

DISSERTATION FIELDWORK GRANT APPLICATION

MAY 2018

(Do not change the default format. Please limit your responses to the space provided.)

<p>1. Name of Applicant (Please give full legal name: first, middle, and SURNAME in uppercase letters): Tanner Christian Premo Preferred Mailing Address of Applicant:</p> <p>E-mail: Premotc@plu.edu Telephone: 253-680-9387 Fax:</p>	<p>2. Name of Supervisor, Department, & Institution: Dr. Bradford Andrews Mailing Address of Supervisor:</p> <p>E-mail: Telephone: Fax:</p>
<p>3. Applicant's Personal Information Gender: Male Date & Place of Birth: <u>Washington</u> Citizenship: <u>United States</u></p>	
<p>4. Applicant's Education History Highest Academic Degree: (Select) Year Degree Awarded: _____ Institution Awarding Degree: _____</p>	
<p>5. Applicant's Current Doctoral Status Are you registered for a doctoral degree? No Date you expect to receive degree: _____ Department and Institution that will award the degree: _____</p> <p>What requirements for the degree (other than the dissertation/thesis) have yet to be completed, and what is their expected date of their completion?</p>	
<p>6. Title of Project (15 words or less): Cultural Adaptation: Gold Rush Mining Communities of Southeastern Australia</p>	<p>7. Total requested for Dissertation Fieldwork Grant (maximum \$20,000): US\$ <u>20000</u></p>
<p>8. Abstract of research proposal (Provide a general description of your proposal in plain English. If this proposal is successful, this abstract will be posted on the Foundation's website.)</p> <p>Donald Hardesty created a theoretical model for cultural adaptation in mining communities of the American West. My research will use the same theoretical model and apply it to the Australian Gold Rush beginning in the 1850's as experienced in the Victorian Gold Fields. This specific time period and location is a good choice for my research because of its geographic and temporal similarity to the gold rush in the American West. To do my research I will examine archaeological collections from mining sites in the seven historic mining districts of the Victorian Gold Fields: Ballarat, Beechworth [Ovens], Sandhurst [Bendigo], Maryborough, Castlemaine, Ararat and Gippsland. I will also examine collections of historical documents for these districts in order to gain a complete understanding of the mining sites and to assist in establishing an evolutionary chronology. As gold was discovered in both Australia and the American West large amounts of people migrated to these new regions to extract it. Hardesty's model can be applied to Australia, just as it was to the American West, to enhance our comparative understanding of the colonial mining process. This understanding is valuable for the Australian context in particular because of how limited the archaeological study has been on the topic. This phase in Australia's history was an important period of growth and therefore had a big impact on its future. An understanding of the colonial mining context is also valuable outside of Australia because this process took place in different regions all over the world and a better understanding in Australia could give insight into these processes anywhere around the world.</p>	
<p>9. Start and end dates of project for which support is requested (start date must fall between January 1 and June 30, 2019): June 2019 - March 2020</p>	<p>10. Location where project is to be carried out: Museum of Victoria</p>

11. List research permits and/or ethical approvals required for this project.

- Parks Victoria research permit if any of the sites I research fall within a state park.
- GG408 Temporary Activity Visa

12. What date do you expect to have all required permits/permissions in hand?

13. Will you work with academic personnel (other than your supervisor) while conducting research? (Select)

(If so, please list below. See the Application Information and Procedures for instructions.)

Susan Lawrence, professor of archaeology at La Trobe University
 Peter Davies, professor of archaeology at La Trobe University

14. Budget itemization: Provide a detailed budget for the requested funding (maximum \$20,000).

(See the Application Information and Instructions for budget guidelines, and include a justification for any piece of equipment that costs over \$750, childcare expenses, research and/or transcription assistance, and per diem estimates. Please also include a justification for any budget items not specifically listed as allowable expenses. Press Ctrl key + Tab to utilize pre-set tabs in application form)

