EDZARD ERNST

BIZARRE MEDICAL IDEAS … AND THE STRANGE MEN WHO INVENTED THEM

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To Danielle

Prologue

Medicine has always relied on extraordinary innovators. Without them, progress would hardly have been possible, and we might still believe in the four humours and be treated with blood-letting, mercury potions, or purging. The history of medicine is therefore to a large extent the history of its pioneers. This book is about some of them. It focusses on the mavericks who separated themselves from the mainstream and invented alternative medicine, health care that remained outside conventional medicine.

Few people would deny that differences of opinion are necessary for progress. This is true for health care as it is for any other field. Divergent views and legitimate debate have always been important drivers of innovation. Yet, some opinions have been so thoroughly repudiated by evidence as to be considered demonstrably wrong and harmful.

The realm of alternative medicine is full of such opinions. They are personified by men who created therapies based on wishful thinking, fallacious assumptions, and pseudoscience. Many of the alternative modalities—therapies or diagnostic methods—that are today so surprisingly popular have been originated by a single person. This book is about these men. It is an investigation into their lives, ideas, pseudoscience, and achievements and it is an attempt to find out what motivated each of these individuals to create treatments that are out of line with the known facts.

The book is divided into two parts. Part I sets the scene by establishing what true discoveries in medicine might look like. It offers short biographical sketches of my personal choice of some of my 'medical icons'. In addition, it provides the necessary background for understanding the field of alternative medicine. Part II is dedicated to the often strange men who invented these bizarre alternative treatments and diagnostic methods. In this part, we discuss in some detail the life and work of these individuals. Moreover, we critically evaluate the evidence for and against each of these modalities. And finally, we attempt to draw some conclusions about the strange men who invented these bizarre alternative methods.

Having studied alternative medicine for more than three decades and having published more scientific papers on this subject than anyone else, the individuals behind these extraordinary modalities have intrigued me for many years. By describing these eccentric men, their assumptions, motivations, delusions, and failures, I hope to offer both entertainment as well as information. Furthermore, I aim to promote the reader's ability to tell science from pseudoscience and stimulate their capacity for critical thinking.

Cambridge, UK Edzard Ernst

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Part I

Medical Innovations and Socalled Alternative Medicine

1

Medical Progress and Its Innovators

The history of medicine is the history of our never-ending battles against disease and illness. In the course of these battles, we have suffered numerous lamentable defeats as well as many celebrated victories. This book is not a book about the history of medicine, yet it draws heavily from it. Therefore, it seems appropriate to discuss some of its facets that are relevant to our subject.

An instructive way of viewing the history of medical therapeutics is to categorise it schematically in three periods:

- Period 1 was the time when virtually all medical treatments were worse than a placebo.
- Period 2 was an epoch when treatments emerged that were equal to a placebo.
- Period 3 is the present, where we have finally developed treatments that are effective beyond placebo.

If we define medical therapy as the ability to effectively treat disease, then we have to admit that, for the longest stretch of the past, there was almost no medicine that worked better than a placebo. The physicians of that time had at their disposal therapies that did not treat any condition effectively. On the contrary, most were overtly harmful. Bloodletting, purging, mercury, etc., did not work and made most conditions not better but worse.

When Hahnemann invented his homeopathy (Chap. 8), the situation changed. With the introduction of homeopathy, physicians stopped harming or even killing their patients. Little wonder then that homeopathy was an almost instant, nearly world-wide success. Without being aware of the fact,

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Hahnemann had perfected the treatment with placebos, and for several decades his invention became the almost unchallenged optimal treatment.

The situation changed again about 150 years ago when medicine finally became more scientific and treatments were discovered that generated effects beyond placebo. The introduction of the scientific method to medicine is indeed a relatively recent and truly revolutionary idea. Ever since it occurred, medicine has made progress at a breathtaking pace.

