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MINERS UNDERMINING GEOLOGY:
The Gold-fueled Chokehold on the California Geological Survey of 1860

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Local legend recounts that a miner euphorically and belligerently rushed into the saloon of the El Dorado Hotel in Hangtown, California (now known as Placerville) in 1849. Gold dust and gold nuggets were spilling from his leather drawstring bag as he dropped it onto the bar. He raucously proclaimed to the bartender that he had discovered a fortune in gold along the banks of a creek in town and that he intended to celebrate his findings in the most lavish way possible: with a meal. Intoxicated by his newfound wealth, the man stipulated that the cook prepare him the most expensive dish he could conceive of. Thus, the “Hangtown Fry” was born. Composed of the priciest ingredients available in California at the time: eggs, oysters, and bacon, this outlandish omelet embodies the impulsive, clamoring, and demanding nature of miners that dominated Gold Rush era California.¹

This brash “strike-it-rich” attitude permeated mid-nineteenth century California and left no facet of daily life untouched. Politics, business, science and even cuisine, as seen with the invention of the Hangtown Fry, were not spared from the ravenous, gold-seeking agenda of the populace. Looking at the impact upon science in particular, the study of geology was greatly influenced by the demands of miners, as subsets of the field unrelated to mining were deemed worthless and no longer pursued. Naturally, information regarding gold and its whereabouts topped the lists of agendas since the majority of miners knew little of the actual geology behind the processes they engaged in. Believing that increased knowledge and background for their work would help them in finding gold deposits, the citizens of California soon called for a scientific and comprehensive geological survey of the state. With fortune-hungry miners nipping at their heels, the California legislature was obliged to take action. When the California Geological Survey was created, state governmental priorities were skewed towards the desires of gold miners because of mining’s widespread popularity, accessibility, and political clout. In comparison to a state such as New York, which was not experiencing a mineral rush when its survey was

¹ "City of Placerville, California - History of the Hangtown Fry and Recipes," City of Placerville, California - History of the Hangtown Fry and Recipes, 2016, , accessed November 20, 2016, <https://www.cityofplacerville.org/history-of-the-hangtown-fry-and-recipes>.

established, the CGS was under great pressure to adhere to the mineral-seeking wishes of the legislature and its constituents. Whitney's gruff personality and refusal to prioritize gold mining additionally antagonized the public and its representatives when it was being determined if the Survey should be additionally funded or scrapped entirely. Under increased scrutiny and widespread opposition, the CGS was terminated less than a decade after its inception. It was replaced with a program specific to mineralogical pursuits to satisfy the miners' incessant clamoring for information regarding gold.

After several initial endeavors proved fruitful, the legislature officially created the Geological Survey of California (additionally referred to as "the Survey" and "CGS" in this paper) in 1860. Yale professor Josiah D. Whitney was appointed State Geologist and soon hired a diverse crew of scientists to assist him in his work. The "Whitney Survey" as it was called, notably included William H. Brewer, a botanist by trade working as chief field geologist.² Brewer and Whitney formed a close relationship while traversing California and observing the state's geological attributes. Brewer wrote extensive letters to his family during this time conveying the nature of the Survey itself, which were eventually published in book form titled *Up and Down California in 1860-1864*.

Regrettably, the Geological Survey and California legislature did not work diplomatically with one another to overcome conflicts of opinion into what geological research should be conducted. Whitney was a brusque and stubborn individual: he actively defied the government's requests for prioritizing investigation into gold assets, instead producing the Survey's first works on Californian flora, fauna, and paleontology. This conflict eventually resulted in the termination of funding for the survey in 1874.³

² Jenkins, Olaf Pitt. *Building a State Geological Survey, California 1928-1958: Memoir*. Monterey, CA: Angel Press, 1976, 17.

³ Whitney, Josiah D. "THE YOSEMITE BOOK by Josiah D. Whitney (1869)." *The Yosemite Book*, by Josiah D. Whitney. Accessed October 13, 2016. http://www.yosemite.ca.us/library/the_yosemite_book/.