	US \$	US \$
Travel		
International Travel		
1 x round trip airfare Victoria, Australia	1,200	
Transportation and lodging while traveling	130	
Excess Baggage	200	
Local Travel/Transportation requirements		
Myki card for public transport (\$7/day)	1,960	
Sub-total for Travel		3,490
Living Expenses [food, lodging and other expenses may be listed separately]		
Per Diem in Melbourne (\$50/day x 9 months) **1	14,000	
Cooking and household supplies	200	
Sub-total for Living Expenses		14,200
Other Costs Associated with Research		
GG408 Temporary Activity Visa and other Visa fees	310	
Sub-total for Other Costs		310
Equipment		
Digital Camera		
Sony - DSC-HX400 20.4-Megapixel	450	
Laptop computer x2 **2		
1. Lenovo - 330S-15ARR 15.6"	502	
2. Lenovo - 14" Laptop - Intel Celeron - 2GB		
Memory - 32GB eMMC Flash Memory	238	
Sub-total for Equipment		1,190
Other Costs		
Travel Medical Insurance (\$50/month for 9 months)	450	
Wifi, Email, telephone, fax, postage (\$40/month for 9 months)	360	
Subtotal for Other Costs		810
Total Budget Requested from Wenner-Gren		20,000

1. This figure is based on an apartment rate of \$1,550 a month. An apartment is more cost effective than a hotel. Any extra money in this category will be allotted to cooking and household supplies as needed.

2. This money will be used to purchase one quality laptop as well as one backup laptop. The majority of money will be used on the primary laptop with the backup being cheaper and only used in the event that the primary breaks.

15. Have you applied to other agencies for funds covered in this application? Yes (If so, please list other funding sources you have contacted to aid this project and indicate whether funds have been awarded.)

- Australian Research Council (ARC) grant.
- Australian Archaeological Association Student Research Grant Scheme (SRGS)

16. Sources of aid received for other phases of the project:

N/A

17. Please help categorize your project by Discipline and Area or Topic:

Application Discipline	Geographic Research Area	Physical/Biological Projects Only
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Archaeology	Oceania	(Select)
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If "Other,"	If "Other," please describe	If "Other," please describe
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Not Applicable

Not Applicable

18. Key Words (Please provide "key words" and/or phrases that best describe your research project.)

Cultural adaptation, cultural evolution, mining technology, mining communities, Victoria, Australia, Australian Gold Rush, American West,

19. Have you received a Wadsworth Fellowship? No

(If so, Reporting Requirements for the Wadsworth Fellowship must be completed. Contact the Foundation for further information.)

21. Project Description Question 1: Describe your research question/hypothesis or research objective. That is, what will the focus of your investigation be? (*Press Ctrl + Tab to use tabs.*)

I propose to analyze and explain the process of cultural adaptation by miners in Australia during the Gold Rush beginning in the 1850s. I will specifically examine sites in Victoria, a state in the south-eastern portion of Australia. Donald Hardesty (2010) created a comprehensive theoretical framework for cultural adaptation that he modeled around the mining frontier in the American West, specifically Nevada. I will take this model and apply it to the new context of the Australian Gold Rush to work towards a more universal model for cultural adaptation in mining communities.

Hardesty's model characterizes the mining landscape as an interconnected network of unique ecological theaters. Miners used coping strategies to deal with the challenges brought by these various theaters. In this process of adaptation to a new environment, both the miners and the landscape co-evolve. As miners physically disturb the landscape the categories of fitness change for the environment and miners must find new ways to adapt to it. In my project I will investigate the following questions: What does the theoretical framework developed for the American West by Donald Hardesty reveal about cultural/technological adaptation in the Australian Gold Rush? How does the process of cultural/technological adaptation compare in these two contexts? How does the Australian context challenge or enhance the validity of Hardesty's model?

