader. These texts, typically written by experts for readers of similar knowledge levels, aim to inform and transmit specialized knowledge. However, texts can have multiple functions, such as persuading readers of the validity of research results.

The function of a text is reflected in the predicates used, with terminological studies focusing on object concepts represented by nominal forms. Despite this, the passage emphasizes the significant role of verbs in specialized discourse, as they set the scene for specialized concepts and determine the overall form and meaning of sentences.

Verbs act as semantic predicates, influencing the linguistic representation of propositions. The passage introduces the idea that constructions corresponding to basic sentence types encode central senses and event types fundamental to human experience. It aligns with the notion that language is structured around certain conceptual archetypes.

The extension of events is discussed through the use of systematic general metaphors, leading to various expressions and event types derived from metaphorical extensions of a

verb's basic meaning. The technicality of the text affects the degree of metaphorical extension and constrains the meaning of predicates and the types of arguments they can take.

Overall, the passage provides insights into the intricate nature of specialized language translation, emphasizing the role of both terminology and verbs in conveying meaning across languages.

I-8-Scientific Translation:

I-8-1-Definition:

Scientific translation is a specialized and intricate form of translation primarily focused on rendering terms within diverse fields of science and technology—such as medicine, physics, and computer science from one language to another. The translation of scientific texts can pose challenges for non-experts, especially given the constant evolution of scientific terminology. Consequently, a high level of linguistic proficiency, practical experience, and a thorough understanding of the subject matter are essential.

According to Byrne (2006), scientific translation goes beyond mere translation of language and style; its primary objective is to ensure the clear, concise, and accurate delivery of information. It emphasizes the importance of avoiding ambiguities and unclear constructions in the target language, highlighting the significance of maintaining clarity and precision in the transfer of scientific knowledge.

I-8-2-Characteristics:

The use of specialized terminology, objectivity, precision, and expertise. Impersonality, a hallmark of scientific writing, is achieved through various means, such as passive voice, the use of the pronoun "we," third-person style, and the utilization of abstract nouns derived from verbs and adjectives.

Other characteristics include clarity, simplicity, and impartiality, logical organization of ideas, accuracy, and objectivity. Scientific writing avoids unnecessary details, employs direct language, provides evidence to support claims, and refrains from using vague or ambiguous language.

I-8-3-difficulties of Scientific Translation English-Arabic:

English-Arabic scientific translation faces unique challenges due to the rapid development of scientific concepts and terminologies in English. Arabic, like many other languages, grapples with linguistic difficulties in expressing newly created scientific terms and concepts. While there have been efforts to introduce new technical terms into Arabic, care must be taken to ensure they align with the Arabic language's phonological and morphological rules without compromising its identity.

Translators play a crucial role in coining suitable terms that enrich the Arabic language while facilitating the transfer of new technologies and scientific knowledge.

In this context, terminology poses a significant challenge, accounting for a substantial portion of technical translation errors.

Translators must possess a deep understanding of both English and Arabic, as well as subject matter expertise, to choose appropriate translation techniques that ensure accurate rendering of English scientific terms into Arabic.

There are omme difficulties:

1-Selecting proper meaning:

Some words in English have different meaning when we in general ang specific langage like:

Example : privatization in Arabic **التخصيصية - الخصخصة -التخصيص**

Also the difference of the meaning depend of the case where we use it example:

-

Example: authority, agengy, organization ------هيئة

2-Word usage: there is difference in the use of words in english according to the nature of use (formal or informal)

Example:

-died (informal langage) – **deceased** (formal langage) : **الفقيد- الميت - متوفى**

3-There is big difference between the British and American English langage:

-Example: (**British langage)** **(American langage) :**

4-Gender:

The principal characteristic in the Arabic langage masculine and feminine of nouns and verbs, الخل/ الخالة - العم / العمة , this thing does not exist in english langage : aunt / uncle - sister / brother

5-collocation توافق الكلمات

Collocation is the "habitual co-occurrence of individual lexical terms
: noun –noun/ noun –adjective/ verb –subject .
So translation in this case must be difficult operation of searching context and sens examples :
-Nerve cell ------- خلية عصبية
-eyeball ------- شحمة العين - مقلة

6- Abbreviations : الاختصارات

Arabic langage does not use abbreaviations and acronyms such as Enlish Langage wich use generally five kinds of abbreviations:

1- Abbreviation with the first letter : p – page
2- Abbreviation with the first letters : vol-volume
3- Abbreviation with some letter without order : km – kilometer
4- Abbreviation of compound nouns and expressions :

Example: CD : Compact Disc .

5-Acronyms: the first letter of each word,
Example:
TEFL – Teaching English as a Foreign Langage

7-Compound nouns: **الاسماء المركبة**

It represent really difficult for translator to Arabic because English langage use Composition etwen nouns, adjectives, adverbs and verbs. The compound nouns are also formed with affixes. (ماجد سليمان دودين2009)

8- The diffence of the meaning of term used in GL and SL:

There is difference when we use the same term but in different languages, For examples:

1-with the word "defense":

In General language:

Many people think of self-**defense** as a karate kick to the groin or jab in the eyes of an attacker.

In Specialized language: (Medicine):

We count on our body's immune **defenses** (sometimes with the help of antibiotics) to get rid of any germs that cause infection, and to protect us against new germs in the future.

2-with **the word " attack"**

-In General language:

Today the New York Times launched its latest **attack** on this campaign in its capacity as an Obama advocacy organization.

- In Specialized language: (Medicine) :

An antibody is a protein that can lock onto a distinctive part of a specific foreign organism. When this happens, the antibody signals to other immune cells to **attack** the organism.

3-with the **battle**

-In General Language:

One of the first major **battles** in the civil war was the battle at Bull Run.

-In Specialized language: (Medicine) :

Vitamins play a key role at every stage of the immune **battle**. Lack of vitamin A lowers the number of T-cells, which means fewer soldiers to mount an attack.

4- **With the word "invade"**

-In General language:

Every time I listen to Wagner, I am overcome with a desire to **invade** Poland.

-In Specialized language: (Medicine) :

Once a virus **invades** a living cell, it directs the cell to make new virus particles

(ماجد سليمان -2009)

I-9-medical translation:

Medical translation concerns a number of subject areas, including pharmacology, medical rescue system, surgery, obstetrics, pediatrics, psychiatry, internal medicine, oncology, cardiology and other fields of specialty. Medical translation does not concern a single genre or a homogenous discourse.

The translated texts include popularizations, such as textbooks for medical students, popular science book on medicine, but also research papers, conference proceedings, case studies, case histories, discharge summaries, reports and relatively simple texts for patients: information leaflets, consent forms, brochures.

A number of texts are translated due to regulatory requirements concerning new medical products and medical devices or new applications of pharmacological products. What also generates the demand for the translation of medical texts is the need to conform to the formal requirements applicable to clinical trial registration and conduct or marketing new drugs, which involves translating the registration documents and other necessary materials to the local language.

New findings are published in English, which means that a number of research papers are translated. The demand for medical translation is also the result of emigration. What is more, translators prepare medical files for patients who seek medical help outside their own

country of residence. The translators of medical texts face a number of challenges, some of which are the subject of research.

They include medical terminology, lexical equivalence of medical texts, readability, quality issues. This chapter offers a general overview of the major issues in medical translation.

Sue Ellen Wright and Leland D. Wright, Jr--Volume VI 1993

I-9-1-Translator's Role in the Transmission of Medical Knowledge:

Evidently, medical practices had a historical background In the Islamic world:

Particularly with the rise of Islam in the 7th century and the establishment of a unified Muslim Empire in the 9th century, medical schools in Baghdad and Damascus thrived. The translation of Greek works into Arabic became a pressing need, and the contributions of translators, especially the Syrian and Coptic families of translators such as the Bakhtishû and the Mehsues, and the renowned Hunain (Joannitius), played a pivotal role. The Caliph al-Mansur established a school of translators in Baghdad, led by the Christian physician Johannes Masawayh, contributing to the translation of Greek manuscripts into Arabic.

The Persian-born Rhazes and Avicenna further enriched Arabic medical knowledge, with Avicenna's "Canon" becoming a renowned medical textbook, even influencing Latin translations until the 17th century.

Moving into the middle Ages, after the decline of Greek glory and the fall of Rome, the work of Arabic translators became crucial in bridging the gap until the Renaissance.

Christian Gerard of Cremona and the Jew Faraj ben Salim translated numerous medical writings from the major school of medical writers in the Arabic-speaking regions between the 9th and 12th centuries into Latin. This contributed significantly to the revival of European intellect and formed the core of medieval university libraries.

The medical school of Salerno in the Early Middle Ages gained widespread reputation, and its works were later translated into several European languages. This school is considered a bridge between ancient and modern medicine, connecting the traditions of Byzantium, Baghdad, Alexandria, and Cordova through Latin translations. The translation efforts of Jewish scholars, under the patronage of Christian bishops, played a crucial role in the establishment of the famous medical school of Montpellier in the 12th century.

In the 15th century, with the resurgence of Greek scholarship, more accurate translations of Greek writers were sought by humanists. The humanists proposed replacing Latin translations with the original works of Hippocrates and Galen to lead medicine back to its sources. (**Matthias Steie, 2011)**

The limited knowledge of Greek among scholars and physicians led to the necessity of retranslating Greek works into Latin. Noteworthy figures like Thomas Linacre and Henry VIII's personal physician played a key role in these endeavors.

With the colonization of the New World, the isolation of new drugs, and the introduction of exotic plants, linguistic interests in medical translation expanded.

Nicolas Monardes, a Seville-based scholar, authored an important work on these drugs in Spanish, reflecting a shift toward vernacular languages in medical translation. This marked a significant evolution in medical translation as the vernacular languages gained prominence.

The rich heritage of medical translation, marked by the continuous efforts of translators across various cultures and eras, was further enhanced with the advent of the printing press. The translator's role remained crucial in pollinating and disseminating medical science, contributing to the profound cultural impact made by these professional forebears.

(Sue Ellen Wright and Leland D. Wright, Jr-Volume VI 1993)

I-9-2-Difficulties of translation in medical text:

Numerous scholars assert that despite Arabic being a vibrant language with a rich capacity for word creation and derivation, translating medical terms from English into Arabic presents formidable challenges. These difficulties arise due to several factors:

1. Free Use of Abbreviation and Acronyms: The liberal use of abbreviations and acronyms in medical terminology can lead to varied interpretations, posing a challenge for translators.

2. Complexity and Ambiguity:

Translators, especially those new to translating scientific and medical texts, may encounter complexity and ambiguity in medical terms. This includes derived words from Latin and Greek, as well as figurative terms borrowed from other languages.

3. Translation Restrictions: Each language has unique grammatical and lexical properties, creating barriers that affect the translation process.

4. Use of Foreign Languages: In science and medicine education, English or French is often used instead of Arabic. This practice leaves students unfamiliar with the meanings of terms in Arabic, impacting their ability to translate effectively.

5. Lack of Terminological Uniformity: One term may be employed for two different meanings, or two different equivalents may be used in translating a single scientific term. This lack of terminological uniformity in the Arabic language results in suboptimal translations

6. Lack of Experience: Insufficient medical knowledge and practice in medical translation among students or translators hinder the effectiveness of the translation process.

7. Change of Languages Over Time: The dynamic nature of languages introduces new words and replaces outdated ones. The lack of up-to-date English-Arabic medical dictionaries and translated works into Arabic further complicates the translation process.

I-10-Terminology:

Terminology as a field originated in the 1930s with Eugen Wüster, who authored "The Machine Tool, an Interlingual Dictionary of Basic Concepts" (Wüster 1968). This comprehensive work, presented in French and English with a German supplement, was systematically organized and aimed to serve as a model for future technical dictionaries.

Wüster's multi-volume endeavor laid the foundation for the General Terminology Theory, establishing the initial principles for compiling and describing terminological data with the goal of standardizing scientific language. Subsequent to Wüster, his successors in Vienna further developed the theory, interpreting his ideas and advancing his work. Despite being the primary source of principles for compiling terminological data for many years, the General Terminology Theory had limitations. Notably, its perspective on the semantics of terminological units provided a uniformly constrained representation of specialized knowledge concepts, neglecting their multidimensional nature.