The tenuous relationship between scientific freedom in geological pursuits and the demands of government and public interests produced dramatic and enduring consequences for geology in the state. Geological findings with little potential for economic exploitation such as paleontology or botany were deemed unworthy of investigation and put on an extended hold of nearly 50 years once the CGS was formally ended. In 1880, the State Mining Bureau officially replaced the California Geological Survey; it was deliberately limited to investigating mineralogy and gold resources as ordered by the California legislature. Any ideas surrounding a broad approach of geological study were expunged with little objection from the state's citizens. In an ironic twist, the populace, dominated by miners, exercised control over what elite knowledge was ultimately pursued. In their blind fervor, these miners effectively established which subsets of geology were worthy of inquiry and which subsets were not.

The early political climate and government of California had a significant effect upon the reasons for the establishment of the CGS. The Gold Rush was in full swing at this time and immigrants from the domestic United States and countries abroad were streaming into California to make their fortune. Gold mining was an attractive scheme to many as it was a quick and convenient way to wealth.⁴ It was also accessible to a large labor pool, as not much capital or technological skill was required to initiate the process; in the early years, one had a decent chance of finding gold with little more than a shovel and a pan.

This rapid population influx profoundly influenced the state's early political workings. Politics was a discordant, impulsive realm and as so aptly described by historian Royce Delmatier in *The Rumble of California Politics*, "no law existed except for the laws of nature and of the divine"⁵ at the time of the Survey's creation. The 1850 California census documents that over 90 percent of the population resided in the mining regions of the north. These regions had the

⁴ Nash, Gerald D. *State Government and Economic Development: A History of Administrative Policies in California, 1849-1933*. Berkeley, CA: Institute of Governmental Studies, University of California, 1964, 29.

⁵ Delmatier, Royce D., Clarence F. McIntosh, and Earl G. Waters. *The Rumble of California Politics, 1848-1970*. New York: Wiley, 1970, 9.

greatest number of legislative districts.⁶ As a result, political power was largely concentrated in the hands of miners, allowing them to manipulate public policy to their desires. Because miners constituted the majority of enfranchised Californians, legislators were faced with enormous pressure to put policies relevant to mining at the top of governmental agenda.

Geological surveys and geology in general were stylish endeavors in the mid-nineteenth century for state governments to pursue. Geological practices such as paleontology, mineralogy, ornithology, and cartography were recognized as emerging and useful pursuits that had the potential to reap rewards for ordinary citizens in addition to those geologists undertaking the work. Many states were in the process of establishing a survey or had already established one at the time of the inception of the CGS: indeed, thirty individual State Geological Surveys had been founded by 1860.⁷ The CGS was created with similar goals that had been surrounding geology at the time; however, the key difference to note is that the Californian people desired an organization focused primarily on gold mining, rather than a comprehensive investigation of the state's geology.

Influenced by the rowdy crowds of forty-niners dominating the state, numerous California periodicals of the day began to call for a geological survey. *The California Farmer and Journal of Useful Science* touted the abundance of mineral riches that the State possessed, insisting that ideally, there should be a survey solely for the pursuit of gold in and of itself: “no other State can boast such an abundance of precious metals and variety of valuable minerals; and yet we have no geological survey. We should have one for our gold interest alone.”⁸ *The Daily Alta California* championed the benefits that a survey grounded in analytics and acumen would hold for the ignorant miners in their endeavors noting “numerous important generalizations

⁶ Nash, 34.

⁷ Socolow, Arthur A., ed. preface to *The State Geological Surveys: A History*. Grand Forks? N.D.: Association of American State Geologists, 1988

⁸ “Geological Survey of the State,” *California Farmer and Journal of Useful Sciences* (San Francisco), December 3, 1858, Volume 10, Number 18 ed., <http://cdnc.ucr.edu/cgi-bin/cdnc?a=d&d=CF18581203.2.7&srpos=3&e=-----185-en--20--1--txt-txIN-Geological-----1>.

beyond the reach of the unscientific miners would be made” with such a program.⁹ With these expectations driving its establishment and operation, the CGS was entirely a product of this miner-dominated era and was subsequently put under significant stress to comply with their wishes.