Donald Hardesty synthesized a theoretical model for the cultural adaptation that miners experience when encountering new landscapes in the American West. He included aspects of multiple different theorists to create his whole model. He cites Patrick Kirch's (1980; 1997) three stage model for cultural adaptation on islands, as well as his idea that the mining frontier can be explained as being in a constant boom-bust cycle (Hardesty 2010, 179). The boom stage represents the discover of ore and the beginning of processes of adaptation while the bust stage represents the depletion of ore and conclusion of adaptation. Hardesty specifically addresses the component of technology as related to cultural adaptation. Miners were often faced with a new set of problems in an environment in which their previous technology was not adaptive. New technology would need to be experimented with and subsequently abandoned if not useful (Hardesty 2010, 181). In his explanation of technological adaptation, Hardesty employs Immanuel Wallerstein's World Systems Theory (Wallerstein 1974; 1980) to help explain how new technologies arise. During the process of adapting to a new environment experimentation is often fueled by ideas from surrounding mines or from miners that traveled from different locations, thus exemplifying a large interconnected 'world' system between sites on the mining frontier.

The Australian Gold Rush is a perfect context for applying Hardesty's framework. Miners were inherently a highly mobile group of people (Douglass 1998) and the Australian Gold Rush was no different. Miners migrated to Australia and it is already well understood that they brought their technologies with them from different parts of the world. Lawrence and Davies (2015) wrote on the topic of the Australian Gold Rush, their work highlights a valuable starting point for my research. They examine how Cornish miners attempted to apply their previous mining strategies (*habitus*) (Bourdieu 1977) to the Australian environment (Lawrence and Davies 2015). Cornish miners used ground sluicing techniques to extract alluvial gold that previously had worked in their homeland. Ground sluicing is the use of water to displace and move soil that potentially contains gold. The miners had to innovate and adapt when the new dry Australian environment was not able to supply the water that was needed for the technique (Lawrence and Davies 2015, 21). This specific topic is one area in which the Hardesty framework can apply and also something that makes the Australian context unique. The lack of water was a major hurdle to overcome and a clear area in which technology was adapted and dispersed across the frontier. The quick spread of this technique to multiple Australian mining communities is a testament to the connections that the different sites had with each other. It shows how information and technology was readily transmitted across the frontier through people, this clearly exemplifies Wallerstein's World Systems Theory (Wallerstein 1974, 1980). The situation would also fall into the stages of adaptation that Hardesty suggests. The Australian miners encountered a new environment and new problem so they experimented with techniques from a previous environment and adapted to a new one in order to effectively extract the resources.

The Australian Gold Rush is understudied in the field of historical archaeology. I aim to make a contribution to the limited understanding of how cultural adaptation played out for miners in Australia. I will accomplish this by accessing the data from excavations of mining sites in the Victorian Gold Fields, as well as historical resources in the region such as personal journals, newspapers, government records, and photographs in order to create a detailed picture of mining culture and technology across Victoria and how it changed over time in the individual sites. I will then apply Hardesty's model to this information by examining how both the environment and the technology changed as the miners moved from site to site, continually adapting and co-evolving with each new theater.

The use of Hardesty's model will benefit the understanding of cultural adaptation in Australia as well as contribute to the theoretical validity of Hardesty's model. The Australian Gold Rush is a good fit as a new context for applying Hardesty's model. Both the American West and the Australian Gold Rush were impacted similarly by the global process of colonization, in this case mineral exploitation and extraction. In this process, large groups of people with different origins migrated to the area and began to interact with an environment completely foreign to them and that interaction is what this model can help explain. These two environments presented some different challenges for the miners to overcome. The unique Australian environment, coupled with the extensive international migration, made the process of adaptation highly complex. The Australian Gold Rush is the perfect opportunity to apply this model to a unique, yet similar, context and potentially enhance our comparative understanding of colonial mining processes.

22. Project Description Question 2: How does your research build on existing scholarship in anthropology and closely related disciplines? Give specific examples of this scholarship and its findings. (*Press Ctrl + Tab to use tabs.*)

Previous studies on historical mining archaeology in Australia have focused on technological adaptation (Casella 2006; Gojak and Allen 2000; Lawrence and Davies 2015a, 2015b; Sheng 2013). Miners during the Australian Gold Rush came from all over the globe. For example, large groups immigrated from China (Sheng 2013) and the United Kingdom (Lawrence and Davies 2015a, 2015b; Gojak and Allen 2000). They brought different techniques and technologies with them that they had previously applied in their places of origin. The collective adaptation to Australia's new environment with the diverse pool of technologies created a unique and complex mining frontier. My research will explain this complexity and show how the regional diversity contributed to the overall process of adaptation.