Additionally, the theory did not address the syntax and pragmatics of specialized language, dismissing their relevance. Consequently, it lacked practical applicability in translation or specialized text generation.

The General Terminology Theory primarily concentrated on specialized knowledge concepts for describing and organizing terminological information. Within this framework, concepts were considered distinct from their linguistic designations (terms).

Concepts were conceptualized as abstract cognitive entities referring to real-world objects, while terms were perceived as mere linguistic labels for these concepts. As Terminology sought to establish a semi-independent status, significant effort was devoted to distinguishing specialized language from general language and differentiating terms from ordinary words. This emphasis on distinctions often conveyed the notion that terms were not merely components of language but abstract symbols symbolizing concepts in the real world.

(Pamela Faber, José Manuel Ureña Gómez-Moren -2012 -)

I-11-The Vinay and Darbelenet procedures of translation:

We find it useful here to take a look at the meaning of these seven processes to serve as a no springboard in this chapter. Obviously, Vinay and Darbelnet introduced the seven processes of translation to guide contemporary translating activity. These processes have contributed greatly to the evolution of the translating activity in general. They are:

Borrowing: This is a process which consists of not translating the word from the source language, especially when it corresponds to something that does not exist in the target language. It should not be explained by context or by a note.

Calque: this process consists of translating the foreign expression term by term. Thus, this process can apply to syntactic structures that are weak in English or French.
Transposition**:**

Transposition: is the first technique or step towards oblique translation. Oblique translation is another term for free translation where the translator exercises his/her freedom to attain equivalence. It operates at the grammatical level and it consists of the replacement of a word class by another word class without changing the meaning. From a stylistic view point, the transposed expression does not have the same value, but the meaning is the same. Transposed expressions are usually more literary in character. What is the most important is to choose the form that best fits the context.

https://translatorthoughts.com/2016/05/transposition/ 3/11/23 15:20am

Literal translation: this process consists of translating a foreign word word for word. The operation is not always possible, as we know. In fact, this is not a non-comprehensive operation but the one that brings out the meaning of the message.
Transposition: this process gives the translator the opportunity to translate part of the speech with a other without semantic loss or gain.

Modulation: it consists of changing the point of view, the lighting, or to circumvent a difficulty of translation, or to reveal a way of seeing things, specific to the speakers of the language arrival.

Niina Bailey, Oisin Harris, Toby Smollet and Kate Williams-

Equivalence: here we describe the content of a given non-linguistic reality but without recourse to analogues.

Adaptation: it renders an unknown situation in the target language by means of reference to a similar situation. This situation is generally widely used by translators but poses a problem. ethical problem as we will see later, in the sense that it does not contribute to the expansion of the cultural space of the target language.

Jacek Tadeusz Waliński Translation Procedure

Chapter two

Presentation and translation of the corous

-Intrduction:

The current chapter represents the practical part of the dissertation it attempts to investigate the procedures and strategies used in medical field .We have supporting our research by dealing with an example of scientific translation in form of translated a famous book. The aim of this chapter is to find equivalent of terms related to the ophthalmology and we try to highlight on these terms that are associated with the theme. Furthermore, we have the purpose which is to link some of what has been mentioned in the theoretical part with the samples chosen, in addition to the methodology used to investigate the validity of the hypothesis .It attempts also to answer questions previously raised, before starting translation we are going to deal with this glossary of common terms in Ophthalmology

Presenting the corpus:

The book « ophtobook » is in English version Ophthobook represents the print edition of the remarkable OphthoBook.com online book and video series. The synergy between this written material and the accompanying online video lectures delivers the most comprehensive and accessible review of ophthalmology ever created. This resource is primarily designed for medical students, optometry students, and individuals not specialized in ophthalmology but seeking a deeper understanding of the eye without getting lost in excessive details. The book is structured into ten chapters covering topics such as Eye History, Anatomy, Glaucoma, Retina, Infection, Neuroophthalmology, Pediatric Ophthalmology, Trauma, Optics, and Lens and Cataract. Each chapter incorporates "pimp questions" that you might encounter in a clinical setting. Additionally, there's a dedicated chapter comprising ophthalmology board-

review questions, flashcards, and eye-related abbreviations. Notably, each chapter aligns with the corresponding 20-minute video lectures accessible on The corpus we have chosen is: "**Anatomy of the Eye** " We have selected this corpus because it is scientific document that contains texts and terms which serve this study. OphthoBook.com, complemented by engaging cartoons for a more enjoyable learning experience.

II-2-**The author biography:**

Timothy ROOT

Dr. Timothy ROOT is from Florida, growing up in Daytona Beach is a practicing ophthalmologist and cataract surgeon in Daytona. He began cartooning while an undergraduate at Yale University, and continued his medical illustration while earning his medical degree at Columbia University, and illustrated magazine cartoons while at Columbia Medical School in New York City. He wrote and illustrated OphthoBook during his ophthalmology training as a simple guide for students and non-eye doctors who wished to learn more about the eye. Today, Dr. Root practices Ophthalmology in Daytona Beach, Florida Dr. Root has published several medical textbooks, including the popular "OphthoBook.com" which is available for free online and has been downloaded by 300-thousand visitors over the past decade. He is frequently requested to speak at medical schools world wide. Video recordings of his medical lectures are available online and have been watched over four-million times on YouTube … making him one of the most popular eye lecturers in the world.

II-3-**Methodology of analysis the corpus:**

The methodology adopted in this chapter is translating the second chapter of the book in titled: "Ophtobook" edited by Timophy ROOT, aims to investigate the procedures and strategies used in translating terms related to Ophtalmology , from English language into Arabic language. By using the methodology for translation by Jean-Paul Vinay and Jean Darbelnet which called "Comparative Stylistics Approach".

- Examples and procedures used in our translation:

1-Example:

Source langage: cornea

Type : Noun

Translation : القرنية

Type : Noun

Method used : borrowing

Discussion :

We have translated the noun "cornea" into " القرنية " which led to the same meaning, therefore, we adopted the borrowing procedure in translating this term. Because there is not another translation to this word in Arabic we think that it is the right way to render the meaning of the concept. It would be incorrect by using another strategy such Literal translation by giving correct sense and meaning, as mentioned by Vinay and Darbelnet in the Comparative Stylistics Approach

2- Example:

Source langage : **Bowman's membrane**

Type: Noun - noun

Translation: **غشاء بومان**

Type: Noun - Noun

Method used: Calque:

Discussion:

We have translated the expression **Bowman's membrane** into

غشاء بومان which means the same thing, therefore, we adopted the calque procedure in translating,because there is not translation in Arabic of bowmane.

3- Literal translation:

Example:

Source langage: **The eyelid movement**

Type: noun-noun

Translation: حركة الجفن:

Type: noun –noun-

Discussion:

We have translated the expression **the eyelid movement** into"**حركة الجفن:** which means the same thing; therefore, we adopted the literal translation procedure in translating. Because each word has its translation in Arabic we think that it is the meaning of the concept is true.

-4- Adaptation:

Adaptation is a free form of translation technique. It has been used for centuries especially during the 17th and the 18th centuries.Two French linguists, Jean-Paul Vinay and Jean Darbelnet, defined adaptation in the year 1958, as a procedure which can be used whenever the context referred to in the original text does not exist in the culture of the target text, thereby necessitating some form of re-creation..

Discussion:

We have not used this procedure in the translation of the corpus because it is scientific texte and we were going to deal with special term in medicine and as we now adaptation is used especially in cultural field**.**

5-Example:

Source langage: **The Orbital Walls**

Type: adjective - noun

Translation: **الجدران الحجاجية**

Type: noun + adjective

Method used: Transposition:

Discussion:

We have translated the expression **The Orbital Walls** into **الجدران الحجاجية**which means the same thing; therefore, we adopted the Transposition procedure in translating, because each word has its translation in Arabic we think that it is the meaning of the concept is true.

6- Modulation:

Example:

Source langage: Dyschromatopsia

Type: Noun

Translation: اضطراب تمييز الألوان

Type: Noun – Noun-Noun

Discussion:

We have translated the word **Dyschromatopsia** into اضطراب تمييز الألوان which is the definition of this word ilt means the same thing, therefore, we

adopted **modulation** the procedure in translating , because there is not the exact translation of this word in Arabic .

7- Equivalence:

Example :

Source langage : Ophtalmolohy

Type : Noun

Translation : طب العيون

Type : oun + noun

We have translated the word Ophtalmolohy into طب العيون which means the same thing; therefore, we adopted the **- Equivalence** because the word ophthalmology does'not exist in arabic translation

-8 Example:

Source langage : **Hemeralopia:**

Type : Noun

Translation : الهيميرالوبيا

Type : Noun

Method used : borrowing

Discussion :

We have translated the noun " **Hemeralopia:**" into " الهيميرالوبيا " the same there is not word in arabicwhich led to sam meaning so we are obliged to translate it by the borrowing procedure.

-9 Example:

Source langage : **Corneal transplant**

Type : adjective-noun

Translation : زرع القرنية

Type : noun-noun

Method used : transposition

Discussion :

We have translated the expression " **Corneal transplant** " into " زرع القرنية " which means the same thing but there is a differnce in grammatical structure of the two expressions.

10- Example:

Source langage: **detached retina**

Type : Noun

Translation : انفصال الشبكية

Type : Noun

Method used : literal translation

Discussion :

We have translated the noun " **detached retina** " into " انفصال الشبكية" which means the same thing, we adopted the literal translation procedure in translating this term.

Appendices

II-4- **Translation and analysis :**

Chapter 2:

"Anatomy of the Eye"

Before discussing conditions affecting the eye, we need to review some basic eye anatomy. Anatomy can be painful for some (personally, I hated anatomy in medical school) so I'm going to keep this simple. Let us start from the outside and work our way toward the back of the eye.

The eyelids:

The eyelids protect and help lubricate the eyes. The eyelid skin itself is very thin, containing no subcutaneous fat, and is supported by a tarsal plate. This tarsal plate is a fibrous layer that gives the lids shape, strength, and a place for muscles to attach.

Underneath and within the tarsal plate lie meibomian glands. These glands secrete oil into the tear film that keeps the tears from evaporating too quickly. Meibomian glands may become inflamed and swell into a granulomatous chalazion that needs to be excised. Don't confuse a chalazion with a stye. A stye is a pimple-like infection of a sebaceous gland or eyelash follicle, similar to a pimple, and is superficial to the tarsal plate. Styes are painful, while chalazions are not.

The eyelid movement:

Two muscles are responsible for eyelid movement. The orbicularis oculi closes the eyelids and is innervated by cranial nerve 7. Patients with a facial nerve paralyses, such as after Bell's Palsy, can't close their eye and the eye may need to be patched (or sutured closed) to protect the cornea. The levator palpebrae opens the eye and is innervated by CN3. Oculomotor nerve palsy is the major cause of ptosis (drooping of the eye). In fact, a common surgical treatment for ptosis involves shortening the levator tendon to open up the eye.

قبل مناقشة الحالات التي تؤثر على العين، نحتاج إلى مراجعة بعض أساسيات التشريح التي قد تكون مزعجة بالنسبة للبعض امانا شخصيًا، كنت أكره علم التشريح في كلية الطب لكن سأحاوان اجعل هذا الأمر بسيطً . دعونا نبدأ من الخارج ونبدا بالجزء الخلفي من العين.

الجفون:

تحمي الجفون العينين وتساعد على تليينهما.يعتبر جلد الجفن رقيق جدًا، ولا يحتوي على دهون تحت الجلد، وتدعمه صفيحة رصغية. هذه الصفيحة الرصغية عبارة عن طبقة ليفية تعطي الجفون الشكل والقوة ومكانًا لربط العضلة و جعلهامتماسكة و توجد داخل الصفيحة الرصغية غدد ميبوميان. تفرز هذه الغدد الزيت في الغشاء الدمعي الذي يمنع الدموع من التبخر بسرعة كبيرة. قد تلتهب غدد ميبوميان وتنتفخ لتتحول إلى برد حبيبي يحتاج إلى استئصاله الا انه يجب علينا التمييز بين البردة والدمل. الدمل هو عدوى تشبه البثرة تصيب الغدة الدهنية أو جريب الرموش ، تشبه البثرة، وتكون سطحية على الصفيحة الرصغية. الدمل مؤلم، في حين أن البردة ليست كذلك.

