

Supplementary Materials: Museum specimens recovered from Clover Creek, Idaho

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In 1895 a party of surveyors discovered fossilized tree branches protruding a meter above the ground along Clover Creek in Idaho, USA. Foote Brothers of Philadelphia purchased nearly two tons of the material, which was subsequently distributed across the globe. Many specimens found their way into major museums. This document represents museum specimens currently identified (Figures 1–11).

Only recently rediscovered, the site produces small hand samples of varying quality (Figure 12), making museums the best hunting grounds for examples of this historic find. Originally, the locality was reported as being in Lincoln County, Idaho, but present county boundaries now place the site in Gooding County. The 2014 rediscovery of the site is described by Viney *et al.* [1]. GPS coordinates are 42°59'46.70"N, 115°00'28.66" W, elevation 1009 m (3300 feet).

It is surprising that little was written in the 20th Century about the Clover Creek oak since multiple specimens found their way into major museums in Europe, America, and Canada. If any readers have examples of Clover Creek fossil oak, or any information that will add to the historical understanding of this most intriguing fossil locality, please contact Mike Viney (e-mail: mviney@psdschools.org).

Smithsonian Institution, National Museum of Natural History, Washington D.C., USA (NMNH)



(a)

(b)

Figure S1. Specimen NMNH 84401, recorded as a transfer from the United States Geological Survey in 1899. (a) The sample on display (Photo: Beth Myers); (b) The same specimen on two first day of issue envelopes released in 1974 for stamps celebrating American mineral heritage; a detailed history of the specimen was not given (Photo: Mike Viney).

American Museum of Natural History, New York, USA (AMNH)



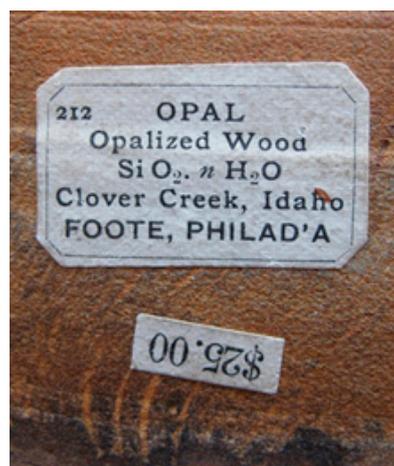
Figure S2. Specimen AMNH 32501, donated by M.W. Bruce before 1900 and originally specified as “quartz” in the record, size 13.0 cm x 11.5 cm x 4.5 cm (Photo: Jim Mills).

Additional specimen in the collection pictured in [2, 3]:
AMNH 32500

Colorado School of Mines Geology Museum, Golden, USA



(a)



(b)

Figure S3. Specimen TM 81.151, size 25 cm x 22 cm x 3 cm, specified as Clover Creek Opalized Wood. (a) Frontside (Photo: Mike Viney); (b) Original label on the backside of TM 81.151 (Photo: Mike Viney).

Additional specimens in the collection include:

TM 8388, ~13 cm diameter, repaired specimen with the original label on the backside: “Opal—Opalized wood—SiO₂ 2H₂O—Clover Creek, Idaho - FOOTE, Philad’a—\$12.00.

TM 3513, only the label exists in an “orphan box”.

Royal Ontario Museum, Toronto, Canada (ROM)



Figure S4. Specimen ROM 455, specified as wood opal, size 27 cm x 14 cm x 4.5 cm, purchased from Foote in 1907 as a teaching specimen for the Knox College collection; the Knox College collection was transferred from the University of Toronto to the Royal Ontario Museum in 1915 (Photo: ROM2008_9864_14, courtesy Katherine Dunnell).