Much of the Archaeological research conducted on mining archaeology in Australia has been a matter of gathering information on specific sites and presenting it in a descriptive fashion (Casella 2006, Gojak and Allen 2000); some have begun to explain the impacts that this technological adaptation had on the future (Sheng 2013). More recently, theories have been developed on the topic (Lawrence and Davies 2015a). Lawrence and Davies notably applied Bourdieu's (1977) concept of habitus to the gold rush in Australia. They argued that the habitus of the miners from Cornwall is the reason for their success in Australia. Miners used ground sluicing to harness the water to supply the strategy of alluvial mining to which they were already experts. As evidence, Lawrence and Davies (2015a) found that the archaeological remains of ground sluicing were identical to the systems excavated in Cornwall.

I will build upon this theory by incorporating more components of adaptation as they are already set forth in the context of the American West by Hardesty. A model for cultural adaptation is important to the understanding of how a region changed over time and my work will broaden the scale at which it has been studied previously. Hardesty developed these different components by including aspects of multiple different theorists. First, he applies Patrick Kirch's (1980; 1997) model for cultural adaptation on literal islands. In order to make this comparison to islands he uses R.M. Morse's characterization of a mining frontier as a "web or archipelago of patches" (Hennessy 1978, 17; Morse 1965, 30), with each mining site being a separate island. Kirch's model explains how miners encounter new environments (islands) and must go through a process of innovation and adaptation as they attempt to successfully and efficiently extract ore. On a larger scale, Hardesty uses this to explain the frontier as a whole as being in a constant boom-bust cycle (Hardesty 2010, 179). Ore is discovered at a location and miners flood to the area (boom), initiating adaptation. They remain there until the ore is depleted (bust) and they must move on to the next location. Hardesty also employs Immanuel Wallerstein's World Systems Theory (Wallerstein 1974; 1980). In the mining context it mostly applies to the transmission of ideas and technologies between different mining sites. In the process of adapting to a new environment, miners often get ideas from surrounding mines or from miners that traveled from different locations, thus exemplifying a large interconnected system between sites on the mining frontier. I will also explain why these specific components are applicable to the Australian context or, in concordance with my last research question, why this context might challenge the model.

To further explain cultural adaptation Hardesty takes inspiration from Darwinian biological evolution by using categories of "fitness" to help explain how one culture method would win over another. Each environment has its own categories of fitness and as the environment that the miners are in changes so do the fitness categories and thus the miners (Hardesty 2010, 184). These categories of fitness are anything that would elicit competition and therefore be selected for. Examples include: settlement organization strategies, health and nutrition, experience and knowledge of the individual miner, etc (Hardesty 2010, 185). Hardesty also takes theoretical contribution on this topic from David Rindos to explain how, with fitness, only relative success is important (Rindos 1984).

The topic of cultural adaptation encounters much debate over the effectiveness of applying the inherently biological concept of Darwinian evolution to the concept of cultural adaptation (Smith 2013). Two aspects of the model that are particularly contested are the Darwinian models ability to account for human agency and the ability for humans to transform the environment they move to instead of adapt (Fuentes 2009; Goodman & Leatherman 1998b; Joseph 2000; Marks 2012; Schultz 2009; Singer 1996; Smith 2009). The argument over human agency is further complicated in my research through the use of archaeology. Ian Hodder (1986), along with the others in the post-processual movement, originally brought up the argument that archaeology has difficulty explaining the individual and therefore ignores it. Hardesty acknowledged this problem, however, he was not concerned since a theoretical model is inherently general (Hardesty 2010, 183). My research will enter this argument by using elements of Darwinian evolution to explain cultural adaptation. It will show that elements of the inherently biological framework can, in fact, help us understand a cultural process. My research will also exemplify archaeological theory effectively accounting for human agency, partly due to the involvement of historical sources.

