

Sesquicentennial Application for Spring 2008
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Project Title: Phonography (Field Recording) utilizing Binaural Recording

The purpose of this proposal is to request sesquicentennial release during the Spring Semester of 2008 to expand my research as a sound designer through field recording. An expected outcome of this research will be a free Internet based, photographic and “phonographic” resource to sound designers and enthusiasts, with “phonographic” evidence as its focus. An exciting aspect of this research is that this type of field recording remains unique. It is difficult to find free binaural recordings on the Internet and there are a limited number of binaural recordings for sale. Even the most comprehensive web resources in this field are plagued by incorrect links to now defunct web pages. Also, I have found no more than ten companies with binaural microphone systems for purchase.

In the following paragraphs I will explain phonography, binaural recording, and the role of the theatrical sound designer.

The idea and role of sound designer defy a simple explanation because the title and function are subject to the context for which they are used. Sound designers all concern themselves with controlling sound, and their respective disciplines represent focal points in physics, electrical engineering, sound recording, and composition. The theatre sound designer is responsible for the auditory and acoustic necessities, the creation and/or manipulation of sonic environments, and music for live production. Therefore, theatrical

sound design requires a synthesis of basic knowledge in fore mentioned focal points with mastery of recording arts. It is important to note that the basic building block for theatrical sound design is the sound recording and most make extensive use of prerecorded sound libraries. Our library contains over one hundred compact discs of this nature. My research will allow me to become a distinctive creator of these basic building blocks.

I prefer to frame this proposed research in sound design under the heading of “phonography” because the new meaning of the word seems to denote a process rather than a technology. The word “phonography” literally means sound writing or sound graphing. Shorthand is an example of this. However, the definition of phonography seems to have been reconstituted, because in my initial research I have found multiple meanings of the word. There are a small but increasing number of sound artists who describe field recording as “phonography” in an analogous way to the process of photography. These artists capture and preserve the current sounds of environments and culture for future observation. They also capture sound for other mediums such as theatrical productions, documentaries, compilations, and archives. Certain folklorists work in this way to preserve vanishing cultures and the environments associated with those cultures.

My introduction to this field began in 2003 with a Summer Research Grant from Louisiana Tech University. The grant allowed Dr. Susan Roach, folklorist for the Louisiana Folklife program, to employ me as a digital media specialist. Dr. Roach and I

sifted through her extensive archive of analog sound recordings representing Louisiana folklife, digitized the best examples, and then converted them to web deliverable media.

The evidence of this work is published online at

<http://www.latech.edu/tech/rural/folklife/index.php?section=10>.

The field of phonography is represented by a spectrum of aesthetics in recording. The resulting array of varying sound quality within these sound recordings is directly related to the subjective nature of sound. There are no particular, predetermined recording requirements for exploring field recording, except to capture a moment in time. Dr. Roach used high-end, “prosumer” recording equipment and microphones to capture the sounds and events of Louisiana culture. Other professionals utilize even better equipment, including digital field recorders and special stereo microphones. Some of these special microphones are designed to capture three-dimensional sound by incorporating the anatomical aspects of the human head as part of the recording process.

This process is called the “Head Related Transfer Function” or “HRTF.” HRTF refers to the physical dimensions of the human head and how this impacts the mechanism of human hearing. Because of the physical separation of the ears on the human head, our ears have the capability of hearing in three dimensions. As sound waves reach the human head from a particular direction, they enter the ears at slightly different times. The brain is able to calculate these time differences resulting in a perception of direction within a field of three hundred sixty degrees around the head.

HRTF recording requires a “binaural” microphone system. This type of microphone



Neumann KU 100
<http://www.neumann.com/>

system utilizes a baffle representative of the human head or the actual head of the recording artist. To make binaural recordings using the actual head requires placement of a tiny microphone inside each auditory canal of the phonographer’s ears. The most recognized binaural microphone of this type is the Neumann KU100, a system

comprised of a “dummy” head with microphones in each ear. It is important to note that recordings made in this way have one drawback. In order to best hear three-dimensional sound, the resulting recording should be experienced through headphones. Although the stereo quality of the recording is exceptional, the three hundred sixty degree effect does not transfer well through conventional speakers.



Sonic Studios™ DSM™
<http://www.sonicstudios.com/>

A newer and alternate technique for utilizing the HRTF in recording allows the user to wear the microphones like a pair of headphones. An example of this is Sonic Studios™ DSM™ microphone systems.

These systems use a patented method for achieving the binaural effect with the ability to better hear the captured sound field on conventional speakers.

The cost of this technology is considerably lower than the Neumann KU100 because the process uses the actual head as a baffle.

This proposal for research dovetails with previously received grants and research plans for the future. The University of Virginia’s Council for the Arts has already initiated support for me in this endeavor with a generous grant from the Annual Fund. In the

spring of 2006, I was able to purchase a battery powered, desktop recorder and a professional stereo microphone. With this equipment, I am poised to begin capturing a variety of sounds and environments in natural settings. This semester, I will apply for research support from the Vice President for Research and Graduate Studies for the acquisition of a Sonic Studios™ DSM™ microphone and micro digital field recorder to begin making binaural field recordings.

Research in this area is a necessity to my professional development. Binaural field recording will allow me to examine sound as it occurs naturally, while simultaneously capturing it for further research and observation. And, mastery of recording in a variety of environments is key to the success of the sound designer/composer because it is the basic building block of modern theatrical sound design. Another important aspect of this area of research is that it initiates an ever-growing database of source material for future compositions. An additional expected outcome is a kind of auditory “preservation” of the sounds of current environmental settings and culture.

My travels as a professional theatrical sound designer present opportunities to record sounds and culture in Louisiana, California, Nevada, North Carolina, and various locations in Virginia. Although a majority of research will occur during the proposed sesquicentennial release time, I expect this project to begin as early as this summer (2007) and continue in some capacity indefinitely.