But why did it take so long? One reason lies in the fact that, before we were able to develop truly effective treatments, we needed to understand how our bodies work. Many outstanding discoveries have been made on this journey, and it might be helpful to remind ourselves of some important milestones on this path:

- 2600 BC Egypt: Imhotep describes the diagnosis of around 200 diseases.
- 460 BC Greece: Birth of Hippocrates, often referred to as the father of modern medicine.
- 130 AD Greece: Birth of Galen of Pergamon who would adopt the theory of the four humours that dominated medicine for centuries to come.
- 200 AD Greece: Metrodora, a female physician wrote the first medical text written by a woman.
- 1489 Italy: Leonardo da Vinci first dissects corpses.
- 1543 Italy: Vesalius publishes findings on human anatomy.
- 1628 England: William Harvey discovers the circulation of blood.
- 1670 Holland: Anton van Leeuwenhoek discovers blood cells and germs.
- 1747 England: James Lind conducts the first controlled clinical trial and summarises its findings in his 'Treatise of the Scurvy'.
- 1796 England: Edward Jenner develops the vaccination for smallpox.
- 1816 France: Rene Laennec invents the stethoscope.
- 1821 USA: Clara Barton founds the Red Cross.
- 1847 Austria: Ignaz Semmelweis discovers the importance of hand washing in preventing the transmission of puerperal fever.
- 1849 England: John Snow lays the foundations for statistics in medicine.
- 1850s England: Florence Nightingale uses statistics and improves sanitary conditions in hospitals.
- 1857 France: Louis Pasteur identifies germs as the clause of some diseases.
- 1867 Scotland: Lister develops the use of antiseptic surgical methods.
- 1870 Germany and France: Robert Koch and Louis Pasteur formulate the germ theory of disease.
- 1895 Germany: Wilhelm Conrad Roentgen discovers X-rays.

- 1899 Germany: Felix Hoffman develops aspirin from willow bark, one of the first truly effective oral drugs.
- 1901 Austria: Karl Landsteiner discovers a classification of blood groups into A, B, AB, and O.
- 1903 France: Marie Curie earns a Nobel Prize in Physics (for discoveries that led to the development of X-rays) in 1903, and another in 1911 (chemistry), the first and so far only woman to receive two such awards.
- 1928 England: Alexander Fleming discovers penicillin.
- 1947 Germany: the Nuremberg 'doctors trial' leads to the Nuremberg Code, the first international guideline of medical ethics.
- 1952, USA: Virginia Apgar develops the 'Apgar Score' for assessing the health of newborns.
- 1953 England: James Watson and Francis Crick define the structure of the DNA molecule.
- 1955 USA: Jonas Salk develops the polio vaccine.
- 1967 South Africa: Christian Bernard performs the first human-to-human heart transplant.
- 1980 Smallpox is eradicated worldwide.
- 1991 USA: Gordon Guyatt publishes the first article using the term 'Evidence-Based Medicine' [1].

My list ends with the first mention of 'evidence-based medicine' (EBM) in 1991. Arguably, this innovation started an entirely new era in healthcare. It made it obvious that a treatment need not merely be assumed to be effective beyond placebo, but that we need strong evidence in order to fully accept the claim. In other words, sound evidence became a prerequisite in clinical medicine.

Of course, evidence is not a novel idea; many people had previously pointed out its importance, but Gordon Guyatt, David Sackett (Chap. 2) and others were innovators in formalising the concept of EBM and developing tools and instructions as to how to best assess and implement it. It soon became clear that 'evidence' was only part of the clinical decision-making process. Consequently, both clinical expertise and the patient's values and preferences were incorporated into the concept of EBM [2].

The introduction and widespread acceptance of EBM brought about fundamental changes in practicing and thinking about healthcare. What followed was an abundance of important innovations, discoveries, and practices that would be too numerous to mention here.

The above list of the milestones in the history of medicine is revealing in more than one way. As the care for the sick developed over the centuries from an initially mystical, to a religious, and eventually to a scientific activity, the gaps from one milestone to the next got shorter and shorter—put differently: progress has been accelerating and has now reached a breathtaking pace.

