

THE PROMISE

THE PROMISE

AN INTRODUCTION TO
THE HISTORY OF MEDICINE

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Universal Publishers

Irvine • Boca Raton

The Promise: An Introduction to the History of Medicine

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Universal Publishers, Inc.
Irvine • Boca Raton
USA • 2019
www.universal-publishers.com

ISBN: 978-1-62734-270-4 (pbk.)

ISBN: 978-1-62734-271-1 (ebk.)

Typeset by Medlar Publishing Solutions Pvt Ltd., India

Cover design by Ivan Popov

Publisher's Cataloging-in-Publication Data

Names: Nazari, Kourosh, author.

Title: The promise : an introduction to the history of medicine /
Kourosh Nazari.

Description: Irvine, CA : Universal Publishers, 2019.

Identifiers: LCCN 2018965328 | ISBN 978-1-62734-270-4 (paperback) |
ISBN 978-1-62734-271-1 (ebook)

Subjects: LCSH: Medicine--History. | Medicine, Ancient. | Medical
sciences. | Physician and patient. | Patients--Care. | BISAC:
MEDICAL / History. | MEDICAL / Physician & Patient.

Classification: LCC R131.N39 2019 (print) | LCC R131 (ebook) |
DDC 610.9--dc23.

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INTRODUCTION

Medicine has been a part of human development and societal advancement since the beginning of time. The earliest form of medicine was practiced by women when *Homo sapiens* evolved from *Homo erectus*. Women delivered their own babies and cared for them and raised them. Anyone who has experienced a birth of a child can attest to the fact that childbirth definitely is a form of medical practice. Mothers today, as mothers throughout the history of mankind, can detect when something is wrong with their children better than anyone with advanced medical training.

Early observations and experiences of the human condition were passed down to the next generation. Unfortunately, the treatment for many of those ailments was unsatisfactory or ineffective. More importantly, the causes of those ailments were mostly attributed to bad spirits or demons. The treatments for many ailments were to keep the bad spirits away by practicing rituals and activities which did not alter the course of the disease. However, certain ailments are self-limiting, meaning they get better without any actions, thus giving credence to many therapies and practices which were of little use.

Medicine evolved and became structured when early physician philosophers wrote down the conditions they observed and organized the body of information which was available with the

observation of many suffering patients. Ophthalmology and cough disorders are prominent in early medical texts. Through the ages, the understanding of the underlying causes of many disorders were identified with scientific research, and, eventually, effective scientific treatments were developed.

This book will chronicle the voyage of medicine from the early days of human history to today's medicine by highlighting individuals and events that brought us the medicine of the 21st century. Today's medical knowledge and practice have shown great promise and certain deadly habits which should be addressed and dealt with to fulfill its ultimate goal: to serve the patient. Patients are the beneficiaries of medical advances, but they were also the subject of some cruel treatments by the medical community. Some of the harm done to patients was unintentional and some was by design. Thankfully, those outrageous acts against patients were rare and rightfully condemned by the wider medical community.

Currently, medical education is largely tilted toward scientific knowledge with less emphasis on philosophy and history. The poetry side of medicine has been de-emphasized in the new Information Age. Medicine has shifted too far toward data and science, and the patient has become a data point rather than an individual.

The history of medicine is rarely taught in medical schools. This author did not receive a single hour of medical history lecture to appreciate the course of medicine and its triumphs and shortcomings through the centuries. This book attempts to provide an introduction of important figures and events in medicine to the reader. The emphasis of this book is on history and the art of medicine rather than the science of medicine. It is important to realize how we

arrived at this point of medicine and critically analyze the current state of medicine. Medicine is better appreciated if the practitioners learn from the past, and not just its scientific breakthroughs but also its humanity and the ethics which strengthened through the centuries with intermittent breakdowns of its ethos. Medicine is an art which produces many wonders and some tragic outcomes, and its success still depends on the practitioner who should be informed and versed in medicine's history.

CHAPTER 1

THE GREAT OBSERVER

Medicine and the healing of man have been an integral part of human evolution and history. Every phase of the human story has involved healing and caring for the infirmed. The basic idea of medicine is caring for the sick. Every phase of human evolution has had some form of caring and tending to the weak and nurturing the sick back to health.

Three million years ago, *Homo erectus* emerged from the low-browed, big-jawed *hominid Australopithecines*. *Homo erectus* learned to make fire, use stone as tools, and most likely developed speech. This species fanned out of Africa to Europe and Asia, and, eventually, *Homo sapiens* emerged some 150,000 to 200,000 years ago.