Hardesty also recognizes humans ability to transform new environments instead of simply adapting to them. His model for cultural adaptation is coevolutionary (Rindos 1984). Hardesty explains that human behavior "create(s) new ecological theaters through principles and ideologies that 'transform nature into culture'" (Hardesty 2010, 1985, 1986; Bennett 1976; Bargatsky 1984). A coevolutionary model of adaptation is very appropriate for a mining frontier. The environments change drastically as the people encounter it, new ore discoveries shift mining settlement locations, and new mining techniques have different physical impacts on the land or utilize different natural resources. As the environment changes new categories of fitness are established for that environment that the people must further adapt to (Hardesty 2010, 184).

Hardesty's model incorporates many of the current debates of cultural adaptation, making it a good candidate to apply to the new context in Australia. My research would give insight into how the process of cultural adaptation impacted this part of Australia's history. This process of cultural adaptation took place in mining communities all over the world, making it a topic worthy of study so that we can enhance our comparative understanding of these communities.

23. Project Description Question 3: What evidence will you need to collect to answer your research question? How will you go about collecting and analyzing this evidence? (*Press Ctrl + Tab to use tabs.*)

I will use both historical documents and archaeological collections and excavation reports to answer my research questions. The questions I hope to answer are: Q1 What does the theoretical framework developed for the American West by Donald Hardesty reveal about cultural/technological adaptation in the Australian Gold Rush? Q2 How does the process of cultural/technological adaptation compare in these two contexts? Q3 How might I alter Hardesty's model in order to better suit the Australian context? Most of the historical resources I will be using have been digitized at the State Library of Victoria or on the Victorian Parliament's website. The archaeological collections are available through the Museum of Victoria.

To answer my questions I will need to analyze sites for any artifacts that indicate use of a specific technology. The technologies used by a site vary from site to site based on the specific geographical circumstances; it also ranges over time as many mining sites would have tried various strategies over time (Davies et al. 2018). In order to distinguish spatial comparisons in my work I will be examining sites within each of the seven historic mining districts of Victoria: Ballarat, Beechworth [Ovens], Sandhurst [Bendigo], Maryborough, Castlemaine, Ararat and Gippsland. The technology that I will be looking for falls into two categories based on the type of ore the technology is used to extract, alluvial or hard rock. Alluvial gold deposits are on the surface and typically mixed in with some form of sand or dirt. These technologies began with the simple use of a pan and water but evolved dramatically into more complex machinery. Alluvial technologies include puddlers, compound cradles, ground and box sluicing, hydraulic sluicing, long toms, and paddocking. There are additional variations of some of these, however, these are the main processes. One of the main diagnostic markers of alluvial mining at a site are features that suggest the harnessing of water by miners. Most all of the alluvial techniques required a constant water source, however, the Australian environment provided a unique environmental challenge in that it could not provide this water naturally. Miners quickly realized this and developed a large scale network of water channels (races) and dams to harness the limited water. Evidence of this can be seen in the archaeological record and some extensive mapping of the river systems has been completed already (Davies et al. 2015b). This mapping shows what sites were using water and therefore highlights those that were using alluvial mining techniques. Diagnostic qualities of alluvial mining technology artifacts include the actual pieces of the technology artifact such as pieces of metal troughs, dams for stopping or directing water, and physical features in the landscape that show where auriferous soil was disturbed and sluiced.

Hard rock mining in Australia was either deep lead mining or quartz reef mining. Both of these processes typically involved extracting the ore from beneath the surface by digging some sort of mine shaft. Hard rock mining differed from alluvial mining in that it required some way to crush the ore since the gold was imbedded in something solid. The favored technology for doing this in Australia was the stamp battery. Hard rock mining, usually quartz reef, also employed additional tactics to separate the gold from the ore. At the time of the Australian Gold Rush both roasting and mercury amalgamation were commonly used (Davies et al. 2015a). Specific diagnostic features for hard rock mining technology artifacts could be the pieces of machinery themselves or features that indicate the use of this technology. For example, brick or concrete slabs indicate engine beds as well as platforms for the use of stamp batteries. Other features for hard rock mining would be actual mine shafts or railway tracks used to get to the ore buried underground. The processes by which the technologies and ideas for both alluvial and hard rock mining were transmitted between these regions and within them is a major component of Hardesty's model and therefore, my research.