Another striking phenomenon that emerges from the list is how many of the milestones are directly attributable to a single innovator. The importance of outstanding individuals in the progress in medicine is further reflected by the number of diseases that carry the name of their discoverer. Here is but a short selection:

- Alzheimer's disease
- Asperger syndrome
- Bell palsy
- Brucellosis
- Burkitt lymphoma
- Creutzfeldt–Jakob disease
- Crohn's disease
- Cushing's disease
- Down syndrome
- Duchenne muscular dystrophy
- Dupuytren contracture
- Ehlers–Danlos syndrome
- Fanconi anaemia
- Guillain–Barré syndrome
- Hashimoto thyroiditis
- Henoch–Schönlein purpura
- Hodgkin disease
- Horner syndrome
- Huntington's disease
- Jakob–Creutzfeldt disease
- Kaposi sarcoma
- Klinefelter syndrome
- Listeriosis
- Löfgren syndrome
- Marfan syndrome
- Ménière's disease
- Munchausen syndrome
- Paget's disease
- Parkinson's disease
- Raynaud disease
- Scheuermann's disease

- Tourette syndrome
- Von Willebrand's disease
- Waldenstrom macroglobulinaemia
- Wernicke's encephalopathy
- Wilms tumour
- Wernicke–Korsakoff syndrome
- Zollinger–Ellison syndrome.

If we added the even longer lists of eponyms related to medical inventions, procedures, and treatments, the importance of individual innovators to the progress of healthcare would become even more obvious. These contributions are outstanding and deserve to be celebrated. The next chapter will be dedicated to some of the extraordinary individuals who significantly influenced the healthcare of today.

References

1 Guyatt, G. H. (1991). Evidence-based medicine. *ACP Journal Club*. https://doi.org/10.7326/ACPJC-1991-114-2-A16
2 Mellis, C. (2015). Evidence-based medicine: What has happened in the past 50 years? *Journal of Paediatrics and Child Health, 51*(1), 65–68.

2

Medical Icons

A large number of truly outstanding and often brave individuals have made their mark in healthcare. The list of these 'medical icons' is far too long to mention here. The histories of these men and women are well documented and do not need to be repeated. For the purpose of this book, I have merely selected a small group of individuals whom I personally find particularly impressive. The following short biographical sketches are not exhaustive; they are meant to create a contrast with the inventors discussed in Part II of this book.

Gustav Born (1921–2018), who happened to be a close personal friend of mine, was born in Göttingen as the son of the Nobel laureate, Max Born and his wife Hedwig. Gustav started school in Göttingen, but in 1933, the Borns escaped the Nazis and emigrated to the UK. Gustav then attended school in Cambridge and Edinburgh. He later read medicine at the University of Edinburgh where he graduated in 1943. During WWII he served in the Royal Army Medical Corps and witnessed the effects of the atomic bomb in Hiroshima. Many of its victims were bleeding to death because of the radiation damage to their platelets. This experience started his interest in and research on platelet biology [1]. He devised an instrument for measuring platelet aggregation that became used in laboratories worldwide. He could have patented it and become wealthy but refused to do so.

His research led to numerous further discoveries, e.g., the fact that aspirin inhibited platelet aggregation. Born contributed significantly to our understanding of arteriosclerosis, its risk factors, treatment, and prevention. He held a succession of three chairs in pharmacology as well as several visiting

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professorships. He was also a cofounder of the William Harvey Research Institute at the London School of Medicine, was elected a fellow of the Royal Society, and received numerous medals, honours, and awards. Gustav Born died on 16 April 2018 aged 97.

Alexander Fleming (1881–1955) was born in Darvel, Scotland, to a family of farmers. After he had inherited some money, he started studying medicine in London where he graduated in 1906. He became an assistant bacteriologist and later a lecturer at St Mary's Medical School, London. During WWI, he served in the Medical Corps and discovered that the antiseptics of the time were causing more harm than benefit. After the war, he was appointed Professor of Bacteriology at the University of London.

Fleming discovered penicillin, the world's first antibiotic, thus revolutionizing the treatment of bacterial infections. in 1928, he accidentally discovered that a 'mould' (*Penicillium rubens*) contaminating a petri dish prevented bacteria from growing. Fleming then cultured the mould and demonstrated that it contained an antibacterial substance. He investigated its anti-bacterial effect in vitro on many organisms. One problem, however, was to produce sufficient amounts of the pure substance. Therefore, the significance of Fleming's discovery was for many years not fully recognized. Fleming finally managed to report the first successful case in the Lancet [2]. In the 1940s, the mass-production of penicillin finally became possible. For his discovery, Fleming was awarded a Nobel Prize in 1945 and countless other awards. He died in 1955 of a heart attack and is buried in the crypt of St Paul's Cathedral, London.