Senckenberg Naturhistorische Sammlungen Dresden, Germany

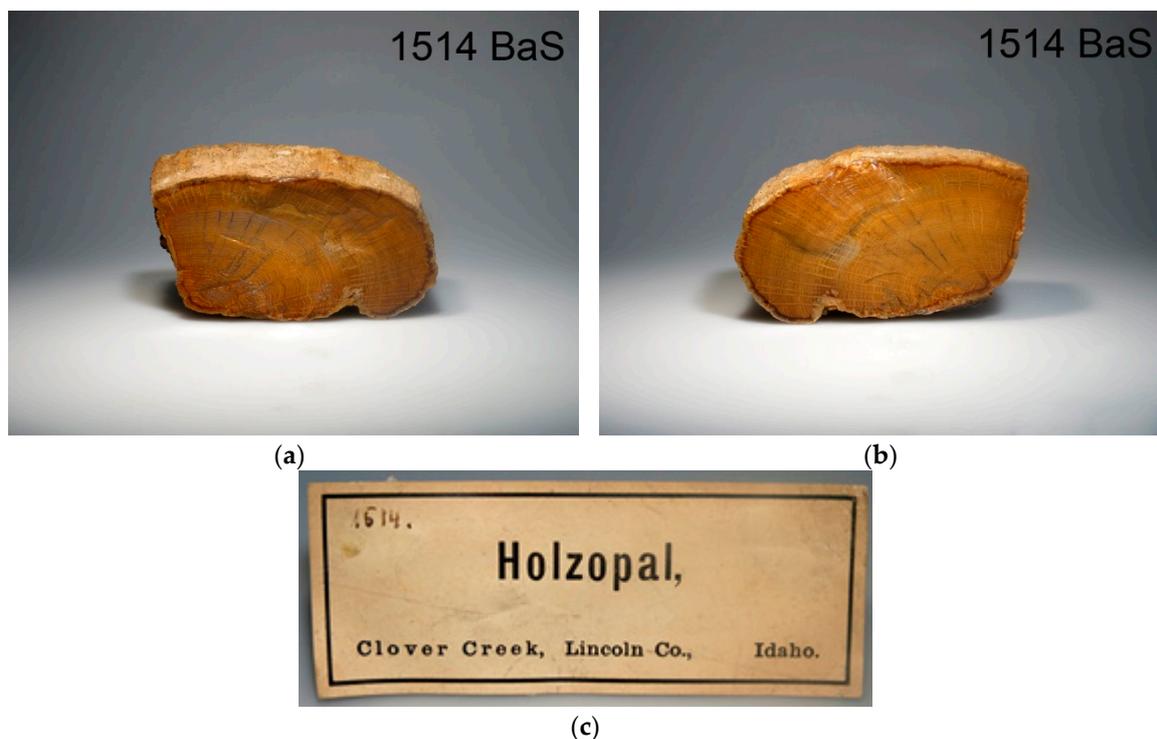


Figure S5. Specimen 1514BaS, specified as wood opal, Clover Creek, originally part of the mineral collection of Richard Baldauf (1848-1931). (a) Frontside (Photo: Klaus Thalheim); (b) backside (Photo: Klaus Thalheim); (c) the corresponding historic label typical for samples of the Baldauf collection (Photo: Klaus Thalheim).

The Museum of Natural History in Bern, Switzerland (MNBE)



Figure S6. Specimen 5340, specified as opalized wood, probably hornbeam (due to Gerber and Mumprecht, carpenters). (a) Frontside (Photo: Thomas Buri); (b) Original label of the mineral dealer glued to the exterior: Opal—Opalized wood—SiO₂·2H₂O—Clover Creek, Idaho—FOOTE, Philad'a (Photo: Thomas Burri).

Statens Naturhistoriske Museum, Copenhagen, Denmark



Figure S7. Specimen 1908.73 purchased by the museum from mineral dealer Dr. F. Krantz for 40 Mark in 1908, pictured in [4]. (a) Frontside (Photo: Zina Fihl); (b) Corresponding original label (Photo: Zina Fihl).



Figure S8. Specimen 1904.1384, purchased from mineral dealers Grebel, Wendler & Company, Geneva, for 16 Franc in 1904, recorded as "Træopal", Danish for wood opal (Photo: Zina Fihl).

Natural History Museum, London, UK (NHM, BM)



Figure S9. Specimen BM81433, purchased from mineral dealer Foote, Philadelphia, in July 1896. (a) Frontside and profile (Photo: Mike Rumsey); (b) original label glued on the backside (Photo: Mike Rumsey).

Additional specimens in the collection include:

BM1905.51, opalized wood, Idaho, a polished slab, approx. 28 cm x 25 cm, purchased from mineral dealer The Foote Mineral Company, Philadelphia & Paris, in January 28, 1905.

BM1927.27, opal, var. wood-opal, polished section of silicified tree trunk, 7 cm in diameter, purchased from Ward's Natural Science Establishment, Rochester, N.Y., in January 22, 1927.

BM1985, MI9058, opalized wood, complete section of a branch showing natural polish, Clover Creek, Idaho, USA, purchased from mineral dealer The Foote Mineral Company, Philadelphia & Paris, in 1908 by Museum of Practical Geology (joined NHM collections in 1985).

BM1985, Lin19431 (Foote 9/06) opalized wood, Clover Creek, Lincoln Co., Idaho.

Museo di Scienze Naturali dell'Alto Adige, Bolzano, Italy



Figure S10. Label of a wood opal specimen from Clover Creek in an “orphan box” originating from the now scattered collection of Georg Gasser (1857–1931), Photo: Benno Baumgarten.

Museum für Naturkunde Chemnitz, Germany



Figure S11. Nine thin section slides of opalized wood *Q. pliocaenicum* prepared by Voigt & Hochgesang, Germany, three from 1897 and six from 1908. The slides are indicated as follows: H for horizontal section, T for transversal section, R for radial section, Clover Creek Lincoln Cty Idaho U.S.A. Dr. Krantz 1897 respectively 1908, *Quercinium pliocaenicum* Schuster (Photo: Dagmar Dietrich).

The thin sections were prepared from Clover Creek opalized oak specimens supplied by the mineral dealer Krantz to the paleontologist Johann Traugott Sterzel (1841–1914) who asks Julius Schuster (1886–1949) to describe the wood [5].

New Clover Creek opalized wood discoveries from 2015



Figure S12. Clover Creek opalized wood finds from 2015. (a) Examples of new finds; (b) Specimen Mary Klass 7 May 2015, size 3.4 cm x 2.8 cm (Photo: Mike Viney).

References

1. Viney, M.; Mills, J.; Link, P. Opalized wood from Clover Creek, Gooding County, Idaho. *Rocks Miner.* **2016**, *91*, 258–268.
2. Whitlock, H.P. *The Story of the Minerals*; The American Museum of Natural History Handbook Series No. 12; The American Museum of Natural History: New York, NY, USA, 1932.
3. Rogers, J. E. *Earth and Sky, Every Child Should Know*; Doubleday, Page and Company: New York, NY, USA, 1910.
4. Johnsen, O. *Minerals of the World*; Princeton University Press: Princeton, NJ, USA, 2002.
5. Schuster, J. Über ein pliocänes Eichenholz aus Idaho. *Neue Jahrb. Miner. Geol. Pal.* **1908**, *2*, 49–54.



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