حركة الجفن:

هناك عضلتان مسؤولتان عن حركة الجفن. تغلق العضلة الدائرية العينية الجفون ويتم تعصيبها بواسطة العصب القحفي 7. لا يستطيع المرضى الذين يعانون من شلل العصب الوجهي، مثل شلل بيل، إغلاق أعينهم وقد تحتاج العين إلى ترقيع (أو إغلاقها بالخياطة) لحماية القرنية. يفتح الجفن الرافعي العين ويعصبه س ن 3 و شلل العصب الحركي هو السبب الرئيسي لتدلي العين في الواقع يتضمن العلاج الجراحي الشائع لتدلي الجفون تقصير الوتر الرافعة لفتح العين.

The conjunctiva:

The conjunctiva is a mucus membrane that covers the front of the eyeball. When you examine the "white part" of a patient's eyes, you're actually looking through the semi-transparent conjunctiva to the white sclera of the eyeball underneath. The conjunctiva starts at the edge of the cornea (this location is called the limbus). It then flows back behind the eye, loops forward, and forms the inside surface of the eyelids. The continuity of this conjunctiva is important, as it keeps objects like eyelashes and your contact lens from sliding back behind your eyeball. The conjunctiva is also lax enough to allow your eyes to freely move. When people get conjunctivitis, or "pink eye," this is the tissue layer affected.

There is a thickened fold of conjunctiva called the semilunar fold that is located at the medial canthus – it is a homolog of the nictitating membrane seen on sharks.

Tear Production and drainage:

The majority of tears are produced by accessory tear glands located within the eyelid and conjunctiva. The lacrimal gland itself is really only responsible for reflexive tearing. Tears flow down the front of the eye and drain out small pores, called lacrimal punctum, which arise on the medial lids. These puncta are small, but can be seen with the naked eye. After entering the puncta, tears flow down the lacrimal tubing and eventually drain into the nose at the inferior turbinate. This explains why you get a runny nose when you cry. In 2-5% of newborns, the drainage valve within the nose isn't patent at birth, leading to excessive tearing. Fortunately, this often resolves on it's own, but sometimes we need to force open the pathway with a metal probe.

Lid Lacerations:

Most lacerations through the eyelid can be easily reaproximated and repaired. However, if a laceration occurs in the nasal quadrant of the lid you have to worry about compromising the canalicular tear-drainage pathway. Canalicular lacerations require cannulation with a silicone tube to maintain patency until the tissue has healed.

Warning: Drug absorption through the nasal mucosa can be profound as this is a direct route to the circulatory system and entirely skips liver metabolism. Eyedrops meant for local effect, such as beta-blockers, can have impressive systemic side effects when absorbed through the nose. Patients can decrease nasal drainage by squeezing the medial canthus after

putting in eyedrops. They should also close their eyes for a few minutes afterwards because blinking acts as a tear pumping mechanism.

الملتحمة:

الملتحمة عبارة عن غشاء مخاطي يغطي الجزء الأمامي من مقلة العين. عندما تفحص "الجزء الأبيض" من عين المريض ، فإنك تنظر في الواقع من خلال الملتحمة شبه الشفافة إلى الصلبة البيضاء في مقلة العين تحتها. تبدأ الملتحمة عند حافة القرنية (ويسمى هذا الموقع الحوف). ثم يتدفق للخلف خلف العين، ويلتف للأمام، ويشكل السطح الداخلي للجفون. إن استمرارية هذه الملتحمة أمر مهم، لأنها تمنع الأشياء مثل الرموش والعدسات اللاصقة من الانزلاق خلف مقلة العين. الملتحمة أيضًا لينة بدرجة كافية للسماح لعينيك بالتحرك بحرية. عندما يصاب الأشخاص بالتهاب الملتحمة، أو "العين الوردية"، فهذه هي طبقة الأنسجة المتضررة.

هناك طية سميكة من الملتحمة تسمى الطية الهلالية وتقع في المظلة الإنسية - وهي تماثل للغشاء الراف الذي يظهر في أسماك القرش

إنتاج وتصريف الد موع:

تم إنتاج غالبية الدموع عن طريق الغدد الدمعية الإضافية الموجودة داخل الجفن والملتحمة. الغدة الدمعية نفسها مسؤولة فقط عن التمزق الانعكاسي. تتدفق الدموع إلى أسفل الجزء الأمامي من العين وتستنزف المسام الصغيرة، التي تسمى النقطة الدمعية، والتي تنشأ على الجفون الوسطى. هذه النقاط صغيرة الحجم ولكن يمكن رؤيتها بالعين المجردة.

بعد دخول النقاط الدمعية، تتدفق الدموع عبر الأنابيب الدمعية وتصب في النهاية في الأنف عند المحارة السفلية. وهذا ما يفسر سبب إصابتك بسيلان الأنف عند البكاء. في 2-5% من الأطفال حديثي الولادة، لا يكون صمام التصريف داخل الأنف واضحًا عند الولادة، مما يؤدي إلى التمزق المفرط. لحسن الحظ، نفسها، ولكن في بعض الأحيان نحتاج إلى فتح المسار بالقوة غالبًا ما يتم حل هذه المشكلة من تلقاء باستخدام مسبار معدني.

تمزقات الغطاء:

معظم التمزقات التي تحدث في الجفن يمكن إعادة تقريبها وإصلاحها بسهولة. ومع ذلك، إذا حدث تمزق في الربع الأنفي من الجفن، فلا داعي للقلق بشأن الإضرار بمسار تصريف الدموع. تتطلب تمزقات القناة إدخال القنية باستخدام أنبوب السيليكون للحفاظ على المباح حتى تلتئم الأنسجة.

تنبيه: يمكن أن يكون امتصاص الدواء عبر الغشاء المخاطي للأنف عميقًا لأنه طريق مباشر إلى الدورة الدموية ويتخطى عملية التمثيل الغذائي في الكبد تمامًا. قطرات العين المخصصة للتأثير الموضعي، مثل حاصرات بيتا، يمكن أن يكون لها آثار جانبية جهازية مثيرة للإعجاب عند امتصاصها عن طريق الأنف. يمكن للمرضى تقليل تصريف الأنف عن طريق الضغط على القناة الوسطى بعد وضع قطرات العين. ويجب عليهم أيضًا إغلاق أعينهم لبضع دقائق بعد ذلك لأن الرمش يعمل كآلية لضخ الدموع.

The eyeball:

The eyeball is an amazing structure. It is only one inch in diameter, roughly the size of a ping-pong ball, and is a direct extension of the brain. The optic nerve is the only nerve in the body that we can actually see (using our ophthalmoscope) in vivo.

The outer wall of the eye is called the sclera. The sclera is white, fibrous, composed of collagen, and is actually continuous with the clear cornea anteriorly. In fact, you can think of the cornea as an extension of the sclera as they look similar under the microscope. The cornea is clear, however, because it is relatively dehydrated. At the back of the eye, the sclera forms the optic sheath encircling the optic nerve.

The eyeball is divided into three chambers, not two as you might expect. The anterior chamber lies between the cornea and the iris, the posterior chamber between the iris and the lens, and the vitreous chamber extends from the lens back to the retina.

The eye is also filled with two different fluids. Vitreous humor fills the back vitreous chamber. It is a gel-suspension with a consistency similar to Jell-O. With age and certain degenerative conditions, areas of the vitreous can liquefy. When this occurs, the vitreous can fall in upon itself – usually a harmless event called a PVD (posterior vitreous detachment). However, this normally benign vitreous detachment can sometimes tug on the retina and create small retinal tears.

Aqueous humor fills the anterior and posterior chambers. This is a watery solution with a high nutrient component that supports the avascular cornea and lens. Aqueous is continuously produced in the posterior chamber, flowing forward through the pupil into the anterior chamber, where it drains back into the venous circulation via the Canal of Schlemm. We'll discuss the aqueous pathway in detail in the glaucoma chapter.

مقلة العين:

مقلة العين هي هيكل مذهل يبلغ قطرها بوصة واحدة فقط، أي بحجم كرة بينج بونج تقريبًا، وهي امتداد مباشر للدماغ. العصب البصري هو العصب الوحيد في الجسم الذي يمكننا رؤيته فعليًا (باستخدام منظار العين) في الجسم الحي.

يسمى الجدار الخارجي للعين بالصلبة. الصلبة بيضاء اللون، ليفية، مكونة من الكولاجين، وهي في الواقع متصلة بالقرنية الشفافة من الأمام. في الواقع، يمكنك اعتبار القرنية امتدادًا للصلبة لأنها تبدو متشابهة تحت المجهر. لكن القرنية تكون صافية لأنها تعاني من الجفاف نسبيًا. في الجزء الخلفي من العين، تشكل الصلبة الغمد البصري الذي يحيط بالعصب البصري.

تنقسم مقلة العين إلى ثلاث غرف، وليس غرفتين كما قد تتوقع. وتقع الغرفة الأمامية بين القرنية والقزحية، والحجرة الخلفية بين القزحية والعدسة، وتمتد الغرفة الزجاجية من العدسة إلى شبكية العين.
تمتلئ العين أيضًا بسائلين مختلفين. الفكاهة الزجاجية تملأ الغرفة الزجاجية الخلفية. وهو عبارة عن معلق جل ذو قوام مشابه -جيل او-. مع التقدم في السن وبعض الحالات التنكسية، يمكن لمناطق الجسم الزجاجي أن تسيل. عندما يحدث هذا، يمكن أن يسقط الجسم الزجاجي على نفسه - عادة ما يكون حدثًا غير ضار يسمى (انفصال الجسم الزجاجي الخلفي). ومع ذلك، فإن انفصال الجسم الزجاجي الحميد عادة يمكن أن يسحب في بعض الأحيان شبكية العين ويسبب تمزقات صغيرة في الشبكية.

الفكاهة المائية تملأ الغرفتين الأمامية والخلفية. هذا محلول مائي يحتوي على مكونات مغذية عالية تدعم القرنية والعدسة اللاوعائية. يتم إنتاج الماء بشكل مستمر في الغرفة الخلفية، ويتدفق للأمام من خلال حدقة العين إلى الغرفة الأمامية، حيث يتم تصريفه مرة أخرى إلى الدورة الدموية الوريدية عبر قناة شليم. سنناقش المسار المائي بالتفصيل في فصل الجلوكوما.

The Cornea:

The cornea is the clear front surface of the eye. The cornea-air interface actually provides the majority of the eye's refractive power. The cornea is avascular and gets its nutrition from tears on the outside, aqueous fluid on the inside, and from blood vessels located at the periphery. On cross section, the cornea contains five distinct layers. The outside surface layer is composed of epithelial cells that are easily abraded. Though epithelial injuries are painful, this layer heals quickly and typically does not scar. Under this lies Bowman's layer and then the stroma. The corneal stroma makes up 90% of the corneal thickness, and if the stroma is damaged this can lead to scar formation. The next layer is Descemet's membrane, which is really the basal lamina of the endothelium, the final inner layer.

The inner endothelium is only one cell layer thick and works as a pump to keep the cornea dehydrated. If the endothelium becomes damaged (during surgery or by degenerative diseases) aqueous fluid can flow unhindered into the stroma and cloud up the cornea with edema. Endothelial cell count is very important as these cells don't regenerate when destroyed – the surviving endothelial cells just get bigger and spread out. If the cell count gets too low, the endothelial pump can't keep up and the cornea swells with water, possibly necessitating a corneal transplant to regain vision.

Decemet's membrane is "deep," while Bowman's layer is high up in the "belfry." A belfry is a room, usually high up in a tower, where bells are hung.

The angle formed by the inner cornea and the root of the iris is particularly important in ophthalmology. Here you find the trabecular meshwork with its underlying Schlemms Canal. This is where aqueous is drained, and blockage of this pathway/angle will become important as we discuss glaucoma.