The historical document portion of my research will mainly consist of government records, personal manuscripts, newspapers and pictures. These are all available online through the State Library of Victoria. These historical documents will serve to fill in any gaps in the archaeological record and assist with the chronology of technology use at sites. They can also provide specific explanations to things that archaeology cannot. For example, the use of races to harness water was first employed in Australia in 1853 by John Reilly, a miner with previous experience in California. In the next 15 years the Beechworth mining district's network of races grew to 1600 km, becoming the largest in the state (Davies et al. 2016). The extensive network of races and even the similarity in digging technique can be seen in the archaeological record, however, historical resources provide insight into the individual as well as the exact source of the technology.

In terms of historical documents, newspapers in particular could be valuable as most are preserved digitally and they report on things that are noteworthy, such as the adoption or abandonment of a mining technology. Another valuable historical source will be Robert Brough Smyth's *The Gold Fields and Mineral Districts of Victoria*. Smyth's (1869) book has provided scholars with vast amounts of information about Gold Rush mining sites and the technologies used at them. In terms of governmental records, I will be accessing *The Mineral Statistics of Victoria (MSV)*, *Reports of the Mining Surveyors and Registrars (MSR)* and other governmental reports to assist in establishing the technologies used in different regions and the timeframe they were in use. These are available in records on the Parliament of Victoria's website.

With the analysis of mining technology in Victoria I will be able to make comparisons to the American West. I will be able to view similarities and differences in what technologies were used and if any were favored for specific environmental circumstances. I will also be able to examine how these technologies diffused from settlement to settlement. In the American West ideas and technologies were exchanged which was a great factor in a specific settlements evolution. Insight into technology use in Victoria over time will give me the information needed to address this idea in that context and also make direct comparisons. In the process of comparison I will also be able to identify any ways in which the model could be modified to better suit Australia.

24. Project Description Question 4: What is your training; how are you prepared to do this research? List examples of your language competence, technical skills, previous research, and any other relevant experience. Describe any work you have already done on this project, and/or how it relates to your prior research. If you are collaborating with other academic personnel describe their role/s in the project and the nature of the collaboration. (Press Ctrl + Tab to use tabs.)

In May 2019 I will finish my undergraduate degree with a Bachelor of Arts in Anthropology at Pacific Lutheran University. During my time as an undergraduate student I was exposed to many topics in anthropology, and especially archaeology. I took classes on the Archaeology of the Viking World, Archaeology and Prehistory, Archaeology of Ancient Empires, and Prehistory of North America. These classes were where I really developed my academic understanding of archaeology. I learned different techniques for excavation and how features can provide valuable archaeological information. In the mining frontier of Australia, features provide important insight into a site since the physical artifacts often won't be present due to the portability or salvageability of the technology. Outside of archaeology I also have academic experience that is relative to my research project. I will be graduating with a minor in history and have taken many history classes on topics that relate to my project such as the History of the American West and Colonization and Genocide. These classes directly prepared me for this research as I gained a solid understanding of how to use historical primary sources to examine events and time periods in the recent past. In one of my history classes on the American West I wrote a research paper on the Dawes Act and its implications for western expansion of white settlers into territories controlled by native populations. To complete this research I used multiple types of historical documents, one of them being BIA government reports. This experience has directly prepared me for my proposed research because I will be using government reports from a similar time frame. My ability to effectively use historical documents and photographs sets me apart from the typical undergraduate archaeology student. This combined experience in both archaeology and history make me uniquely qualified for a project in historical archaeology.

In addition to academic experience I also have some hands on experience working with the Makah tribe in Neah Bay, Washington. On a study away trip I was able to assist with identifying artifacts and relabeling level bags from the Ozette excavation in the 1970's. Most of the artifacts we identified were animals bones that had been mistakenly placed with the level bags. This experience working in the archives at Neah Bay will directly qualify me for the archival work I am proposing to do in Victoria, Australia.