In 1853, Dr. John B. Trask, an active member of the California Academy of Sciences, was unofficially appointed State Geologist to study the geology of California. He was greatly respected for his endeavors by the public as articulated in this article by the *Daily Alta*:

In our limited conversation with this gentleman, we have formed a high opinion of his abilities as a scientific and practical man. These opinions have been corroborated by letters of numbers of professional gentlemen of the highest respectability and attainments in this country, and with whom we are acquainted. Coupled with these he has a thorough practical knowledge of camp life, having performed, within the last three years, over five thousand miles of land travel in the most difficult, unexplored and rugged portions of the Western continent.¹⁰

Trask put out several publications to the legislature until funding for his work ran out.¹¹ The public and lawmakers were so pleased with his work however, that they reserved \$20,000 for a new State Geological Survey, with the primary goal of investigating possible locations of gold; providing a comprehensive, precise report of California’s geology was also requested but of less of a priority.¹² Geologists and naturalists, such as Clarence King (for whom King’s National Park is named after), Josiah Whitney, and William Brewer were called in from across the country to begin the work of the fledgling California Geological Survey.¹³

Chief field geologist William Brewer and head of the Survey Josiah Whitney are key historical actors to note when analyzing the CGS: Brewer was born on a farm in Ithaca, New

9 “The Importance of an Early Geological Survey of the State.”, *Daily Alta California* (San Francisco), October 9, 1859, Volume 11, Number 280 ed., <http://cdnc.ucr.edu/cgi-bin/cdnc?a=d&d=DAC18591009.2.20&srpos=2&e=-----185-en--20--1--txt-txIN-Geological-----1>

10 “Geological Survey of the State”, *Daily Alta California* (San Francisco), October 15, 1851, Volume 2, Number 307 ed., <http://cdnc.ucr.edu/cgi-bin/cdnc?a=d&d=DAC18511015.2.4&srpos=10&e=-----185-en--20--1--txt-txIN-Geological-----1>

11 Parrish, John. "California Geological Survey." Speech, Monthly Dinner Meeting, Double Tree Club Hotel, 7 Hutton Centre Drive, Santa Ana, California, August 1, 2005. Accessed February 20, 2017. <http://www.aegsc.org/meetings/aug05.php>.

12 Socolow, 27.

13 Whitney, Josiah D., *The Yosemite Book*

York in 1828. From an early age, he was stimulated by earth science and became interested in the effects of climate and soil on crop yields. He later went on to graduate from Yale with a degree in agricultural chemistry. His first wife and young son had died only a month before his invitation to join the Survey, causing him intense grief. These difficult emotions likely prompted Brewer to begin travelling as a way to escape his emotional void, an action perfectly accomplished by leaving the East coast to join the California Geological Survey.¹⁴ A botanist by trade, Brewer's enthusiasm for plants certainly wasn't left behind with his heartache when he traveled to California: he still managed to find time to investigate flora whenever he got the chance. He noted in his letters that "[the Survey] found much of geological interest and [he] found some exquisitely beautiful flowers of very small size on the dry hills, several species being less than an inch in height, as small as any Alpine vegetation."¹⁵

Josiah Dwight Whitney had previously been a professor of geology at Harvard, even receiving an honorary doctorate degree from Yale.¹⁶ As a result of his great acumen and wide scientific regard, he was appointed official State Geologist and head of the Survey by the California Legislature. Brewer held a great deal of respect for Whitney, describing him as a "capital fellow, and.... the best man in the U.S. for this gigantic work" and referred to him familiarly as "Professor" or "Prof." often in his letters.¹⁷ Although highly skilled in geology, Whitney's interpersonal skills were lacking: he was extremely brusque and stubborn. He also despised politicians. He handled the legislature with little finesse or amiability, denouncing the politicians in Sacramento as "corrupt, reckless, stupid, malignant, and jackasses."¹⁸ Brewer, on the other hand, appears to have been slightly tamer and more ambivalent towards the California

14 "Prof. William H. Brewer." Harriman Expedition Retraced, Accessed October 13, 2016. http://www.pbs.org/harriman/1899/1899_part/participantbrewer.html.