القرنية:

القرنية هي السطح الأمامي الشفاف للعين و توفر واجهة القرنية والهواء في الواقع غالبية قوة انكسار العين. القرنية غير وعائية وتحصل على تغذيتها من الدموع الموجودة في الخارج، والسوائل المائية في الداخل، ومن الأوعية الدموية الموجودة في الأطراف.

تحتوي القرنية على خمس طبقات متميزة في المقطع العرضي و تتكون الطبقة السطحية الخارجية من خلايا ظهارية تتآكل بسهولة على الرغم من أن الإصابات الظهارية مؤلمة، إلا أن هذه الطبقة تشفى بسرعة ولا تترك ندبات. تحت هذه الطبقة تقع طبقة بومان ومن ثم السدى. يشكل سدى القرنية 90% من سمك القرنية، وإذا تلف السدى يمكن أن يؤدي ذلك إلى تكوين ندبة. الطبقة التالية هي غشاء ديسميه، وهو في الحقيقة الصفيحة القاعدية للبطانة، وهي الطبقة الداخلية الأخيرة.

تبلغ سماكة البطانة الداخلية طبقة خلية واحدة فقط وتعمل كمضخة للحفاظ على جفاف القرنية. في حالة تلف البطانة (أثناء الجراحة أو بسبب الأمراض التنكسية)، يمكن أن يتدفق السائل المائي دون عوائق إلى السدى ويغطي القرنية بالوذمة. يعد عدد الخلايا البطانية مهمًا جدًا لأن هذه الخلايا لا تتجدد عند تدميرها - فالخلايا البطانية الباقية تكبر وتنتشر. إذا انخفض عدد الخلايا بشكل كبير، فلن تتمكن المضخة البطانية من الاستمرار وتنتفخ القرنية بالماء، مما قد يستلزم إجراء عملية زرع قرنية لاستعادة الرؤية.

غشاء ديسيميت "عميق"، بينما طبقة بومان مرتفعة في "برج الجرس". برج الجرس عبارة عن غرفة، عادة ما تكون مرتفعة في البرج، حيث يتم تعليق الأجراس.

زاوية الغرفة الأمامية:

تعتبر الزاوية التي تشكلها القرنية الداخلية وجذر القزحية ذات أهمية خاصة في طب العيون. هنا تجد الشبكة التربيقية مع قناة شليمز الأساسية. هذا هو المكان الذي يتم فيه تصريف الماء، وسيصبح انسداد هذا المسار/الزاوية مهمًا عندما نناقش الجلوكوما.

The Uvea (iris, ciliary body, choroid) :

The iris, ciliary body, and the choroid plexus are all continuous with each other and are collectively called the uvea. This is an important term, as many people can present with painful "uveitis" – spontaneously or in associated with rheumatologic diseases.

The **iris** is the colored part of the eye and its primary function is to control the amount of light hitting the retina. Sympathetic stimulation of the pupil leads to pupil dilation and parasympathetic stimulation leads to constriction. In other words, if you see a bear in the woods, your sympathetics kick in, and your eyes dilate so you can see as much as possible as you run away. I'll be using this mnemonic/metaphor many times throughout this book to help you remember this concept.

The inner iris flows back and becomes the **ciliary body**. The ciliary body has two functions: it secretes aqueous fluid and it controls the shape of the lens. The ciliary body contains sphincter muscles that change the lens shape by relaxing the zonular fibers that tether to the lens capsule.

The **choroid** is a bed of blood vessels that lie right under the retina. The choroid supplies nutrition to the outer one-third of the retina which includes the rod and cone photoreceptors. Retinal detachments can separate the retina from the nutritious choroid, which is disastrous for the photoreceptors as they quickly die without thisnourishment.

Lens:

The lens sits behind the iris. The lens is unique in that it doesn't have any innervation or vascularization. It gets its nourishment entirely from nutrients

floating in the aqueous fluid. The lens also has the highest protein concentration of any tissue in the body (65% water, 35% protein).

The lens has three layers in a configuration similar to a peanut M&M. The outer layer is called the capsule. The capsule is thin with a consistency of saran wrap and holds the rest of the lens in place. The middle layer is called the cortex, while the central layer is the hard nucleus. Cataracts are described by where they occur such as nuclear cataracts, cortical cataracts, and subcapsular cataracts. With cataract surgery the outer capsule is left behind and the artificial lens is placed inside this suporting bag.

The capsule is held in place by suspensory ligaments called zonules that insert around the periphery and connect to the muscular ciliary body. Contraction of the ciliary muscle causes the zonule ligaments to relax (think about that for a minute), allowing the lens to become rounder and increase its refracting power for close-up reading.

In children the lens is soft but with age the lens hardens and becomes less pliable. After age 40 the lens starts having difficulty "rounding out" and people have problems focusing on near objects. This process is called presbyopia.

Almost everyone over 50 needs reading glasses because of this hardening of the lens.

العنبية القزحية، الجسم الهدبي المشيمية :

القزحية والجسم الهدبي والضفيرة المشيمية كلها متواصلة مع **بعضها البعض وتسمى مجتمعة العنبية. هذا مصطلح مهم، حيث أن العديد من الأشخاص يمكن أن يصابوا بـ "التهاب القزحية" المؤلم - بشكل عفوي أو مرتبط بأمراض الروماتيزم.**

القزحية هي الجزء الملون من العين ووظيفتها الأساسية هي التحكم في كمية الضوء التي تصل إلى شبكية العين. يؤدي التحفيز الودي لحدقة العين إلى اتساع حدقة العين، بينما يؤدي التحفيز السمبتاوي إلى انقباضها. بمعنى آخر، إذا رأيت دبًا في الغابة، فإن متعاطفيك يتفاعلون معه، وتتسع عيناك حتى تتمكن من الرؤية قدر الإمكان أثناء هروبك. سأستخدم هذا الاستعارة/الاستذكار عدة مرات خلال هذا الكتاب لمساعدتك على تذكر هذا المفهوم.

تتدفق القزحية الداخلية إلى الخلف وتصبح الجسم الهدبي. للجسم الهدبي وظيفتان: إفراز سائل مائي، والتحكم في شكل العدسة. يحتوي الجسم الهدبي على عضلات مصرة تغير شكل العدسة عن طريق إرخاء الألياف النقطية المرتبطة بكبسولة العدسة.

المشيمية عبارة عن سرير من الأوعية الدموية التي تقع مباشرة تحت شبكية العين. توفر المشيمية التغذية للثلث الخارجي لشبكية العين والذي يتضمن المستقبلات الضوئية العصي والمخروطية. يمكن لانفصال الشبكية أن يفصل الشبكية عن المشيمية المغذية، وهو أمر كارثي بالنسبة للمستقبلات الضوئية لأنها تموت بسرعة بدون هذه التغذية.

العد سة:

تقع العدسة خلف القزحية. العدسة فريدة من نوعها من حيث أنها لا تحتوي على أي تعصيب أو أوعية دموية. يحصل على غذائه بالكامل من العناصر الغذائية العائمة في السائل المائي. تحتوي العدسة أيضًا على أعلى تركيز بروتيني لأي نسيج في الجسم (65% ماء، 35% بروتين).

تحتوي العدسة على ثلاث طبقات بتكوين مشابه لفول السوداني ام-ام . الطبقة الخارجية تسمى الكبسولة. الكبسولة رقيقة ولها قوام يشبه غلاف الساران وتثبت بقية العدسة في مكانها. الطبقة الوسطى تسمى القشرة، بينما الطبقة المركزية هي النواة الصلبة. يتم وصف إعتام عدسة العين حسب مكان حدوثها، مثل إعتام عدسة العين النووي، وإعتام عدسة العين القشرية، وإعتام عدسة العين تحت المحفظة. في جراحة إزالة المياه البيضاء يتم ترك الكبسولة الخارجية ويتم وضع العدسة الاصطناعية داخل هذا الكيس الداعم.

يتم تثبيت الكبسولة في مكانها بواسطة أربطة معلقة تسمى المناطق التي تدخل حول المحيط وتتصل بالجسم الهدبي العضلي. يؤدي تقلص العضلة الهدبية إلى استرخاء أربطة المنطقة (فكر في ذلك لمدة دقيقة)، مما يسمح للعدسة بأن تصبح مستديرة وتزيد من قدرتها الانكسارية للقراءة عن قرب.
عند الأطفال تكون العدسة ناعمة ولكن مع تقدم العمر تتصلب العدسة وتصبح أقل مرونة. بعد سن الأربعين، تبدأ العدسة في مواجهة صعوبة في "تقريبها" ويواجه الأشخاص مشاكل في التركيز على الأشياء القريبة. وتسمى هذه العملية طول النظر الشيخوخي. يحتاج كل شخص يزيد عمره عن 50 عامًا تقريبًا إلى نظارات القراءة بسبب تصلب العدسة

The Retina:

The retina is the sensory portion of the eye and contains layers of photoreceptors, nerves, and supporting cells. Histologically, many cell layers can be seen, but they are not worth memorizing at this point. The important ones include the photoreceptor layer, which is located further out (towards the periphery), and the ganglion nerve layer which lies most inward (toward the vitreous). For light to reach the photoreceptor it has to pass through many layers. After light reaches the photoreceptors the visual signal propagates back up to the ganglion nerves. These ganglion nerves, in turn, course along the surface of the retina toward the optic disk and form the optic nerve running to the brain.

The macula:

The macula is the pigmented area of the retina that is responsible for central vision. Within the central macula lies the fovea, which is a small pit that is involved with extreme central vision. The fovea is very thin and derives its nutrition entirely from the underlying choroid, making it susceptible to injury during retinal detachments.

The optic disk is the entry and exit point of the eye. The central retinal artery and vein pass through here, along with the the ganglion nerves that form the optic nerve. A physiologic divot or "cup" can be found here that will become important when we talk about glaucoma.

The Orbital Walls:

Seven different bones form the orbital walls: don't be intimidated by this complexity, however, as these bones are not that confusing when you break them down. For example, the roof of the orbit is a continuation of the frontal bone, the zygomatic bone forms the strong lateral wall, while the maxillary bone creates the orbital floor. This makes sense, and you could probably guess these bones from the surrounding anatomy.

The medial wall is a little more complex, however, but is mainly formed by the lacrimal bone (the lacrimal sac drains tears through this bone into the nose) and the ethmoid bone. The thinnest area in the orbit is a part of the ethmoid bone called the lamina papyracea. Sinus infections can erode through this "paper-thin wall" into the orbital cavity and create a dangerous orbital cellulites.

شبكية العين:

شبكية العين هي الجزء الحسي من العين وتحتوي على طبقات من المستقبلات الضوئية والأعصاب والخلايا الداعمة من الناحية النسيجية، يمكن رؤية العديد من طبقات الخلايا، لكنها لا تستحق الحفظ في هذه المرحلة. وتشمل الطبقات المهمة طبقة المستقبلات الضوئية، التي تقع في الخارج (باتجاه المحيط)، وطبقة العصب العقدي التي تقع أكثر إلى الداخل (باتجاه الجسم الزجاجي). لكي يصل الضوء إلى المستقبل الضوئي، يجب أن يمر عبر عدة طبقات. بعد وصول الضوء إلى المستقبلات الضوئية، تنتشر الإشارة البصرية مرة أخرى إلى الأعصاب العقدية. وتسير هذه الأعصاب العقدية بدورها على طول سطح الشبكية باتجاه القرص البصري وتشكل العصب البصري الذي يمتد إلى الدماغ

البقعة :

هي المنطقة المصطبغة في شبكية العين المسؤولة عن الرؤية المركزية. داخل البقعة المركزية تقع النقرة، وهي حفرة صغيرة تشارك في الرؤية المركزية القصوىوتعتبر رقيقة جدًا وتستمد تغذيتها بالكامل من المشيمية الأساسية، مما يجعلها عرضة للإصابة أثناء انفصال الشبكية.

القرص البصري هو نقطة الدخول والخروج للعين. يمر من هنا الشريان والوريد الشبكي المركزي، بالإضافة إلى الأعصاب العقدية التي تشكل العصب البصري. يمكن العثور هنا على فتحة فسيولوجية أو "كوب" ستصبح مهمة عندما نتحدث عن الجلوكوما.

