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Herbert Hoover, Gold, and Geothermal Rising

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Herbert Hoover was the 31st president of the United States and owns the inglorious distinction of ushering in the Great Depression on his watch. Historians will tell you, therefore, that he may be the worst president this country has ever had. While the last few years might force these same historians to reconsider their conclusions, unlike other presidents similarly labeled, Hoover had real skills and a résumé worthy of admiration.

Hoover did summer field work with the inexhaustible and brilliant economic geologist, Waldemar Lindgren, in the Sierras in the mid-1890s while at Stanford. He and his equally skilled wife, fellow Stanford geology graduate, Lou Henry, translated Georgius Agricola's 16th century mining engineering masterpiece, *De Re Metallica* (*On the Nature of Metals*), from Latin to English. He later taught at Stanford and Columbia and found time to write an exploration/mining textbook in the midst of his globe-trotting and highly successful period as a mining consultant. He was inducted into the Mining Hall of Fame in 1988. A lesser-known Hoover anecdote, however, is part of one of the more remarkable discovery stories that I have ever heard.

Herbert Hoover, 1898, in western Australia

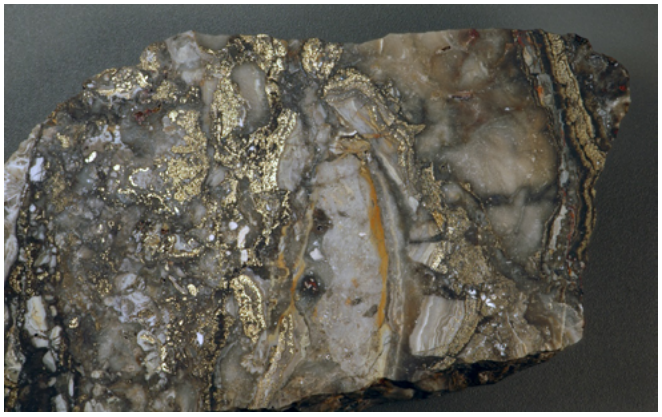

Figure 2. Gold from Sleeper Mine, 10.5 cm Across

In the early 1980s, an Amax Gold geologist named John Wood had the Basin and Range as his backyard and the charge to find gold. A source guiding his exploration efforts included text written by the mining geologist Herbert Hoover that described dark red discolorations on the northwestern side of the Slumbering Hills, north of Winnemucca, Nevada. Many decades later, Wood found these same dark red rocks during helicopter reconnaissance and landed for a closer inspection. Toward the end of a protracted and not-too-successful exploration campaign centered on this dark red, silicified breccia pediment, a logger noted sulfide veins in one of the last scheduled step-out core holes. Needless to say, the logger, the geologists, and Amax were all stunned to learn that assays from hole #34 indicated that the logger made a mistake. The sulfide-rich veins were actually native gold and the zone later averaged 26 grams/ton of gold! By the late 1980s, Amax Gold's newly opened Sleeper Mine was one of the richest and had some of the most visually stunning gold-bearing rocks in the western United States.

Hoover, Wood, and many others were keen observers of hydrothermal alteration and its relationship to precious metal concentrations. They carefully described and catalogued results of their labors. A trait shared by them and explorationists in all natural resource fields, especially geothermal, is persistence. The observations were solid and their data and subsequent interpretations were made available for others in the literature. But what carried the day was a willingness to learn from those who came before and the persistence to continue looking, especially as theories for how and where hydrothermal systems continued to evolve.

There are many parallels between minerals exploration and geothermal. Besides the geological similarities (e.g., active hot spring systems for geothermal vs. paleo hot springs systems as gold targets), there is also a natural crossover in skill sets needed in both geothermal and precious metal exploration. Both industries also tend to operate on shoestring budgets where there is never enough time or money to do what the geologists really think is needed. Consequently, the importance of solid data and the ability to easily acquire and understand these data are critical.

The best recurring forum, by far, for acquiring and understanding relevant and valuable data and information about geothermal systems is the GRC Annual Meeting. These week-long meetings attract workers from around the globe. They participate so that they can share and learn about all phases of our industry, including recent geological and engineering developments, new or impending legislation impacting how and where we can grow, and results of DOE-supported R&D work in hydrothermal systems, engineered geothermal systems (e.g., FORGE), and direct-use, among other important geothermal arenas. The GRC Annual Meeting & Expo also includes relevant short courses, poster sessions, field trips, and various social events.

Sadly, we are all forced to accept the burden of virtual meetings as opposed to in-person these days because of COVID-19. The ease and joy of directly interacting with friends and colleagues is on hold for all of us these days. But the next best option is what the very skilled Geothermal Rising Annual Meeting & Expo team, led by our new support group, Association Headquarters, Inc. (AH), diligently worked on for several months. The content-rich annual meeting was held entirely virtually. The virtual meeting featured the high-quality content attendees have come to expect from our organization, along with the camaraderie of seeing friends and colleagues from around the world. The virtual Annual Meeting gave attendees the opportunity to learn from and interact with these same colleagues in a dynamic and interactive virtual forum.

I am not sure if another Herbert Hoover-type revelation will be forthcoming. However, we were thrilled with the breadth of content offered at the event and the value of connecting with our colleagues in such a new way. If you have feedback on the format, please contact me, Will Pettitt, or the AH staff.