15 William H. Brewer letters to his family, BANC MSS C-B 333, The Bancroft Library, University of California, Berkeley, 33.

16 Whitney, Josiah D., *The Yosemite Book*

17 William H. Brewer letters to his family, 8.

18 Cooper, B. J., and Colin G. Gatehouse. *Earth sciences history: journal of the History of the Earth Sciences Society*. Vol. 21-22. Troy, NY: The Society, 2002. Accessed February 20, 2017.

government (and lawmakers in general). Brewer's letters provide a more objective insight into the Survey and its dealings, whereas Whitney's short temper and strong personal biases would likely have skewed these records.

Brewer's writing is elegant and verbose. He was an incredible storyteller, painting a vivid image of color, shape, and experience in the reader's mind. He revealed incredible zeal for his work and great affection for his loved ones; he thoroughly chronicled the happenings of the survey, providing insight accessible to the general reader, (in this case, his family; he eventually remarried after the death of his first wife and son). Brewer noted specific scientific instruments used, such as the barometer, the compass, and the tripod, procedures for analyzing significant geological findings, and also the journeys of the Survey to different regions of California. He also mentioned a humorous encounter with the United States and California Border Commissions. He noticed that "they camped near Los Angeles before [the CGS] did, and loafed there (on pay of course)" for several days, surmising that "most of them were green hands... personal appointees of Pres. Buchanan [current President of the United States]."¹⁹ To Brewer's amusement, a rainstorm later washed away the slothful commission's equipment just as they were about to begin their work. Although mildly critical of this inexperienced group of rival explorers, Brewer doesn't appear to have held the same degree of contempt for them that tempestuous Whitney might. This provides the reader with a less emotionally distorted lens to view both the nature of the California Geological Survey and the politicians with whom they interacted.

The politically and economically driven nature of the California Geological Survey and the personalities surrounding it are brought into sharper focus comparing it to the New York State Geological Survey (NYSGS). Founded in 1836, the NYSGS is currently the longest running geological survey in the New World.²⁰ The leader of the New York Survey, James Hall, was faced with similar challenges acquiring funding from the state legislature. In fact, Hall and Whitney

¹⁹ William H. Brewer letters to his family, 23.

²⁰ Socolow, 320.

were very much alike in the great enthusiasm and skill they both held for their work. However, the major difference between the two was personality: where Whitney was gruff and abrasive, Hall was energetic, diplomatic, and persuasive. When the designated funding period for New York's Survey had ended, Hall repeatedly lobbied the legislature for more money to complete the work he had begun. Largely a result of his charm, he received this money almost every time he approached the legislature.²¹ The CGS might not have been terminated quite so immediately if Whitney had possessed the same savvy, foresight, and cordiality that Hall actively used to secure funding for his studies.

Both the California Geological Survey and the New York State Geological Survey were established with comprehensive and decidedly well-rounded geological expectations. However, it is significant to mention that New York was not experiencing any kind of mineral rush when its geological survey was founded. Unlike California, New York legislators were not obligated to satisfy any demands made by impatient and boisterous miners to prioritize gold over the collection of any other geological knowledge. It is likely that in the absence of the Gold Rush, California lawmakers and thus the California Geological Survey perhaps would have had more scientific freedom to conduct a broad study of state geology similar to that of the New York Survey.

The men of the California Geological Survey were formally charged with producing "an accurate and complete geological survey of the State, with proper maps thereof, and a full and scientific description of its rocks, fossils, soils and minerals, and of its botanical and zoological productions."²² Various maps of the state (and one of Nevada) were initiated, including ones of central California, southern California, and the state of California as a whole. Whitney and his team were also in the process of creating a "Yosemite Guide Book" as travel to the soon-to-be

²¹ Ibid, 321.