الجدران الحجاجية:

تشكل الجدران الحجاجية سبع عظام مختلفة: لا تخف من هذا التعقيد، لأن هذه العظام ليست مربكة عند كسرها. على سبيل المثال، سقف الحجاج هو استمرار للعظم الجبهي، ويشكل العظم الوجني الجدار الجانبي القوي، بينما يشكل عظم الفك العلوي أرضية الحجاج. وهذا منطقي، وربما يمكنك تخمين هذه العظام من خلال التشريح المحيط بها.

Despite the fragility of the medial wall, it is well buttressed by surrounding bones, such that it’s the orbital floor that breaks most often during blunt trauma. The maxillary bone fractures downward and the orbital contents can herniate down into the underlying maxillary sinus. This is called a “blowout fracture” and can present with enopthalmia (a sunken-in eyeball) and problems with eye-

movements from entrapment of the inferior rectus muscle. We’ll discuss blow-out fractures in more detail in the trauma chapter.

The back of the orbit is formed by the greater wing of the sphenoid bone, with the “lesser wing” surrounding the optic canal. There’s also a little palatine bone back there in the middle, but don’t worry about that one!

The Apex: Entrance into the Orbit:

The orbital apex is the entry point for all the nerves and vessels supplying the orbit. The superior orbital fissure lies between the wings of the sphenoid bones, through which many vessels and nerves pass into the orbit.

The "Annulus of Zinn," a muscular band that serves as the insertion point for most of the ocular muscles, rests on top of the superior orbital fissure. The four rectus muscles attach to the annulus and the optic nerve passes right through the middle.

Four rectus muscles control each eye. These muscles insert at the sclera, behind the limbus, and each pull the eye in the direction of their attachment.

The superior, medial, and inferior rectus muscles are all controlled by the oculomotor nerve (III). The lateral rectus, however, is controlled by the abducens (VI) nerve, which makes sense as the lateral rectus "abducts" the eye.

Eye muscles:

The remaining two eye muscles are the superior and inferior oblique muscles. The superior oblique also originates in the posterior orbit, but courses nasally until it reaches the trochlea (or "pulley") before inserting onto the eye. The inferior oblique originates from the orbital floor and inserts behind the globe near the macula. Because of these posterior insertions, the oblique muscles are primarily responsible for intorsion and extorsion (rotation of the eye sideways), though they also contribute some vertical gaze action.

Confused, yet? Don't kill yourself learning the action of the oblique muscles or nerve innervation as we'll discuss these topics in greater detail in the neurology chapt

ومع ذلك، فإن الجدار الإنسي أكثر تعقيدًا بعض الشيء، ولكنه يتكون بشكل أساسي من العظم الدمعي (الكيس الدمعي يصرف الدموع عبر هذا العظم إلى الأنف) والعظم الغربالي. أنحف منطقة في المدار هي جزء من العظم الغربالي الذي يسمى الصفيحة البردية. يمكن أن تؤدي عدوى الجيوب الأنفية إلى تآكل هذا "الجدار الرقيق" إلى التجويف الحجاجي وتكوين السيلوليت المداري الخطير.

على الرغم من هشاشة الجدار الإنسي، إلا أنه مدعوم جيدًا بالعظام المحيطة به، بحيث تكون الأرضية الحجاجية هي التي تنكسر في أغلب الأحيان أثناء الصدمة الحادة. ينكسر عظم الفك العلوي إلى الأسفل ويمكن أن تنفتق محتويات الحجاج إلى الجيب الفكي العلوي. وهذا ما يسمى "الكسر الانفجاري" ويمكن أن يظهر مع انحباس العين (مقلة العين الغارقة) ومشاكل في حركات العين من انحباس العضلة المستقيمة السفلية. سنناقش الكسور المتفجرة بمزيد من التفصيل في فصل الصدمات.

يتكون الجزء الخلفي من الحجاج من الجناح الأكبر للعظم الوتدي، مع "الجناح الأصغر" المحيط بالقناة البصرية. يوجد أيضًا عظم حنكي صغير في المنتصف، لكن لا تقلق بشأن ذلك!

القمة:مدخل إلى حجاج العين:

القمة المدارية هي نقطة الدخول لجميع الأعصاب والأوعية التي تغذي المدار. يقع الشق الحجاجي العلوي بين أجنحة العظام الوتدية، ومن خلاله تمر العديد من الأوعية والأعصاب إلى الحجاج.

"حلقة الزن"، وهي شريط عضلي يعمل كنقطة دخول لمعظم عضلات العين، يقع على قمة الشق الحجاجي العلوي. ترتبط عضلات المستقيم الأربعة بالحلقة ويمر العصب البصري مباشرة عبر المنتصف

عضلات العين:

تتحكم في كل عين أربع عضلات مستقيمة. تنغرس هذه العضلات في الصلبة، خلف الحوف، وتسحب كل منها العين في اتجاه ارتباطها.

.(III) يتم التحكم في جميع عضلات المستقيمة العلوية والسفلية والوسطى بواسطة العصب المحرك للعين وهو أمر منطقي لأن المستقيم ،(VI) ومع ذلك، يتم التحكم في المستقيم الجانبي عن طريق العصب المبعد الجانبي "يخطف" العين

تشمل العضلتان المتبقيتان للعين العضلتة المائلة العلوية والسفلية. تنشأ المائلة العلوية أيضًا في الحجاج الخلفي، ولكنها تسير عبر الأنف حتى تصل إلى البكرة (أو "البكرة") قبل أن تدخل في العين.

المائل السفلي ينشأ من أرضية الحجاج ويدخل خلف الكرة الأرضية بالقرب من البقعة. بسبب هذه الإدخالات الخلفية، تكون العضلات المائلة مسؤولة بشكل أساسي عن الالتواء والابتزاز (دوران العين جانبيًا)، على الرغم من أنها تساهم أيضًا في بعض حركات النظر العمودية.

الى هنا يبدو الامر معقدا ؟لكن لا تتعب نفسك وأنت تتعلم عمل العضلات المائلة أو تعصيب الأعصاب، لاننا سنناقش هذه المواضيع بمزيد من التفصيل في فصل علم الأعصاب.

English- Arabic Glossary with definitions

Terms in SL	Translation to TL
Ablation Action of removing from the body one of its organs or a pathological formation. Translation	**استئصال** هو ازالة احد اعضاء الجسم او مكوناته المريضة المريضة
Aberration : All deviation from the normal state. 2. Any defect in the image given by an optical instrument,an optical system . The main aberrations are deletion, translocation, inversion and duplication.	زيغ هي كل انحراف عن الحالة الطبيعية. أي خلل في الصورة المقدمة بواسطة جهاز بصري أو نظام بصري. الانحرافات الرئيسية هي الحذف والنقل والعكس والازدواجية.
Accommodation	العين تكييف
Anterior Chamber	الحجرةالأمامية
Anterior ocular segment	الجزء العيني الأمامي
Aphakia	-انْعِدام العَدَسَة -أباكيا
Argon laser : **Argon :** Chemical element gas with atomic number 18 and mass atomic 39,948.	ليزر الأرجون هو عنصر كيميائي تحت رقم ثمانية عشرة و الكتلة الكيميائية 39,948
Blepharitis	التهاب الجفن
Binocular vision	إبصار بالعينين
Bifocals	ثنائية البؤرة
Blind spot	نقطة عمياء
Bowman's membrane	غشاء بومان يمثل الصفيحة المحددة الامامية للقرنية
Color blindness	عمى الألوان
Cataract: Partial or total opacity of the crystal.Cataract associated with adhesions between the iris and the lens. Translation	**إعتمام عدسة العين** لعتامة الجزئية أو الكلية للبلورةإعتام عدسة العين المرتبط بالالتصاقات بين القزحية والعدسة.
Caruncle	الجمرة
Central islands	جزيرة مركزية

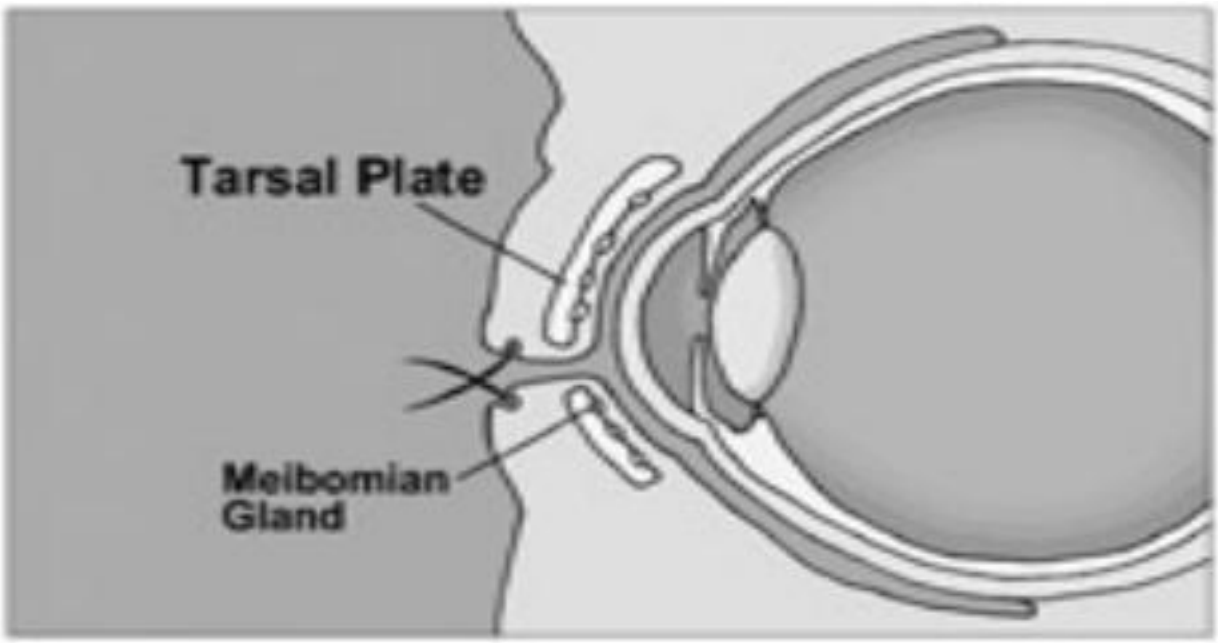
Ciliary body	الجسم الهدبي
Colorblindness	عمى الألوان
Conjonctiva	الملتحمة
Contact lens	عدسات لاصقة
Convergence	التقارب
Cornea	القرنية
Corneal transplant	زرع القرنية
Dyschromatopsia	اضطراب تمييز الألوان
Depth perception	إدراك العمق
Detached retina	انفصال الشبكية
Divergence	تشعب
Diplopia	ا الشفع ازْدِواجية الرُّؤْيَة
Dry eye	عين جافة
Electroretinogram (ERG)	مخطط كهربية الشبكية
Epiphora	دُماع
Emmetropia	سداد البصر
Esophoria	إسوفوريا
Extracular muscle	عضلات خارج الجسم
Foveola	النقرة
Field of vision	مجال الرؤية
Flap	غطاء - سَديلة
Foveolae	النَّقَيراتُ
Fundus	قاع العين
Glaucoma	الجلوكوما - الزرق
Ghost image	المخفية الصور
Glare	وهج
Gonioscopy	تَنْظير الزَّاوِيَة
Halos	هالات – بهر البصر
Haptics	مَبْحَثُ اللَّمْسِيَّات
Haze	ضباب غيم
Hyperopia	مَدُّ البَصَر
Hypoxia	قلة الأوكسجين