There is scant evidence as to how early humans treated sick members. Many early humans suffered traumatic injuries such as falls or attacks by other predatory animals. Infections were most likely anaerobic soil bacteria penetrating the skin to cause gangrene. The life span of early humans was most likely into the mid- to late twenties. Since they were hunter-gatherers, the group was constantly on the move and looking for their next meal.

There are two theories regarding how those early humans cared (or did not care) for the sick. The first theory is abandonment. Since those early humans were on the move, it was not feasible to carry

around the sick and weak members of the group. The weak and sick would be abandoned so the rest of the group could move and find food to ensure the survival of the rest. Evolutionary forces would eliminate the weak and ensure the survival of the fittest. The other theory is nurturing the sick back to health. The sick member is cared for by the rest of the group until he or she is well enough to be an active member of the group.

Observing animals in the wild, I can firmly state that early humans did not neatly exhibit one or the other theory but rather a combination of both. The first physicians or healers were mothers, as is the case with most primates. Human infants take longer to become self-sufficient physically. They require maternal attention for a longer period than other species. Mothers developed caring and nurturing skills to ensure the survival of early humans. Evolutionary forces made mothers the primary healers of early humans. Most likely, if a group of early humans was predominately females, the likelihood of caring for the sick and nurturing them back to health would have been much higher than if the group was predominantly male. A good example is a pride of lions. Lionesses care for the sick and watch each other's cubs. They rarely abandon the old lionesses and share the hunt with the them.

Once humans domesticated animals around 15,000 years ago, communicable diseases started ravaging human populations and continue to do so today even after many thousands of years. Most infectious diseases, such as the common cold, had ravaged other animals before jumping to humans. Pigs introduced influenza to humans and horses gave us the rhinovirus, the common cold.

Tuberculosis and smallpox were introduced to humans by cattle. Predators introduced rabies and anthrax through bites.

Nature has also caused humans misery despite its ample sustenance for mankind. Notably the Ice Age—which commenced around 50,000 BC—caused famine and hardship for early humans. The evidence of medicine in the Ice Age is scant and probably very rudimentary. Anthropology has not provided solid evidence as to the nature of medical care during the Ice Age. With the end of the Ice Age and the beginning of the agricultural phase of human development around 10,000 BC, early signs of medicine began to emerge. The earliest sign of the medicine man was found in France. The 17,000-year-old cave paintings depict humans masked in animal heads performing rituals. These were most likely witch doctors or shamans doing magic on the sick to restore them back to health. Whether they were effective is up for debate, but they provided hope to the sick, which, as many patients can attest, is crucial for healing.

More important than domesticating the animal is the next evolutionary phase of human history: the agricultural era. The agricultural age not only introduced another form of food but also caused a pleasant evolutionary change in human behavior. Before this period, most humans were hunter-gatherers. They would migrate to different parts of the world for food and shelter. With farming, humans developed a bond with the area where they cultivated crops. The land was their asset and their lifeline for food. They organized themselves around these tracts of land and began to develop rules and boundaries to protect their newfound source of food. Humans evolved from the aggressive hunters who roam the plains for their next meal to conservative farmers looking for tranquility to preserve

the farm and the surrounding area. Farming also provided early medicines such as tobacco and cocaine among many herbs that early medicine men used to treat the sick.

When the Ice Age ended 10,000 years ago, humans began to cultivate the land for food and used domesticated animals in daily activities. With the advent of metalworking in the Bronze Age, 6,000 years ago, farming improved and, for the first time, humans were able to harvest crops regularly. With a steady supply of crops, settlements grew and early organized societies began to take shape.

Around 3000 BC, a tract of land between two rivers, about 100 miles upriver from the Persian Gulf in modern-day Iraq, provided the first evidence of written medicine. Those early civilizations developed laws which governed the masses and, at the same time, medical conditions were written down, along with rules governing medical treatments. Since the inception of written medicine, medical practice has been intertwined with society's laws. Law and medicine have been inseparable since its inception around this period.

Hammurabi (1728–1686 BC), the king of Babylon, introduced one of the first legal codes for society. The legal code, which was discovered in Susa, Iran (displayed in Louvre) in 1901, has laws governing medical practice in those early civilizations. It includes a pay scale for physicians and a list of punitive penalties for malpractice. The physician's fees and punishments for malpractice were based on the patient's status in society. If a physician saved a lord's life, he shall get ten shekels of silver (it's pretty generous, as it is equivalent to a laborer's annual earnings). However, if he died, the

physician's hand would be chopped off. If a slave died under the care of a physician, he had to replace him.