²² "The State Geological Survey. -No. 1: An Important Question", Pacific Rural Press (San Francisco), January 6, 1872, Volume 3, Number 1 ed., <http://cdnc.ucr.edu/cgi-bin/cdnc?a=d&d=PRP18720106.2.12&srpos=200&e=-----187-en--20--181-byDA-txt-txIN-Geological+California+-----1>

National Park was greatly increasing following the Gold Rush. Maps of hydraulic mines, new barometrical observations, and advances in botany, fossils, and ornithology constituted several additional undertakings of the CGS.²³

The work and publications of the Survey garnered some praise from the Californian public during its operation, but otherwise faced criticism from the Californian people and lawmakers. In one of the only shows of support for the work of the CGS, the *Marin Journal* declared “the importance of a thorough geological survey of the State of California cannot be questioned. A state so rich in minerals, and second to none in agricultural resources, [will be] immensely benefited by bringing the aid of science to the advancement and direction of labor” in praise of the broad nature of the Survey’s activities.²⁴ Others, however did not look upon the Survey with quite the same regard: the staff of the *Daily Alta* was unsure of the feasibility of such a program and “questioned the policy of undertaking an examination of the entire physical character, and of all the natural productions of the State, without any regard to their economical value.”²⁵

Clearly, a larger battle between economic and scientific pursuits was being waged behind the backdrop of the study of California’s geology. Even though the legislature had called for a well-rounded geological survey, the Californian people were not pleased with this manner of operation. This was likely a result of miners’ chokehold on California’s policy; the miners only cared about gold, as that was the source of their livelihood. The established scientific goals of the program were not intended to antagonize the citizens of the state, however any scientific

23 “Geological Report”, *Sacramento Daily Union*, November 17, 1873, Volume 46, Number 7058 ed., <http://cdnc.ucr.edu/cgi-bin/cdnc?a=d&d=SDU18731117.2.11&srpos=395&e=-----187-en--20--381-byDA-txt-txIN-Geological+California+-----1>

24 “Geological Survey of California”, *Marin Journal* (San Rafael), April 12, 1862, Volume 2, Number 4 ed., <http://cdnc.ucr.edu/cgi-bin/cdnc?a=d&d=MJ18620412.2.8&srpos=4&e=-----186-en--20--1--txt-txIN-Geological-----1>

25 “The State Geological Survey”, *Daily Alta California* (San Francisco), April 30, 1866, Volume 18, Number 5894 ed., <http://cdnc.ucr.edu/cgi-bin/cdnc?a=d&d=DAC18660430.2.14&srpos=7&e=-----186-en--20--1--txt-txIN-Geological-----1>

knowledge unrelated to mining and economic progress was largely viewed as useless and a waste of the state's money since it did not directly benefit the miners.

It is important to note that the California legislature was not displeased with the work produced; rather, they were unhappy with the Survey's apparent reluctance to prioritize mineralogy, especially since initial published works excluded any information pertinent to mining. Lawmakers reiterated to the CGS that gold and mining should be the primary focus of the work done by the organization. Whitney however, didn't feel that this maintained the true spirit of scientific endeavors and wished to pursue all subsets of geology equally (or, more accurately, as he deemed fit). He had little regard for the potential implications of ignoring the wishes of the clamoring Californian miners and their representatives in Sacramento, publishing the CGS's initial works on paleontology, flora, and fauna as mentioned earlier in this paper.