Hemeralopia: Abnormally sharp drop in vision when light decreases. Translation	**الهيميرالوبيا:** انخفاض حاد غير طبيعي في الرؤية عندما ينخفض الضوء
Isopter	مُنْحَنَى تَساوِي الإبْصار
Intracapsular cataract surgery	عملية جراحية كتراكت للقناة الداخلية
Intraocular pressure	الضَّغْطُ داخِلَ المُقْلَة
Iridotomy	القُزَحِيَّة بَضْعُ
Iris	القُزَحِيَّة
Ischemia	عجز إقفار
Keratitis	الْتِهابُ القَرْنِيَّة
Keratectomy	قَطْعُ القَرْنِيَّة
Leber hereditary optic	ليبَر البَصَرِيّ الوراثي
Lens	عَدَسَة
Limbus	حافة
Macula	نقطة - بقعة
Neuropathy (LHON)	عَصَبِيٌّ
Nagel anomaloscope	مِقْياسُ شُذوذِ إبْصارِ اللّون
Neuro ophtalmology	العَصَبِيّ الطِبُّ العَيْنِيُّ
Meridian	طول-لخَطّ
Microkeratome	مِبْضَعُ القَرْنِيَّةِ المِجْهَرِيّ
Miosis	انقباض الحدقة
Monovision	الرؤية الأحادية
Orthophoric	البَصَر باسْتِقامَةِ متعلق
Papillomacular bundle	الحُزْمَةُ البُقْعِيَّة الحُلَيمِيَّةُ
Peripapillary atrophy	بالحُلَيمَة ٌ عُتْمَةٌ مُحِيْطَة
Protanomaly	الأحْمَر غَطَشُ
Photophobia	رهاب الضوء
Photopic	متعلق بالضياء
Retinal ganglion cells	خَلاَيا الشَّبَكِيَّةِ العِقْدِيَّة
Scotopic Scotoma Sclera	عتمة الرؤية الليلية للصلبة
Variable expressivity	تعبير متغير

Visual field testing	تجريب ميداني بصري
Visual field	المجال البصري
vitrectomy	اِسْتِئْصالُ الزُّجاجِيَّة
Zonular fibres	الأَلْيافُ النَّطَيقِيَّة للعدسة

Translation of figures into Arabic

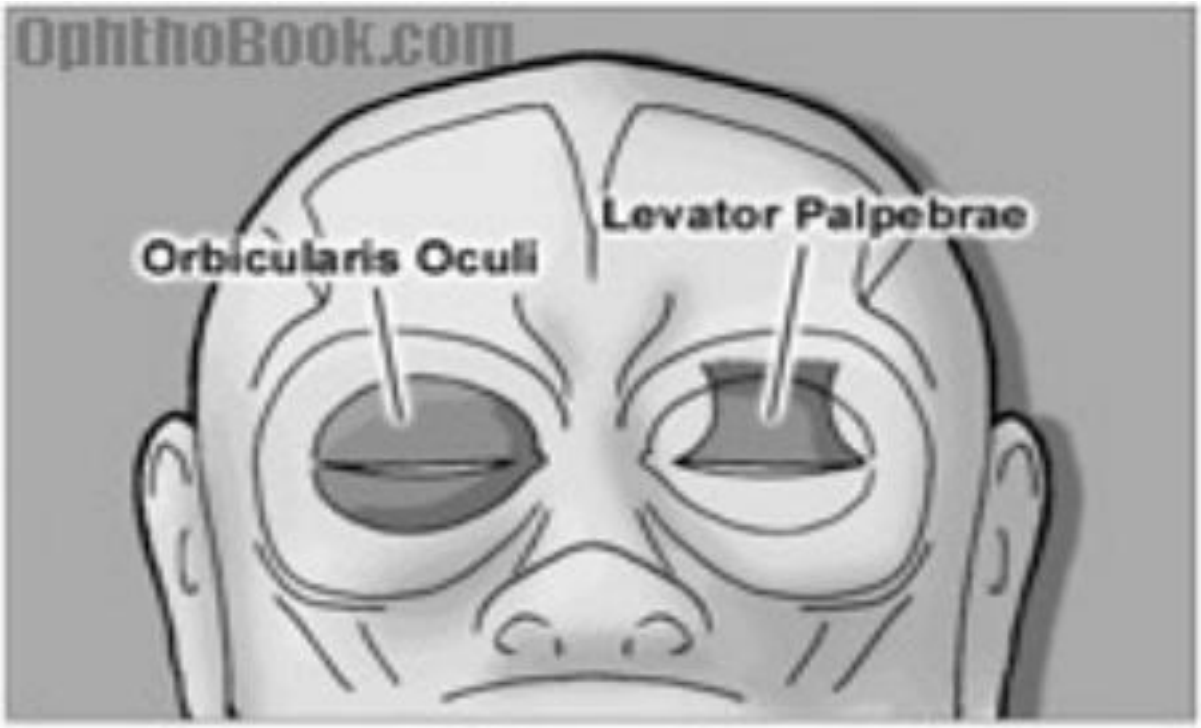
Eyelids **الجفون**



-Tarsal Plate : الصفيحة الجفنية

-Meibomian Gland : غدة ميبونيون

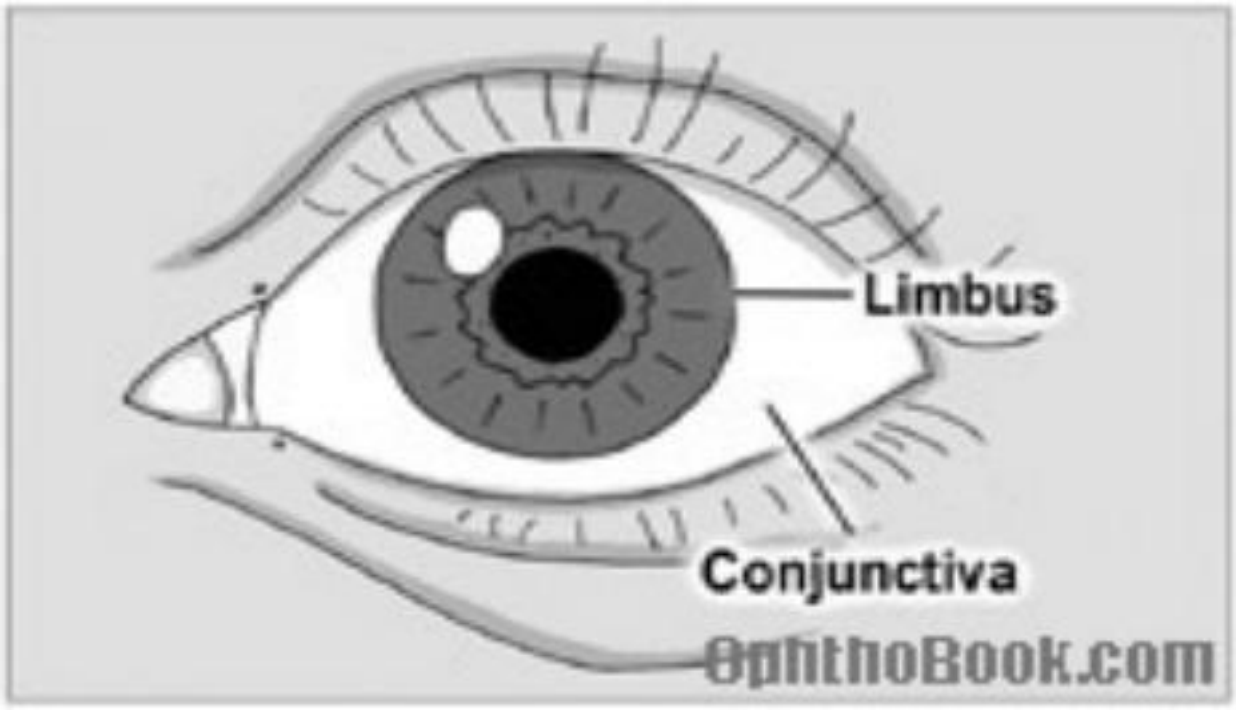
Eyelid Movement حركة الجفن



-Levator Palpebrae:رافعة الجفن
-Orbicularis Oculi: العضلة الدويرية العينية

الملتحمة

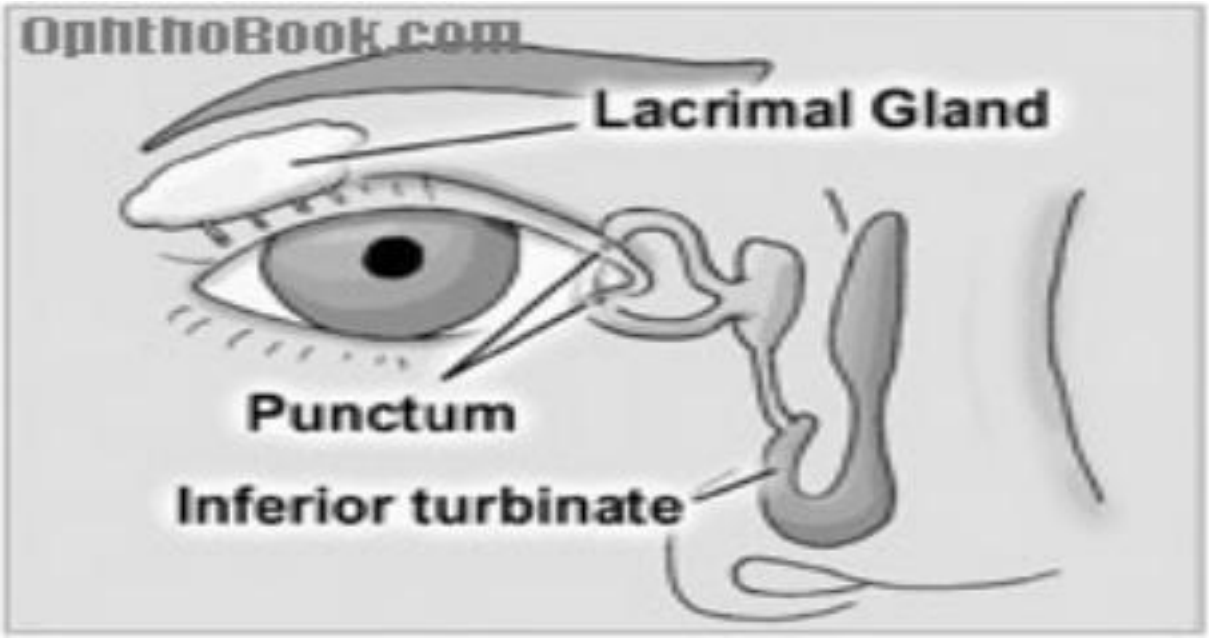
Conjunctiva



-Limbus : حوف من كلمة الحفرة البيضوية

-Conjunctiva : الملتحمة

Tear Production and Drainage إنتاج وتصريف الد موع



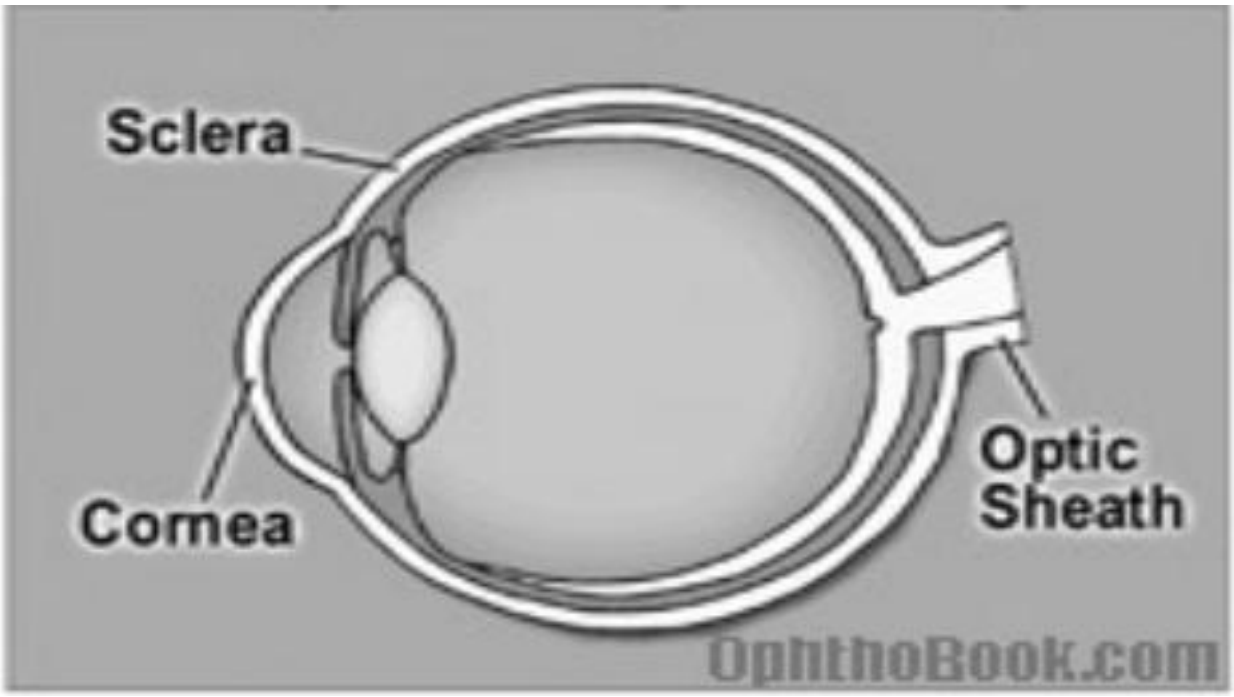
-Lacrimal Gland: الغدة الدمعية

-Punctum النقطة

-Inferior turbinate :نقطة المحارة السفلية

-

The Eyeball:

