

Papers Presented at the 2008 Meeting of the Musculoskeletal Infection Society

John Albert Key, 1890–1955

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Abstract This biographical sketch on John Albert Key corresponds to the historic text, *The Classic: Sulfonamides in the Treatment of Chronic Osteomyelitis*, available at DOI [10.1007/s11999-009-0797-7](https://doi.org/10.1007/s11999-009-0797-7).

John Albert Key was born in 1890. I have been unable to learn of his early life, but he graduated from the Alabama Technical Institute in 1913 [5] and subsequently from Johns Hopkins Medical School in 1918 [1, 2]. Hopkins, like so many other institutions, organized a hospital unit for the war effort and Key, along with 32 other students, volunteered for that effort in 1917. During the winter of 1917–1918 he worked in the unit as a private under Dr. Joel Goldthwait in Bazailles-sur-Meuse, France. In the spring of 1918 he received word he had been awarded the MD degree. After returning to the States in 1919 he received his postgraduate training at Children's Hospital and the Massachusetts General Hospital in Boston. On completion of his training in 1922 he moved to the University of Maryland as an instructor in orthopaedic surgery. He then moved to Washington University in St. Louis as an associate in clinical orthopaedics in 1926, became chair in 1931, and remained affiliated with that institution until his death in 1955.

Albert Key was active in many aspects of orthopaedic organizations, having apparently never missed a meeting of the American Orthopaedic Association [5] and serving as

its president in 1945–6. However, the list of organizations in which he served is indeed long. He was also a prolific contributor to the literature in areas as diverse as tumors, trauma, infection, spine, degenerative and inflammatory conditions, including many experimental studies in animals, and had a commanding knowledge of those fields.

The article we highlight this month relates to the use of sulfonamides in osteomyelitis [3]. Various forms of sulfa drugs were introduced in the 1930s [6]. Interestingly, the first drug, Prontosil (Bayer Laboratories, Frankfurt, Germany), had no effect in the test tube, and a French team at the Pasteur Institute discovered in vivo the drug was metabolized into two portions, only one of which, sulfanilamide, was active. Hundreds of manufacturers subsequently produced various forms, one of which contained diethylene glycol, poisoning hundreds of people, and contributing to the enactment of the Federal Food, Drug, and Cosmetic Act in 1938. Key was one of the early



Dr. John Albert Key is shown. Figure ©1956 by The Journal of Bone and Joint Surgery, Inc. and reprinted with permission from Abbott LC. John Albert Key: 1890–1955. *J Bone Joint Surg Am.* 1956;38:453–463.

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investigators of sulfa drugs for musculoskeletal infections [4], performing both experimental and clinical studies, and suggesting they might impair wound healing. In the article we reproduce here [3], Key noted:

“...sulfonamides in the blood stream cannot exert their maximum effects upon bacteria in localized areas of disease...” but “...the systemic administration of sulfadiazine, and especially sulfathiazole, to patients with acute osteomyelitis or an acute exacerbation of chronic osteomyelitis, usually has a beneficial effect, not only upon the septicaemia, but also upon the local disease.”

Key emphasized the drugs were only an adjunct to appropriate surgery, and that local application was also helpful. He was careful to note the dangers of the drug, including local reactions to too much added sulfa. Even though a proponent of the Orr method of treatment (débridement and casting with repeat treatments as necessary, and leaving the wound to close by secondary intention), Key recognized sulfa drugs would allow the

primary closing of many wounds and avoidance of a “...longer interval (of treatment) and considerable unpleasantness.” Dr. Key was a careful researcher, always cognizant of the potential downsides of treatment, but eager to explore new methods with proper experimental studies.

References

1. Abbott LC. John Albert Key; 1890–1955. *J Bone Joint Surg Am.* 1956;38:453–463.
2. Abbott LC. John Albert Key, 1890–1955. *Clin Orthop Relat Res.* 1957;9:1–2.
3. Key JA. Sulfonamides in the treatment of chronic osteomyelitis. *J Bone Joint Surg Am.* 1944;26:63–70.
4. Key JA, Frankel CJ, Burford TH. The local use of sulfanilamide in various tissues. *J Bone Joint Surg Am.* 1940;22:952–958.
5. Mostofi SB, ed. *Who's Who in Orthopedics.* Heidelberg, Germany: Springer-Verlag; 2005.
6. Sulfonamide (medicine). 2009. Wikipedia. Available at: [http://en.wikipedia.org/wiki/Sulfonamide_\(medicine\)](http://en.wikipedia.org/wiki/Sulfonamide_(medicine)). Accessed March 2, 2009.