The first medical textbook, *The Treatise of Medical Diagnosis and Prognosis*, which consists of around three thousand entries on forty tablets, was discovered in Mesopotamia. Coughing disorders and eye conditions were predominant in those early texts. The liver was considered the vital organ which provided life. There were three types of healers: *asu* (physician) who utilized drugs and performed procedures; *baru* (magician) who used divine knowledge; and *ashipu*, a priest for meditation or exorcism. The patient was treated by one or all members of this professional class. A team approach was utilized as it is today to best attain the optimal outcome. People had a belief that most diseases were the result of bad spirits invading the body. Some interpreted illness as judgment or punishment. Rituals were used to ward off the bad spirit by using potions or sorcery. People did not use these magical interventions exclusively. There is evidence of more than a hundred minerals and herbs used to treat a variety of ailments. It is safe to conclude that, in Mesopotamia, a combination of prayers, sorcery, astrology, animal sacrifice, magic, herbal drugs, and surgery was used to nurture the sick back to health.

Around the same period in Egypt, there is a body of evidence that medicine was organized and practiced utilizing a combination of magic and surgery. Discovered papyrus dated around 1500 BC in Egypt discussed surgical treatment of fractures, wounds, and abscesses. Instructions regarding circumcision, maternal care, detection of pregnancy, and contraception were found on various papyri also discovered in Egypt. Contraception for the early

Egyptians consisted of insertion of pulverized crocodile feces, herbs, and honey into the vagina.

Ebers papyrus (dated 1550 BC) describes twenty-nine eye conditions, fifteen abdominal diseases, and eighteen skin ailments. There are more than 700 herbs, drugs, and animal extracts to treat these various conditions. Treatment of eye conditions and coughs are prominent in this text. *Weakness of sight* (blurred vision) and *darkness* (blindness) are extensively discussed in the text. Treatments were mostly application of ointment made of honey, animal liver extracts, bile of turtle, plants, and herbs to the eye. An example of cough remedy was to heat a mixture of fat and herbs and inhale the smoke. Another treatment written in this papyrus was a cure for baldness which consisted of a drink made from black ass testicles, as well as the penis and vulva of a black lizard. Magic and sorcery are also discussed as part of treatments for some ailments.

Medical specialists existed in Egypt as observed by Herodotus, the great Greek historian, in 500 BC. He observed that there were physicians who treated eye conditions and those who treated the head and teeth. Medical specialties were present in the early years of human civilizations, indicating the need for specialists to treat difficult conditions. Given the prominence of eye diseases in early medical texts, ophthalmologists were probably one of the early specialists. Another notable observation about medicine in those early days is the presence of female physicians which existed in Mesopotamia. Women were an integral part of early medicine from early antiquity to the period when medicine became organized in Mesopotamia.

Around 1000 BC, across the Mediterranean Sea, a new civilization was forming that shared some traits with the Egyptians but with many noticeable differences. The Greek civilization with its array of philosophers, poets, and thinkers was reshaping man's understanding of nature, science, and life. In Homer, Apollo's son Asclepius is described as a skilled healer and the God of Medicine whose male offspring became physicians and his daughters became Hygeia (hygiene) and Panacea (cure). The modern symbol of medicine with its intertwined snakes on a winged staff originated from a statue of Asclepius. The legend of Asclepius spread through Greek societies and temples dedicated to him sprouted all over Ancient Greece. These temples served as healing shrines for the sick. They would sleep in those temples and ask for health and cure from the God of Medicine. These temples served as meeting places for the sick and the merchants of health. There were no regulations or code of conduct similar to those governing medical practice in Mesopotamia. Priests would interpret the patients' dreams at the temple for clues regarding their sickness. Magicians, herbalists, and others were present to provide service to patients.

Among those merchants of health, one school of thought stood as different from others in Greek society and other civilizations before them. Sickness was always considered a divine intervention, a plague from God, or demonic forces. One practitioner from Kos rejected this supernatural explanation of sickness. He believed that disease was the disturbance of equilibrium in the body which caused disease. Restoration of the body's equilibrium would restore a patient's body back to health. Hippocrates of Kos single-handedly

changed the course of medicine and practiced a novel approach to healing which has lasted to the modern day.

Hippocrates was born around 460 BC in Kos and lived for 90 years. He was named after his grandfather which was a widely practiced custom. He was trained under his father Heracleides. Kos, along with two other towns, had Asclepius temples dedicated to teaching medicine. Hippocrates had an advantage of learning from his father as well as at the local temple of Asclepius. The medicine practiced in Kos was more focused on the patient than the disease. The other centers in Cnidus were more concerned with disease. Given the influence of medical training in Kos, Hippocrates became an avid practitioner of patient-centered medicine.