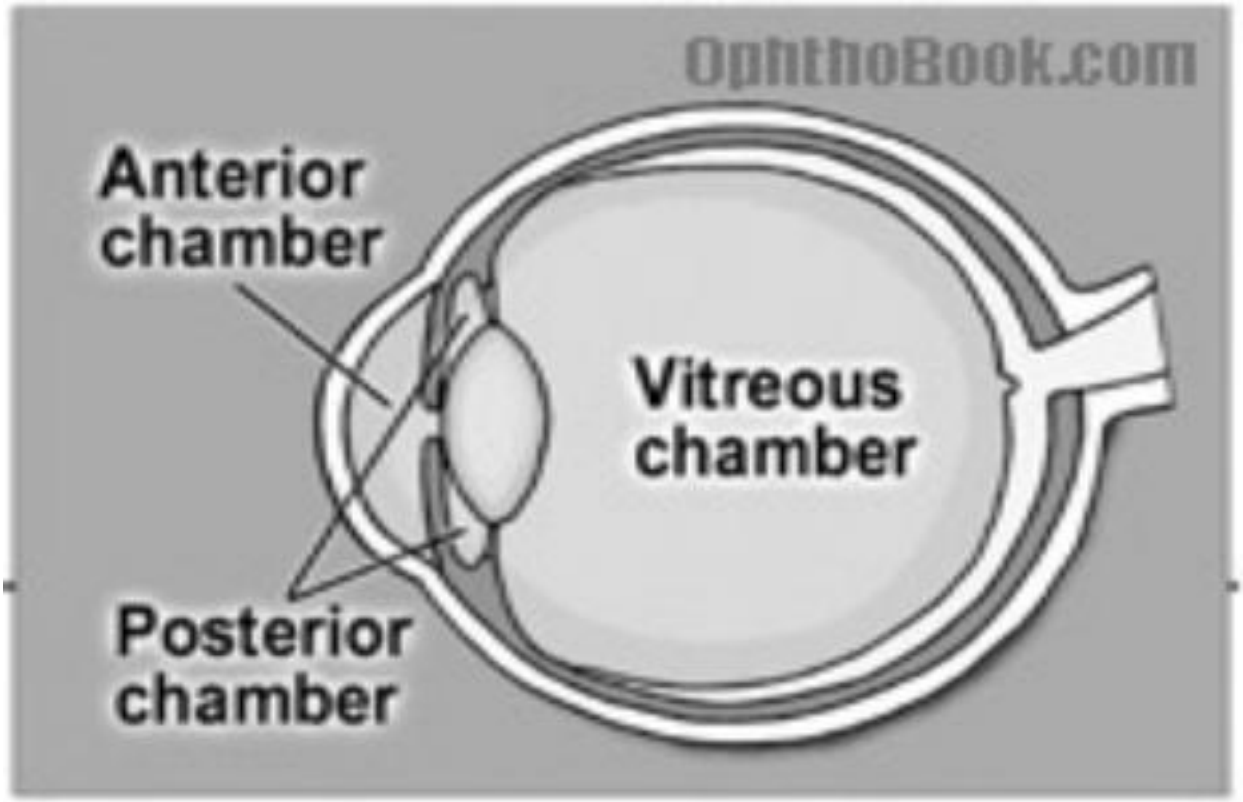


مقلة العين:

-Sclera :الصلبة

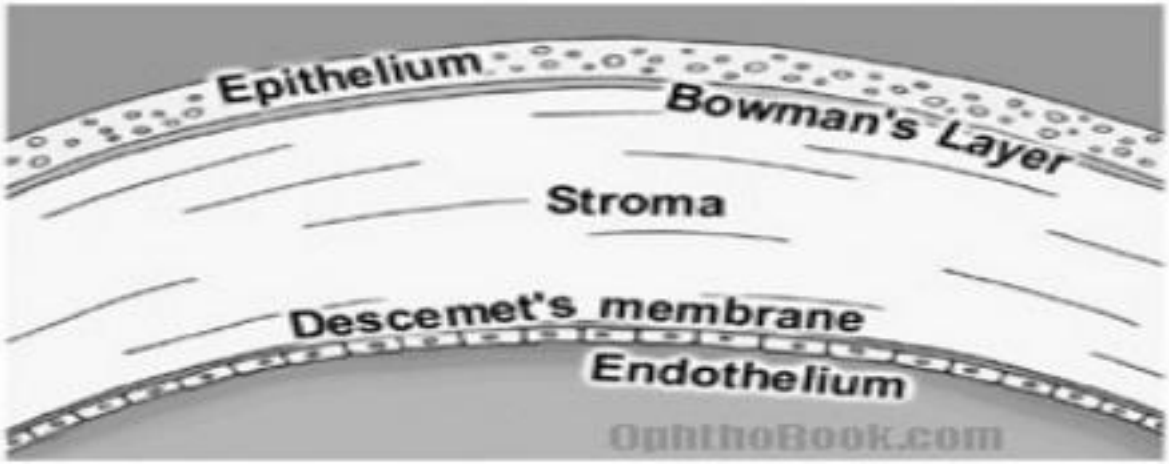
-Cornea :القرنية

- Optic Sheath : الغمد البصري



-Anterior chamber : الغرفة الامامية
-Posterior chamber: الغرفة الخلفية
-Vitreouss chamber : الغرفة الزجاجية

The Cornea **القرنية:**



:

-Epithelium : ظهارة
-Bowman’s layer :صفيحة بومان
-Stroma :لحمة
-Descemet’s membrane: غشاء ديسميه
الصفيحة المحددةالخلفية للقرنية