Rosalind Elsie Franklin (1920–1958) was born in London as the second of five children of an affluent Jewish family. Rosalind read chemistry at Newnham College, Cambridge, UK. After graduating, she joined the physical chemistry laboratory of the University of Cambridge working under Ronald George Wreyford Norrish. Franklin did a thesis entitled 'The physical chemistry of solid organic colloids with special reference to coal' and was awarded a Ph.D. by the University of Cambridge in 1945. Later she joined the 'Laboratoire Central des Services Chimiques de l'État' in Paris, where she learned the technique of X-ray crystallography.

In 1950, Franklin obtained a Turner and Newall Fellowship to work at King's College London, where she studied as an associate in the Medical Research Council's Biophysics Unit, directed by John Randall. Her work became central to understanding the structure of the DNA. Francis Crick, James Watson, and Maurice Wilkins were awarded the Nobel Prize in Physiology or Medicine in 1962 for this discovery. Yet, Franklin was a contributor and "equal player" in it, even though she did not get a full recognition for this during her lifetime [3].

Rosalind Franklin was diagnosed with cancer in 1956. She received various treatments and continued to be a productive scientist. But soon the cancer caught up with her, and she died in April 1958. She is buried in the family plot at Willesden United Synagogue Cemetery, London.

William Harvey (1578–1657) was born in Folkestone, UK, went to school in Canterbury, and studied in Cambridge, where he graduated in 1599 with a Bachelor of Arts degree. He then went to Padua where he graduated as a doctor of medicine. He subsequently obtained a degree from Cambridge and became a fellow of the Royal College of Physicians, London, in 1607. For almost all the rest of his life, he then worked as a physician at St Bartholomew's Hospital, London, and was appointed as 'Physician Extraordinary' to King James I in 1618.

Harvey had long been interested in anatomy and was keen to learn not from books, like most of this contemporaries, but from dissections. In 1628, Harvey published his treatise on the circulation of the blood, 'De Motu Cordis' [4]. In it, Harvey described his discovery of the circulation of blood, a most important contribution to cardiac physiology. Harvey looked upon the heart, not as a mystical seat of the spirit and faculties, but as a pump equipped with one-way valves, and he measured the amount of blood it sent out to the body. He observed that, with each beat, two ounces of blood leave the heart; so that with 72 heart beats per minute, the heart throws 540 pounds of blood into the system every hour. This was only conceivable, he concluded, if the blood circulated. Harvey's seemingly obvious discovery laid the groundwork for numerous further innovations and was essential for generating a fuller understanding of physiology. Willian Harvey died of a stroke at Roehampton in 1657 and is buried in St. Andrew's Church in Hempstead, Essex.

Edward Jenner (1749–1823) was born in the village of Berkeley, UK, as the eighth of the nine children of the Reverend Stephen Jenner. He trained as a surgeon with Daniel Ludlow in Gloucestershire. At the age of 21, he became an assistant of the famous surgeon, John Hunter, at St George's Hospital in London. Jenner then returned to his home town, Berkeley, and worked there as a family doctor.

In 1788, Jenner was elected fellow of the Royal Society on the merits of his study of cuckoos and, in 1792, he earned a medical degree from the University of St Andrews. In 1796, Jenner pioneered vaccination by inoculating the eight-year-old James Phipps with cowpox, a virus similar to smallpox, to create immunity. This concept was different from the already known practice of variolation, which used smallpox to create an immunity to itself. Jenner continued his research and reported it to the Royal Society, which eventually published the findings of his first 23 cases of successful vaccinations. After considerable resistance from the medical establishment, Jenner's results were accepted and, in 1840, the British government banned variolation and provided vaccination using cowpox free of charge. Other countries followed swiftly.

Thereafter, various vaccinations were created to combat infectious diseases, including smallpox, rabies, tuberculosis, and cholera. Thanks to Jenner, one of the deadliest diseases known to man—smallpox—has been wiped off the face of the Earth. Edward Jenner died of a stroke in 1823, in Berkeley, where he is buried.