Naturally, the public was irritated with this defiance. Communicating this to Sacramento, the state legislature once again urged Whitney to prioritize geological matters pertinent to mining in order to satisfy the demands of their constituents overwhelmingly made up of miners.²⁶ Whitney did not back down, however. He famously proclaimed to the lawmakers that "it is not the business of a geological surveying corps to act ... as a prospecting party"²⁷ and that "[the Survey] has escaped perils by flood and field, has evaded the friendly embrace of the grizzly, and now finds [itself] in the jaws of the Legislature."²⁸ Lawmakers and the public seriously began to doubt the effectiveness of Whitney and his team: "elaborate pictures of extinct shell fish and minutely scientific descriptions of bugs" were not what Californians and their representatives had

26 "The State Geological Survey. -No. 1: An Important Question", Pacific Rural Press

27 Whitney, J. D. An address on the propriety of continuing the state Geological survey of California delivered before the Legislature at Sacramento, Thursday evening, January 30th, 1868: to which are appended: Two letters to the governor relative to the progress of the Geological survey communicated to the legislatures of 1865-6 and 1867-8; also, the report of the commissioners to manage the Yosemite Valley and the Mariposa big tree grove, for the years 1867-8. San Francisco: Towne and Bacon, 1868. Accessed February 20, 2017.

28 Whitney, J. D., and Benjamin Parke Avery. Lecture on geology, delivered before the Legislature of California, at San Francisco, Thursday evening, Feb. 27, 1862. San Francisco: B.P. Avery, State Printer, 1862. Accessed February 20, 2017.

hoped for in a geological survey.²⁹ Opposition to the CGS gradually mounted among miners for the lack of mineralogy resources being produced as well as among the legislators as a result of Whitney's pompous and pretentious behavior.

In 1874, the California legislature was compelled to determine whether the California Geological Survey should continue to be funded or terminated. Many senators lodged vitriolic attacks against the CGS, one stating "this folly has already cost the State thousands of hard dollars and has not, as we believe returned one cent in practical knowledge. The books already published contain little or nothing of value to the State or people. The whole thing has been a mistake."³⁰ Another lawmaker declared that the CGS had been a complete hoax as it had been operating without regard to the economic needs and demands of the Californian people:

If there ever was a fraud perpetrated on the State of California it has been by the geological survey of the State as conducted. The State has paid an enormous sum of money every year that the Legislature has assembled for ten years, for the purpose of carrying on the geological survey, and now I ask what have we to show for it?³¹

As a result of this perceived continual disobedience, the California Senate continually cut the Survey's budget until 1867, when the money for the Survey's projects ultimately ran out. The California Geological Survey itself was formally ended in 1874 with little contestation from those who had originally called for and created it:

The enacting clause of the bill appropriating \$30,000 annually for the completion of the State Geological Survey was stricken out in the Assembly on Tuesday by a vote of 50 to 15. That puts an end, we presume, to the official relations between the State of California and Professor J. D. Whitney, who is an eminent geologist, but unfortunately has little of the tact needed for the position which he filled.³²

²⁹ "The State Geological Survey. -No. 1: An Important Question", Pacific Rural Press

³⁰ "Professor Whitney and the Survey" Marin Journal (San Rafael), March 12, 1874, Volume 13, Number 52 ed., <http://cdnc.ucr.edu/cgi-bin/cdnc?a=d&d=MJ18740312.2.6&srpos=425&e=-----187-en--20--421-byDA-txt-txIN-Geological+California+-----1>

³¹ "California Legislature. Twentieth Session [Phonographically Recorded for the Union], Senate" Sacramento Daily Union, March 18, 1874, Volume 46, Number 7161ed., <http://cdnc.ucr.edu/cgi-bin/cdnc?a=d&d=SDU18740318.2.5&srpos=73&e=-----187-en--20--61-byDA-txt-txIN-Geological+California+Whitney+-----1>

³² "Editorial Notes", Daily Alta California (San Francisco), March 21, 1874, Volume 26, Number 8755 ed., <http://cdnc.ucr.edu/cgi-bin/cdnc?a=d&d=DAC18740321.2.31&srpos=74&e=-----187-en--20--61-byDA-txt-txIN->