-Endothelium:البطانة

The Anterior Chamber Angle **زاوية الغرفة الأمامية**

-Iris : القزحية
-Ciliary Body : الجسم الهدبي
-Zonule : منطقة صغيرة

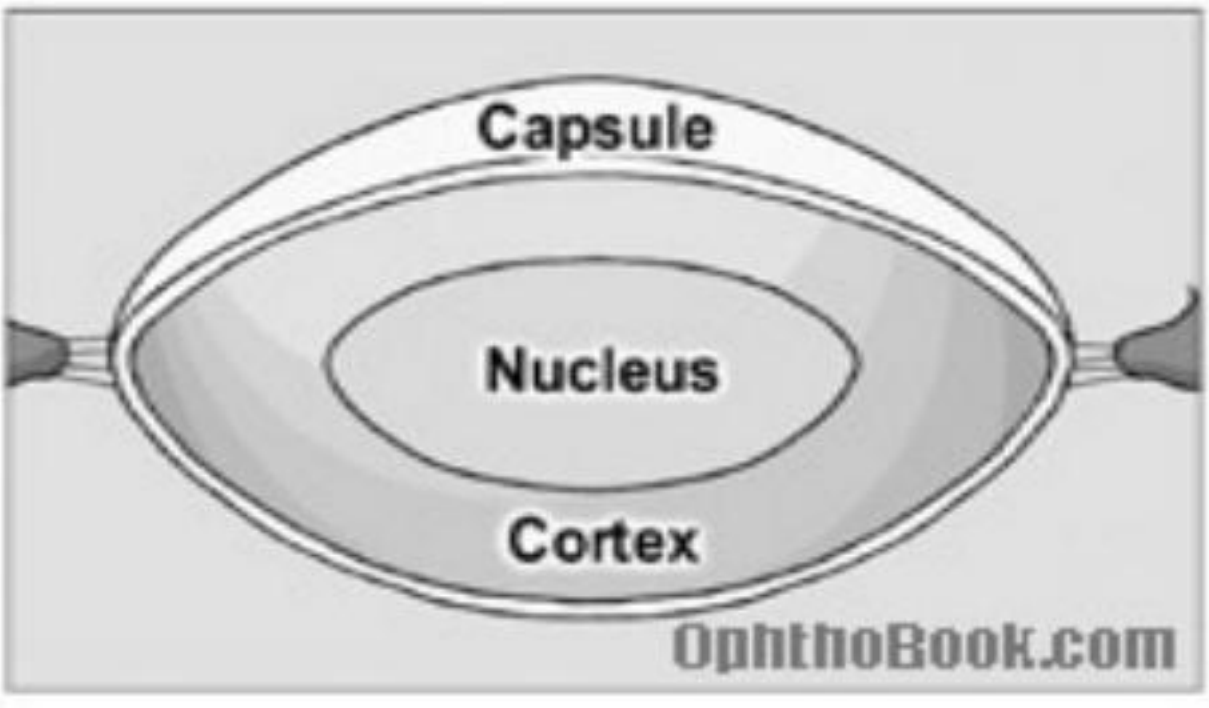
The uvea : iris, ciliary body, choroid

العنبية : القزحية، الجسم الهدبي، المشيمية

-Choroid : **المشيمية**

Lens

العد سة

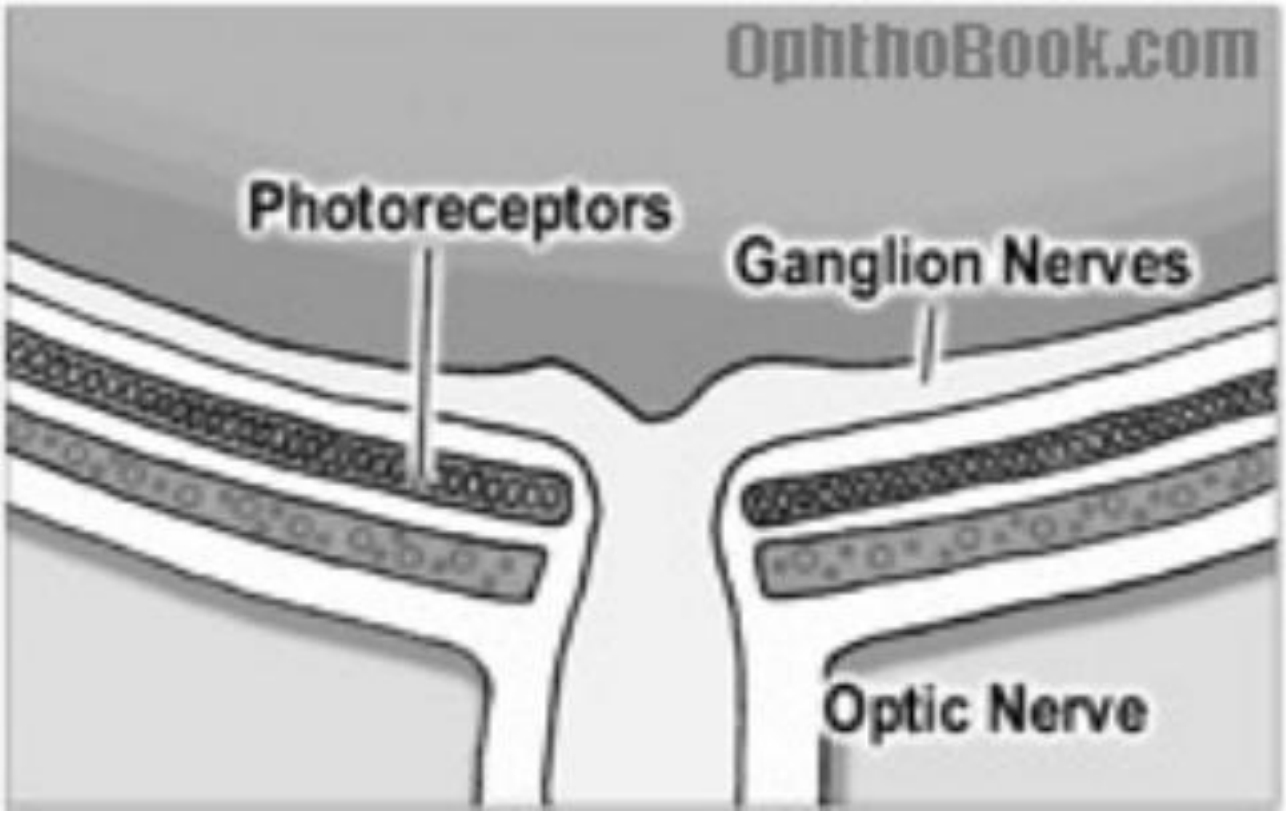


-Capsule : غشاء - غطاء

-Nucleus: نواة

-Cortex : قشرة –طبقة واقية

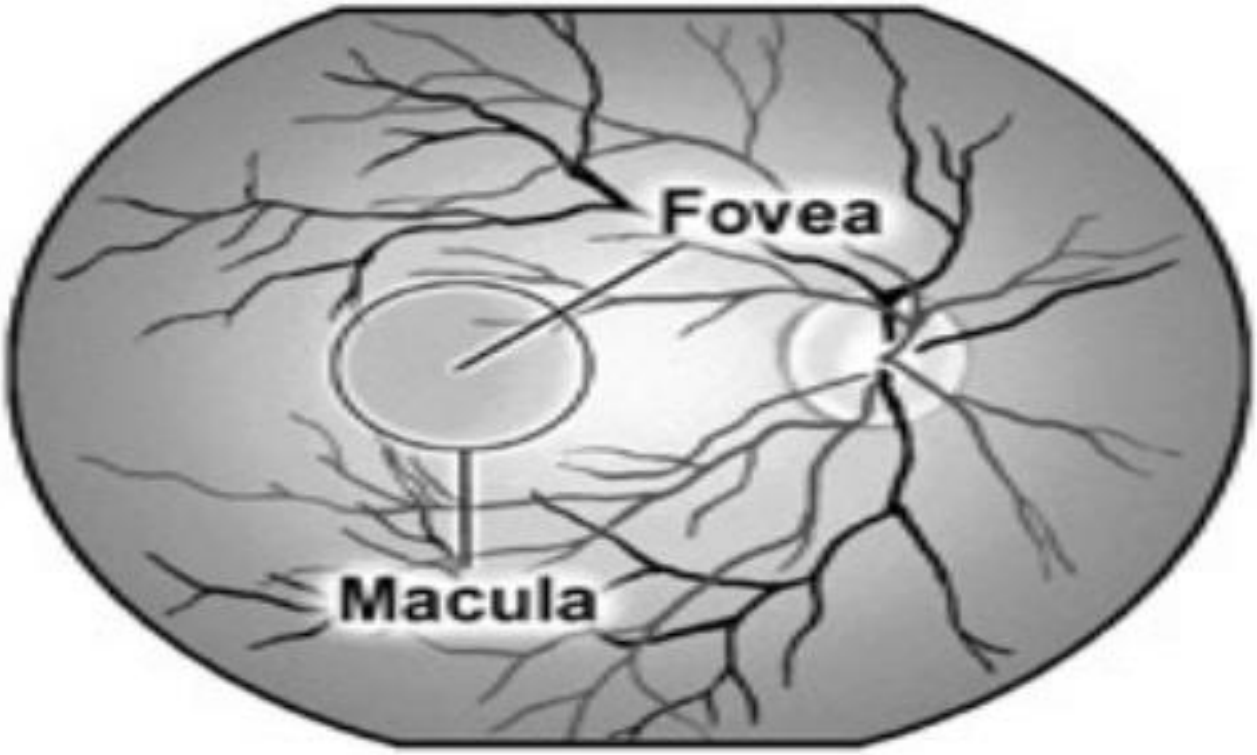
The Retina **شبكية العين**



-photoreceptors : مبصرات –مستقبلات ضوئية

-Ganglion Nerves : العقدة العصبية

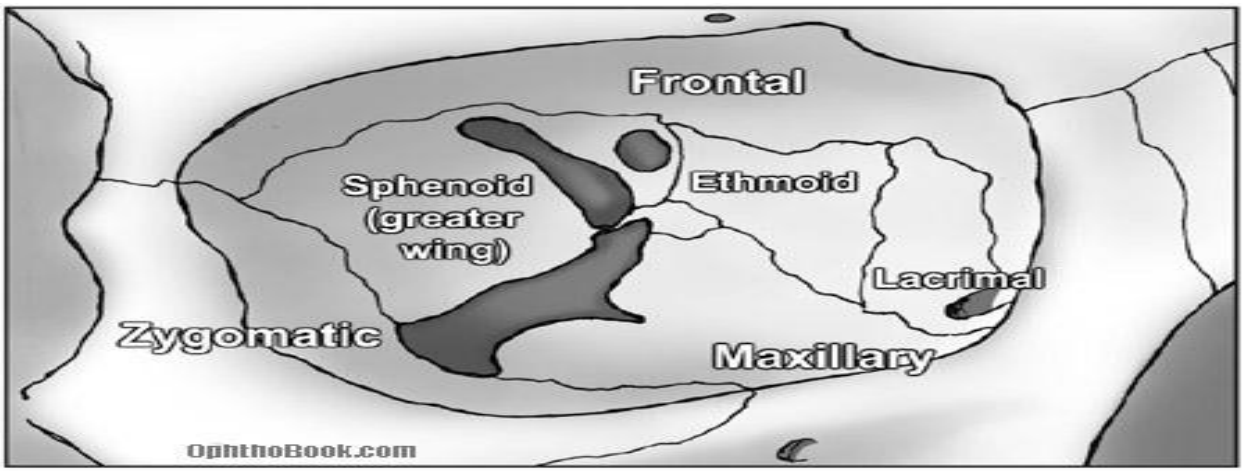
-Optic Nerves :العصب البصري



-Fovea : نقرة –حفيرة

-Macula : بقعة

The Orbital Walls **الجدران الحجاجية**



-Frontal :جبهي

-Ethmoid:غربالي

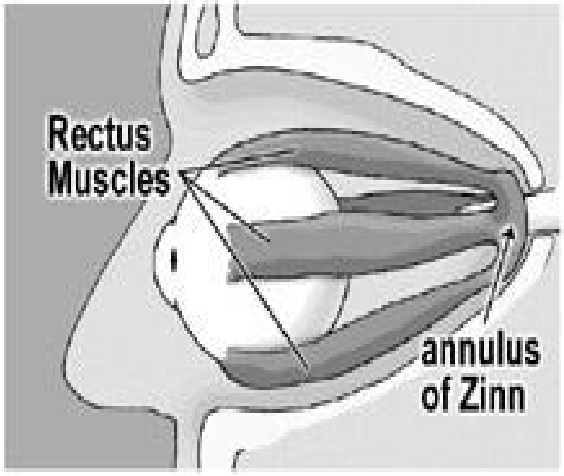
-Sphenoid (great wing): العظم الوتدي

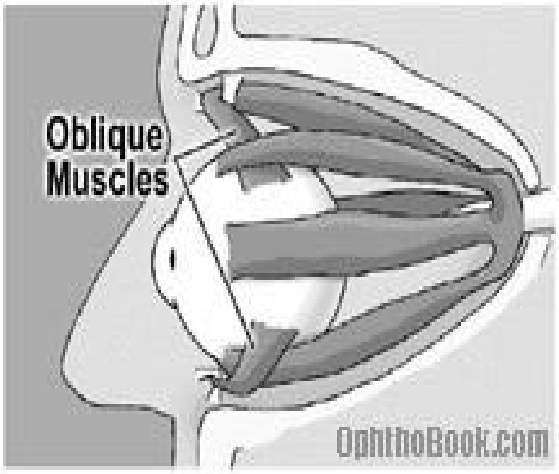
-Zygomatic: وجني – عظم الوجنة

-Maxillary: الفك العلوي

-Lacrimal: النقطة الدمعية

Eye Muscles: **عضلات العين**





-Rectus muscles: عضلات مستقيمة

-Annulus of Zinn :حلقة زين

-Oblique muscles :العضلات المائلة

General conclusion

This study aimed to investigate the challenges and obstacles faced by translators when translating terms associated with ophthalmology from English to the Arabic language. Additionally, the research sought to emphasize the common methods and strategies employed when dealing with specialized terminology in this field.

The research was structured into two main parts: In the first chapter of the theoretical part we elucidated the concept of ophtalmology, including its definitions the etymology, eye deseases.

This chapter provided a comprehensive overview of ophtalmology -related terms within the context of specialized translation and scientific once. It aimed to present the methods and strategies typically utilized by translators when translating these terms from English to Arabic.

In the practical segment, we undertook the translation of chapter two from the book "OphthoBook" authored by Timophy R and the translation of common terms in ophthalmology. This chapter aimed to analyze the structure of terms and collocations related to ophtalmology and how they were translated from English into Arabic.

The analysis of somes examples taken from the corpus revealed that translating such terms presents a significant challenge in the field of translation. These ophtalmology-related terms are not readily found in dictionaries and are of paramount importance in language studies. Translators tackling these scientific terms should possess a sound scientific background.

The translation of a segment from the corpus "ophthoBook" and the analysis of somes examples from the same corpus demonstrated that translators may encounter difficulties when translating ophtalmology-related terms from English to Arabic. However, the use of the comparative stylistics approach of Vinay and Darbelnet can help translators overcome these challenges.

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Summary:

The translation of terms related to the medical field especially to ophthalmology is considered one of the branches of scientific translation, and it is characterized by being one of the most difficult types of translation at all because of its connection to eye anatomy and characteristics. The objective of this research is to illuminate the challenges inherent in translating ophthalmology -related terms from English to Arabic.

The translator often faces difficulties arising from a lack of cultural understanding or the requisite knowledge to wield these terms accurately.

To validate this hypothesis, we conducted a translation exercise using a segment from the book "Ophthobook" This endeavor aims to highlight these terms employing appropriate methodologies, incorporating translation techniques outlined by Vinay and Darbelnet, and subjecting them to thorough analysis and comparison within the context of the Arabic language.

Upon delving into this investigation, it became evident that numerous strategies can be employed to unravel medical terminology, with a focus on adopting effective translation strategies to streamline the overall translation process.

ملخص:

تعتبر ترجمة المصطلحات المتعلقة بالمجال الطبي وخاصة طب العيون أحد فروع الترجمة العلمية، وتتميز بأنها من أصعب أنواع الترجمة على الإطلاق بسبب ارتباطها بتشريح العين وخصائصها. الهدف من هذا البحث هو تسليط الضوء على التحديات الكامنة في ترجمة المصطلحات المتعلقة بطب العيون من الإنجليزية إلى العربية.

غالبًا ما يواجه المترجم صعوبات ناجمة عن نقص الفهم الثقافي أو المعرفة اللازمة لاستخدام هذه المصطلحات بدقة.

وللتحقق من صحة هذه الفرضية، أجرينا تمرين ترجمة باستخدام مقطع من كتابطب العيون ويهدف هذا المسعى إلى تسليط الضوء على هذه المصطلحات باستخدام المنهجيات المناسبة، ودمج تقنيات الترجمة التي حددها فيناي وداربيلنت، وإخضاعها لتحليل ومقارنة شاملين في السياق. للغة العربية .

بعد الخوض في هذا التحقيق، أصبح من الواضح أنه يمكن استخدام العديد من الاستراتيجيات لكشف المصطلحات الطبية، مع التركيز على اعتماد استراتيجيات ترجمة فعالة لتبسيط عملية الترجمة الشاملة