

Considering a History Course as Part of the Medical School Curriculum

Michael Durrant*

Department of Orthopaedics, Borrego
Community Health Foundation, CA, USA

Received: July 02, 2018; **Accepted:** July 19, 2018; **Published:** July 31, 2018

Perspective

Medicine, an illustrated history by Lyons and Petrucelli has, because of its dimensions, occupied a conspicuous place in my library for more than two decades, and has been one of those books I have intermittently browsed when time permitted. Although its emphasis is not on contemporary medical history (there are undoubtedly better references), it is, nevertheless, one of the best, if not the most comprehensive illustrated historical record of medicine currently available. Recently, I examined its contents in more detail, and immediately become acutely aware of how little I knew about the origins of medicine in general and specifically orthopaedic surgery. Our medical curriculum lacked a didactic class specifically dedicated to this. The earliest evidence of a benign bone tumour, or severe periosteal activity mimicking exostosis from trauma, has been found in a fossilized femur of *Homo erectus* [1]. The prehistoric record is replete with evidence of osteopenia, abnormal periosteal growth, tuberculosis of the spine, aligned and mal-aligned fractures [1]. The Greek physician Galen (129-200) was a superb diagnostician, adept at treating severe gladiator injuries, including fractures and open chest wounds, and believed in discovery by experimentation [1]. He routinely performed dissections on the Barbary ape, differentiated between sensory and motor nerves, and noted paralysis following spinal cord transection [1]. It was understood during this time in Greece that there was a clearly defined necessity for surgical intervention, and their instrumentation, an indication of their surgical skills, included multiple sized knives, forceps, and probes [1]. Unfortunately for their patients, poppy extracts were an ineffective anaesthetic [2].

American Indians treated gout and rheumatism, and by fashioning wood splints and casts of hardened hides, including modifying them with openings for the application of bark and other herbs to open wounds to treat compound fractures [1,3]. Pharmacological agents such as coca leaves (cocaine), Peyote, and *Datura* (Jamestown weed) were utilized as anesthetics to lessen consciousness and pain during surgery [3]. The use of alcohol, opium, and coca leaves, in addition to many other concoctions for pain management and anaesthesia is cross-cultural and has been a part of medicine for unknown centuries.

To practice medicine in Bagdad in the 10th century required that individuals pass an examination [1]. Physicians in the 1500th century routinely operated on fractures with instrumentation

similar to those currently used now, including knives and multi-sized scissors, forceps, and retractors [1]. Although the Peruvians are known for Trephining (removal of an oval section of the skull), it is clear that this practice was performed much earlier, during the Neolithic period [1]. Although the motivation is unclear (perhaps for religious purposes), the presence of osteoblastic remodelling in unearthened skulls indicate that survivability was not an isolated event [1].

Andre' published the first text on the prevention and correction of musculoskeletal deformities in children and conceived the term "orthopaedic" [1]. The medical specialty originated with individuals trained in treating scoliosis, TB and other bone infections, paralytic diseases and dislocations, initially by mechanical mechanisms, splints, and manipulation [1]. Unaware of the importance of sterile technique until Simmelweis [4] penicillin by Fleming, [5] bone imaging by Rontgen [6] and nitrous oxide anaesthesia by the dentist Wells [2] operative procedures were limited until the beginning of the 20th century [1].

In 1908, Lexer performed the first allograft total knee joint transplantation, but subsequent failure rates discouraged other surgeons from attempting the procedure [1]. Hibbs revolutionized the treatment of scoliosis and spinal TB in 1911 by devising a spinal fusion operation, which to this day continues to be modified and improved by Lyons [1]. Holmgren introduced the first operating microscope in 1923 [1] which in concert with meticulous dissection, allowed surgeons to surgically identify and address deformities that otherwise would not have been possible. And prior to 1930, hip fractures were untreatable, but with the development of the first intramedullary nail by Smith-

***Corresponding author:** Michael Durrant

✉ Durrant.michael@gmail.com

Department of Orthopaedics, Borrego
Community Health Foundation, CA, USA.

Tel: 760 613-5145

Citation: Durrant M (2018) Considering a History Course as Part of the Medical School Curriculum. *J Orthop Disord.* Vol.1 No.1:6

Petersen, the trajectory of this severely disabling injury was forever altered [1]. The twentieth century saw orthopaedics transformed into multiple subspecialties, and the science of joint replacements, arguably the most defining surgical innovation of the 20th century, became a reality [1].

Unlike the pending demise of Moore's law (computing power doubles every 18-24 months), [7] orthopedic medicine and surgery is in its infancy and just commencing its golden age. There are incredible advancements on the horizon. Joint replacements will be fabricated with 3-D imaging and printing, resulting in anatomically precise joint replications. Body scan depositories will be common, improving the accuracy of joint and bone replacements in cases of traumatic injuries and in the elderly. Further on the horizon, tissue engineering will eventually supplant the need for artificial joint replacements. The new science of morphometric statistics will provide the necessary algorithms that will permit us to mobilize resources (like the human genome project) into a singular mission to completely define each individual morphologically. The dynamic MRI will further help establish functionality in every joint and identify aberrant variables. Prosthetic devices will seamlessly interphase with each

individual's unique skeletal characteristics and neuroanatomy, and quicker smaller processors will dramatically improve functionality. Pharmacological advancements will eventually eliminate autoimmune diseases and diabetes. Advancements in genetic engineering will eliminate diseases such as Charcot-Marie-Tooth and Marfans just as smallpox was eliminated in the last century. Orthopaedic knowledge will increase exponentially, and in the foreseeable future will not suffer the same fate as Moore's law.

The 20th century is replete with individuals that have made incalculable contributions to foot and ankle science; developmental evolution (Morton), anatomy (Sarrafian), biomechanics (Root, Hicks, Steinler), and surgery (Giannestras, Kelikian, DuVries, Mann, Coughlin, Meyerson, Mc Glamry) just to name a few. These individuals will continue to exert a strong influence long into the future. A persuasive argument can be made for mandating a history course in medicine as a part of the curriculum. It is impossible to receive a high school diploma without a course in US History and government. An introductory series of short lectures would give students a unique historical perspective of their profession.

References

- 1 Lyons AL, Petrucelli RJ (1987) *Medicine: An illustrated history* 254: 301-601.
- 2 Larson MD (2011) *History of anesthesia, in basics of anesthesia*. RK Stoelting (Ed.) pp :3-5.
- 3 Keoke ED, Porterfield KM (2003) *American Indian Contributions to the World*. Checkmark Books p: 13.
- 4 Sabbatani S, Catena F, Ansaloni L, Sartellii M (2016) The long and dramatic history of surgical infections. *Archives Med* 2: 1.
- 5 Gould K (2016) Antibiotics: From prehistory to the present day. *J Antimicrobial Chemotherapy* 71(3): 572-575.
- 6 Thomas AMK, Banerjee AK (2013) *The history of radiology*. Oxford University Press pp: 1-3.
- 7 Waldrop MM (2016) The chips are down for Moore's Law. *Nature News* 53 p: 144.