Outside of academia I have experience traveling internationally. I have traveled to Sweden and England both for roughly two weeks time. I am familiar with the process of traveling internationally and will not be overwhelmed or set back by the endeavor. Living outside of the country also requires a certain level of resourcefulness, a skill that I have already been able to develop on these previous trips.

I am also supremely qualified for this research in particular because I am very familiar with Hardesty's work which is foundational to my study. Last semester (Fall 2018) I completed a semester long paper on Hardesty's book and its theoretical underpinnings. I analysed Hardesty's techniques for employing the work of various theorists as well as how the particular theorists helped explain something about the American West. This understanding has given me specific insight into Hardesty's theory but, more generally, it has taught me how to effectively apply any theoretical model to a specific context. This experience will directly translate to my research in Australia.

25. Project Description Question 5: What contribution does your project make to anthropological theory and to the discipline? Please note that the Foundation's mission is to support original and innovative research in anthropology. A successful application will emphasize the contribution its proposed research will make, not only to the specific area of research being addressed, but also to the broader field of anthropology. (*Press Ctrl + Tab to use tabs.*)

My research will contribute greatly to the understanding of the process by which people interacted with the land and each other in the context of mining. The Australian Gold Rush, specifically in Victoria, had a significant impact on the development of Australia as a country. Recently, various historical archaeology projects have been conducted on the topic (Casella 2006; Davies et al 2015a, 2016, 2018; Gojak and Allen 2000; Lawrence and Davies 2015a, 2015b; Lawrence et al 2016a, 2016b; Sheng 2013). The application of Hardesty's (2010) model will contribute to the field of historical archaeology in Australia and provide insight that is specifically valuable to the topic of cultural adaptation as it is currently being addressed in the contexts of technology and ethnicity both for Australia and across the globe.

In my research I will be extending the application of the theoretical model of cultural adaptation created by Hardesty for the mining frontier in Nevada, to Australia. It is possible that some modifications will need to be made to the model in order to apply it to Australia. These changes will further refine the model and increase its potential to benefit the broader topic of cultural adaptation that has taken place in countless situations all over the world and throughout time. Hardesty's model is an amalgamation of the concepts of various theorists (Kirch 1980, 1997; Rindos 1984; Wallerstein 1974, 1980). These theories fit together in order to make a complete picture of the process of cultural adaptation. One component of the model is Darwinian coevolutionary theory. Hardesty uses categories of "fitness" to help explain the changes that miners and groups of miners go through alongside the new environments they are in. The categories of fitness explain the criteria in which change is selected for based on relative success in mining communities (Rindos 1984). The application of this inherently biological theory to a cultural process has been contested over time (Smith 2013). Some theorists claim that the Darwinian model fails to account for the individual's ability to transform the environment they move to instead of adapt (Fuentes 2009; Goodman & Leatherman 1998b; Joseph 2000; Marks 2012; Schultz 2009; Singer 1996; Smith 2009). I argue that the Darwinian model can effectively explain cultural adaptation despite its biological roots because of my use of a coevolutionary model. Miners are inherently transforming their environment just by mining.

This research will also extend Wallerstein's World Systems Theory (Wallerstein 1974; 1980) by showing how this theory specifically applies to a mining frontier. As different sources of minable material are discovered, groups of miners cluster around these locations and development settlements. World Systems Theory helps explain the transmission of ideas and specific technologies between these settlements on the mining frontier. These different mining settlements are all interconnected and contribute to each others process of adaptation.

26. Required Attachments

Applicants are required to attach the following documents to their online application.

- **Dissertation Fieldwork Application Form** (*this document*)
- **Project Bibliography** (*ten pages maximum*)
- **Applicant's Curriculum Vitae** (*five pages maximum*)
- **Supervisor's Curriculum Vitae** (*five pages maximum*)

Do NOT include appendices, endnotes, charts, illustrations, letters of reference, or other materials.

Attachments must be compatible with the Microsoft Word 2003, 2007, 2010, or submitted as PDF files.

Required Attachments should use single-line spacing with 10-point font or larger, and have 1-inch (2.5 cm) margins, top, bottom and either side of each page. Answers in the application form must use the preset Ariel 10-point font.