Katalin Karikó (1955–) grew up in Hungary as the daughter of poor working-class parents. She excelled in science, earned a Ph.D. at the University of Szeged, and continued her research and postdoctoral studies at the Institute of Biochemistry, Biological Research Centre of Hungary. She left Hungary for the United States in 1985. In 1989, she joined the team of the cardiologist Elliot Barnathan, working on mRNA at the University of Pennsylvania. Her research paved the way for the development of mRNA vaccines, in particular the COVID-19 vaccines produced by Moderna and Pfizer–BioNTech. These vaccines deliver mRNA that instructs cells to create the SARS-CoV-2's spike protein, which in turn stimulates the body to make antibodies [5].

For decades, mRNA vaccines were considered unfeasible because injecting mRNA triggered an immune reaction that immediately broke down the mRNA. Karikó demonstrated that swapping one type of molecule in mRNA with a similar one by-passes the cells' innate defences. During the COVID pandemic, the vaccines had by 2023 been administered about 14 billion times and thus saved millions of lives. Karikó and her collaborator Drew Weismann were awarded the Nobel Prize for Physiology or Medicine in 2023 [6].

René Laënnec (1781–1826) was born in Quimper, France. Aged 12, he came to live with his uncle in Nantes and studied medicine against the will of his father. In 1799, he enrolled at the medical school of the University of Paris.

In 1816, Laënnec was consulted by a young woman who was so obese that the traditional diagnostic method of percussion was rendered ineffective. He improvised a paper cylinder, applied one end to the heart of the woman and the other to his ear and was thus able to hear her heart sounds. This was the birth of the stethoscope, which allows the doctor to listen in detail to the heart, lungs, and other organs. Laënnec thus pioneered a new era of non-invasive diagnostics. He classified the sounds that his stethoscope picked up, presented his findings to the French Academy of Sciences, and in 1819 published his work 'De l'auscultation médiate'. The stethoscope quickly gained popularity as his book was translated and distributed across Europe in the early 1820s. Physicians from throughout Europe came to Paris to learn about Laënnec's diagnostic tool. He became an internationally renowned lecturer. In 1822, he was appointed chair and professor of medicine at the College of France, and the following year he became a member of the French Academy of Medicine and a professor at the medical clinic of the Charité Hospital in Paris. In 1824 he was made a chevalier of the Legion of Honour [7]. Rene Laënnec died aged 45 in 1826 from tuberculosis. Using his own invention, he diagnosed himself and understood that he was dying.

Florence Nightingale (1820–1910) was born in Florence, Italy, into a wealthy and well-connected British family. Florence benefited from her father's advanced ideas about women's education. She was privileged in that she was able to travel and study history, mathematics, Italian, classical literature, and philosophy. From an early age Florence displayed an extraordinary ability for collecting and analysing data. She also received four months of medical training which formed the basis for her later work.

Nightingale served as a nurse in the Crimean war and became known as "The Lady with the Lamp" for her work caring for wounded soldiers. She revolutionised nursing and hospital hygiene. As a consequence, death rates fell dramatically in the field hospital. After she had returned to Britain, she collected evidence for the Royal Commission on the Health of the Army. She claimed that most of the soldiers were killed, not in the battlefield, but by poor living conditions.

Nightingale was deeply religious and is seen as an early advocate of feminism. She published numerous books, pamphlets, and reports on health-related issues and is credited with creating one of the first versions of the now ubiquitous pie chart. In 1860, she established the Nightingale Training School for Nurses which set new standards for the nursing profession.

The Royal Sanitary Commission of 1868–1869 gave Nightingale the opportunity to successfully lobby for compulsory sanitation in private houses. She thus played a crucial role in increasing the UK average life expectancy by about 20 years between 1871 and the mid-1930s. Florence Nightingale died in 1910 in London and is buried in the churchyard of St Margaret's Church in East Wellow, Hampshire, UK.

Louis Pasteur (1822–1895) was born in Dole, France. By 1827, when he started school, his family was living in Arbois where the dyslexic Louis