Hippocrates was an avid traveler and a great teacher. He trained many physicians, which ultimately institutionalized his approach to the healing of man. His sons, Thessalus and Draco, became successful physicians in their own right. It is possible there were multiple grandsons named Hippocrates who practiced medicine, confusing later historians as to which writing belonged to Hippocrates or his descendants. His students, sons, and grandsons continued the practice of Hippocratic medicine and enhanced the art of medicine.

Hippocrates of Kos' (approximately 460–370 BC) influence on medicine is unrivaled by others in the history of medicine. His most important contribution was his code of conduct. In early Greek society, there were no regulations of medical practice like the Code of Hammurabi in Mesopotamia. Hippocrates' initiative to have a strict code of conduct for himself, his students, and practitioners of his style of medicine distinguished them from magicians, sorcerers,

herbalists, and other practitioners. He insisted on professionalism by exhibiting honesty, empathy, calmness, and a well-kempt appearance. He advocated that physicians should keep the best interest of the patient in mind and thus gain the patient's confidence and trust. Physicians should be friends of the sick.

One way to gain a patient's trust was by foretelling the future course of the disease or its prognosis. Given the limited knowledge of disease during that period, he encouraged observation of the patient and frequent visits to map the course of the disease. He was not an advocate for aggressive intervention even believing some interventions caused more harm than good, hence the axiom, *first do no harm* (*primum non nocere*). Observe, feel, listen to the patient before embarking on any action. Bedside medicine was introduced into the medical lexicon.

Here is a sample of Hippocrates' advice:

One must note the following: conditions that disappear of their own accord; blisters such as come from fire, where this or that is beneficial or harmful; shapes of parts affected, kinds of motion, swelling, subsidence of swelling, sleep, wakefulness, restlessness, yawning; lose no time in acting or preventing; vomit, evacuations, spittle, mucus, coughing, belching, swallowing, hiccup, flatulence, urine, sneezing, tears, scratching, plucking or feeling (at hairs or bedding), thirst, hunger, plethora, dreams, pain, absence of pain, the body, the mind, ability to take in one's meaning, memory, voice, persistent silence.

The practice of medicine did not enjoy a widespread acceptance or admiration since there were many healers, priests, herbalists, magicians, and hucksters who were vying for a patient's time and money. When Alexander the Great was on his deathbed, it is believed he uttered the words, "I die by the help of too many physicians." Surgery, which derives its name by combining *cheiros* (hand) and *ergon* (work) to make *chirurgia*, says all we need to know about its position in those days. Surgery was considered a manual labor job with less esteem and prestige. The physician was the intellectual force which understood disease and was able to apply his judgment to nurture the sick back to health. Surgery did not enjoy a high regard in Hippocratic medicine. By discouraging unnecessary and injurious procedures on patients, Hippocratic physicians distinguished themselves from the rest of healers.

In the *Hippocratic Corpus*, which summarized his thoughts and writings, there is no reference to supernatural causes for disease. He wrote:

It is my opinion that those who first called this disease 'sacred' were the sort of people we now call witch-doctors, faith-healers, quacks, and charlatans. By invoking a divine element they were able to screen their own failure to give treatment and so called this a 'sacred' illness to conceal their ignorance of its nature by picking their phrases carefully, prescribing purifications and magic along with many foods which were really unsuitable for the sick.

Hippocrates' belief that a patient is afflicted by an imbalance in the body and identifying the imbalance by studious observation marked a departure from other healers before him. In ancient Indian medicine, magico-religious explanations for sickness were prevalent. Thus, the sick person was treated by priests. In ancient China, the predominant belief was that sickness was a result of bad spirits invading the body. They surmised that good and bad spirits existed in the environment. The good spirits traveled in the air in an arc fashion while the evil spirits moved in a linear manner. Thus, to avoid sickness, the architecture of houses and buildings should make the travel of straight evil spirits more difficult by having hidden entrances or roofs and doors with many curves. Individuals with Chinese heritage seldom buy a house that has a straight stairway facing the front door. The reasoning is that linear, bad spirits would inhabit the house causing sickness.

By rejecting supernatural causes, exhibiting prudence by discouraging aggressive and injurious intervention, practicing the art of prognosis with serial observations combined with professionalism, the Hippocratic physicians ushered in an era of respectability and trust for the medical field. For the first time, Hippocratic physicians were able to make a good living practicing medicine full-time in most ancient Greek cities.