Please note: if the attachments do not meet these requirements, the application will not be accepted for review.

27. Online Application Submission

After completing the official Dissertation Fieldwork Grant Application Form, Project Bibliography, and required Curriculum Vitae, applicants must submit these application materials using the Foundation's online application submission procedures.

Click on or type https://www.GrantRequest.com/SID_577?SA=SNA&FID=35017 into your Internet browser to begin the online application submission process.

For detailed instructions on how to submit your application materials online, please see the "Access the Online Application" section in your application instructions or posted on the "Dissertation Fieldwork Grants" section on the Wenner-Gren website.

30. Printed Application Materials -- Assembly and Submission Instructions

After submitting the application form and required attachments online, applicants must send one (1) printed copy of the application form and attachments, PLUS four (4) additional copies of the application form only, to the Foundation offices to complete the filing process:

1. Applications must be received in **complete** and **final** form, with all questions answered. Revisions and items sent at a later date cannot be accepted.
2. Application must be made using the official Dissertation Fieldwork Application Form, and all questions and required attachments written in English.
3. Printed materials must be single-side copies.
4. Application materials should be divided into five (5) sets.

Set 1 must be paper-clipped (NOT stapled) and collated as follows:

- Dissertation Fieldwork Application Form
- Project Bibliography
- Applicant's and Supervisor's curricula vitae

Sets 2-5 consist of the application form only, and should be stapled in upper left hand corner

Application materials must be postmarked by the application deadline (and received by the Foundation no later than two weeks after the deadline). Materials should be mailed in a single, securely bound package to:

**Applications Office
WENNER-GREN FOUNDATION
470 Park Avenue South, 8th Floor North
New York, NY 10016
U.S.A.**

If you are planning to submit your application materials via the U.S. Postal Service, please be advised that all packages weighing more than 13 ounces must be taken to the Post Office for mailing.

PLEASE NOTE: PRINTED APPLICATION MATERIALS MUST BE PHYSICALLY MAILED TO FOUNDATION

Sources (in Chicago Manual of Style 17th ed.):

- Bargatsky, T. "Culture, Environment, and the Ills of Adaptationism." *Current Anthropology* 25(4):399-415. 1984.
- Bennett, John W. *Northern Plainsmen: Adaptive Strategy and Agrarian Life*. Aldine Press: Chicago, IL. 1969.
- Bourdieu, Pierre. *Outline of a Theory of Practice*. Cambridge University Press, Cambridge, UK. 1977.
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TANNER PREMO

Curriculum Vitae

Buckley, WA | 253.680.9387 | premotc@plu.edu

Education

Pacific Lutheran University, Tacoma, WA

Bachelor of Arts

Expected May 2019

- Major: Anthropology with a subfield emphasis in Archaeology
- Minor: History (area of focus on American History)
- Cumulative GPA: 3.61

Relevant Skills

- Small scale excavation
- Dry screening
- Mapping and plotting an area on a grid
- Camera operation
- Word and Excel

Field Experience

- Organized level bags of organic material from the Ozette excavations in Neah Bay, WA. Dr. Dave Huelsbeck. January 2018.

Awards and Honors

- Pacific Lutheran University Dean's List - 2015/16, 2016/17, 2017/18, 2018/19
- Northwest Conference Division III Scholar Athlete - 2015/16, 2016/17, 2017/18, 2018/19
- Chi Alpha Sigma: National College Athlete Honor Society - 2017-Present

Research Interests

- Cultural/technological adaptation
- Mining archaeology
- American history

Relevant Coursework

- *Anthropological Inquiry* Instructors: Dr. Bradford Andrews and Dr. Jordan Levy. Fall 2018.
- *Makah Culture Past and Present* Instructors: Dr. Dave Huelsbeck and Dr. Jordan Levy. January 2018.
- *Introduction to Archaeology and World Prehistory* Instructor: Dr. Bradford Andrews. Spring 2016.
- *History of Western and Pacific Northwestern United States* Instructor: Dr. Rebekah Mergenthal. Spring 2018.