The CGS was officially replaced with the State Mining Bureau in an Assembly bill in 1880. It was headquartered in San Francisco, as it was the hub for mining businesses and pursuits at the time.³³ The position of “State Mineralogist” was instituted to run this Bureau and for 66 years after was held by mining engineers. A direct result from the legislature’s disappointment with the CGS, the Act of 1880 did not call for a geological survey, even omitting any mention of geology in general. The Act instead called for “an analytical laboratory, library, the display of mine models, a museum, and publication and dissemination of information on mining to the citizens of California” rather than any broad geological pursuits.³⁴ These publications were constricted to the pursuit of gold and other minerals, consisting only of statistical reports on mineral production and preparing reports on mines and mineral production on counties.³⁵

Spurred by displeased and demanding constituents, the California government had both the ability and the desire to direct geological research and significantly curb scientific freedom. This effectively negated aspects of geological research not relevant to gold, distorting the empirical nature of geology and forcing it to meld with political and economic interests of the forty-niners dominating the state. Such manipulation continued for nearly 50 years until 1928, when Theodore J. Hoover, Dean of Stanford’s Mining Department, and geology professor J. P. Smith convinced State Mineralogist Walter W. Bradley to create a Geologic Branch for the State Mining Bureau (now formally titled the Division of Mines). Bradley appointed Olaf P. Jenkins, the man credited for developing the first comprehensive geological survey of California since the time of the original Whitney Survey, as Chief Geologist. He restructured the Division of Mines to include branches of *equal* administrative power: the Geologic Branch and the Mining Engineering Branch, breathing new geological life into the program once dominated by

Geological+California+Whitney+-----1

33 Socolow, 28.

34 Oakeshott, Gordon B. "Contributions of the State Geological Surveys." *Geologists and Ideas A History of North American Geology*: 328.

35 Oakeshott, 323-35.

mineralogy. One field geologist was so pleased with Jenkins' actions that he declared that Jenkins had done no less than made "an honest woman out of a whore" with California's renewed scientific pursuit of geology.³⁶

To conclude, at the time of the creation of the California Geological Survey, governmental priorities were dictated by the needs of gold miners because of mining's widespread popularity and accessibility at the height of the Gold Rush. The CGS was expected to adhere to the mineral-seeking wishes of the legislature and its constituents; in comparison to a state that was not experiencing a mineral rush such as New York, the California Survey had a much more limited degree of scientific freedom and inquiry in its geological pursuits. Whitney's arrogant behavior further soured relations with the state government. When the CGS pursued geological studies not specific to gold and mining, it was terminated less than a decade after its inception and replaced with a program specific to mineralogical pursuits.

Although personalities certainly played a role, the fervor of the Gold Rush spurred the termination of the Survey. California legislators were obligated to represent the interests of their constituents, and since miners overwhelmingly dominated the population, the finding of gold dominated the legislative agenda. The stubbornness and vitriol of Whitney might have alienated the miners and their representatives to a significant degree, but it was ultimately the miners' insatiable lust for gold that doomed the CGS and its broad pursuits.

The men working for the California Geological Survey, like Josiah Whitney (despite the shortcomings of his personality) and William Brewer, aimed for a comprehensive and well-rounded method of geological research. However, like the helter-skelter invention of the Hangtown Fry omelet, the demands of miners were vehement and could not be ignored without consequences. At the mercy of forty-niners and their representatives in Sacramento, the Survey eventually became a victim of its own creators. Caught up in the mineral-fueled vortex of Gold Rush politics, it was ultimately dismantled for its pursuit of broad geological research,

³⁶ Ibid, 329

undermining the inquisitive freedom of geology's conduct for the next several decades in the state of California.

A blustery conflict of PhD's and pickaxes was waged during the mid nineteenth century through the creation, operation, and termination of the California Geological Survey. Ultimately, the "unscientific" miners were victorious, as the Gold Rush imbued gold miners with the desire and clout to indisputably proclaim what geological science was worthy of study. Miners decidedly undermined geology through their ravenous appetite for gold, negating the acumen of those geologists who opposed them for nearly half of a century and bending geology's ambivalence to their voracious cravings.