Hippocrates believed that good health emanated from good habits, exercise, eating well, and having a clean environment. He did not believe in magical cures. By studying the surroundings and habits of patients, as well as by asking questions, the imbalance could be recognized and diagnosed. Changing a patient's diet or daily activities was the first line of treatment followed by herbs, drugs, and last, if

absolutely necessary, surgery was performed. Draining pus, setting fractures, and the cleaning of wounds were part of procedures that a Hippocratic physician would try. Phlebotomy was also tried during this era by Hippocratic physicians and then routinely practiced until the late 19th century.

The original oath is worth reading in its entirety to get a feel for what Hippocrates thought was important and why his influence on medicine is unrivaled by anyone or any inventions that followed him. He laid a timeless foundation on which the colossal medical endeavor was built on over millennia. He described the practice of medicine as an art and encouraged prudence and trust.

I swear by Apollo the physician, and Asclepius, and Hygieia Panacea, and all the gods and goddesses, as my witnesses, that, according to my ability and judgement, I will keep this Oath and this contract:

To hold him who taught me this art equally dear to me as my parents, to be a partner in life with him, and to fulfill his needs when required; to look upon his offspring as equals to my own siblings, and to teach them this art, if they shall wish to learn it, without fee or contract; and that by the set rules, lectures, and every other mode of instruction, I will impart a knowledge of the art to my own sons, and those of my teachers, and to students bound by this contract and having sworn this Oath to the law of medicine, but to no others.

I will use those dietary regimens which will benefit my patients according to my greatest ability and judgement, and I will do no harm or injustice to them.

I will not give a lethal drug to anyone if I am asked, nor will I advise such a plan; and similarly I will not give a woman a pessary to cause an abortion.

In purity and according to divine law will I carry out my life and my art.

I will not use the knife, even upon those suffering from stones, but I will leave this to those who are trained in this craft.

Into whatever homes I go, I will enter them for the benefit of the sick, avoiding any voluntary act of impropriety or corruption, including the seduction of women or men, whether they are free men or slaves.

Whatever I see or hear in the lives of my patients, whether in connection with my professional practice or not, which ought not to be spoken of outside, I will keep secret, as considering all such things to be private.

So long as I maintain this Oath faithfully and without corruption, may it be granted to me to partake of life fully and the practice of my art, gaining the respect of all men for all time. However, should I transgress this Oath and violate it, may the opposite be my fate.

I firmly believe that certain values and practices are timeless of which there is no progress from. Trust, honesty, and sincerity should remain the bedrock of any practice no matter how sophisticated or the advances the field has experienced.

The patients' experience from the earliest days of medicine in Mesopotamia to Hippocrates' time changed from being the object

whose soul was invaded by demons requiring magic and potions to a human who needed a friend and caretaker to find the cause of his predicament and nurture him back to health. While Hippocrates changed the approach and philosophy of medicine, the treatments did not change as much, and the outcomes probably did not improve. Hippocrates introduced humanity, empathy, professionalism, and a scientific basis to medicine, but it was short on effective treatments and improved outcomes. He defined medicine as a marriage of art and science that is still relevant today. The art of medicine (bedside manner) and the science of medicine (pathophysiology) are the yin and yang of medicine. The imbalance between these two forces prevents medicine from reaching its stated promise to help mankind. Knowledge without ethics and ethics without knowledge cannot succeed in the practice of medicine. Great physicians are those who have mastered the balance of these two forces. After 2,500 years, there are still debates and discussions regarding the art and science of medicine. The pursuit of the ultimate balance between art and science is still ongoing and it still needs perfecting.

CHAPTER 2

THE BEST SHOWMAN ON EARTH

Early human civilization started in Mesopotamia and spread east and west, along with its customs and practices which included the art of medicine. The power center shifted from Mesopotamia to Egypt and then to Ancient Greece. Along with the evolution of laws and societies, medicine also evolved along the route of human advancement. Once it arrived on the shore of a new civilization, the medicine practiced by many different tradesmen in Mesopotamia and Egypt changed significantly. The Hippocratic physician became different and separate from other classes of healers by having a uniform code of conduct and adherence to a set of guiding principles. As discussed before, it also became an exclusively male profession which lasted thousands of years until the late 19th century. Western medicine deviated from Aruvian medicine which was practiced in India and Chinese medicine.

Hippocratic physicians used some of the same herbs and medicines which were used in Mesopotamia and Egypt but introduced some scientific basis and organized and improved the practice of medicine. Greek civilization started its descent and a new power center was taking shape to the west. Medicine also traveled west along the path of civilization from Mesopotamia to Alexandria, Egypt to Athens and on to Rome.