"A Fuller Perspective of the Pacific: Opening an Audio Portal into the Field Musuem's A.W. Fuller Enthnographic Collection"
by John Maniatis, James Sam, Ryan Davis and Anji Cornette

In February of 1958, two men began months of dialog discussing a collection of artifacts from the Pacific Islands, which had been donated to the Field Museum of Chicago, Illinois. The elder gentleman was Captain A.W.F. Fuller, who had spent his life assembling the collection. The other was the Field Museum's Roland Force. To document these discussions as meticulously as Fuller kept the collection, Force recorded these conversations on a Walkie-Recorall machine onto a format known as sonobands. Months later, these sonobands would be transcribed in print by Force's wife, Maryanne Force. Over forty years later, a need arose to retrieve the sounds from these sonobands. Working with The Cutting Corporation of Bethesda, Maryland, the Field Museum was able to transfer the dialogs to less esoteric formats for future generations. Unlocking these treasures proved to be a daunting task, but one that ultimately provided a fuller perspective to those interested in the Pacific Islands.

Background of the Fuller Collection

The Fuller Collection took sixty-two years to create beginning in 1896 and ending in 1961. The Field Museum, then known as the Chicago Natural History Museum, purchased this collection (Accession Number 2616) from Captain Fuller in 1958. There are 5621 distinct catalog numbers assigned to this accession but because some catalog numbers contained multiple specimens the quantity of actual specimens numbers approximately 6622 objects collected from a variety of islands and countries in the Pacific.

Captain A.W.F. Fuller

Alfred Walter Francis Fuller was born to Mrs. and the Reverend Alfred Fuller, M.A. on March 29, 1882 in Chichester, England. He numbered several ancestors who held prominent positions in England's history. The most notable, was Thomas Fuller M.D. personal physician to Queen Anne. His grandfather and great-grandfather later employed Fuller's father as President and established the Chichester Museum. It was in this environment of collecting and learning that he began his life's work. In 1896, Fuller's collection of Pacific artifacts began when his father gave him a Fijian paddle (Field Museum catalog #274264). Later, his wife also shared an interest in collecting. Indeed, Captain Fuller's job as a solicitor for the High Court was merely a distraction from his real passion of collecting. Retiring from his job due to a war-related condition, he focused his energies on collecting. As his collection grew in size, it also grew in fame, attracting scholars from Europe, America, New Zealand and Hawaii.

Interestingly, although he was undoubtedly pre-occupied with everything relating to the Pacific, Captain Fuller never traveled to the Pacific. Surprisingly, this was a distinction that he shared with his rivals in the collecting community. These men including Ratton, Oldman, Beasley and Hooper, also collected traded and sold spectacular specimens from their armchairs. These collectors and other would be collectors, benefited from the early and continued missionary activities of the British. It was through this continued contact with island cultures that brought so many artifacts from the Pacific to England's shores and into its rabid collectors' curio-cabinets.

Complementing his ever growing artifact collection, was a library of Pacific publications and illustrations. Until his death in 1961, Fuller spent the hours of the night, immersed in his library. The search was exciting to Captain Fuller, and the discovery of new information fulfilling. Once information was gathered about a certain specimen, he recorded it either on a catalog card, or on a tag affixed to the specimen. He was a firm believer in documentation, and for this very reason, his collection is without a doubt one of the most documented of its kind. His amassed collection of information ultimately found its way into the sonoband recordings.

As the years passed, Captain Fuller became increasingly concerned about the ultimate fate of his collection. His desire for the collection was to keep it intact and place it in an institution that could properly care for and exhibit it. As a proud and patriotic Englishman, the British Museum was his logical first choice. Unfortunately, due to lack of space, staff, and financial shortcomings, the British Museum was not able to fulfill his wish. After his passing in December of 1961, Mrs. Fuller presented the Field Museum, among other gifts, the Pacific collection.

The Field Museum - Captain Fuller Connection

It was through the acquaintance of Mr. Robert Trier, a Contributing Member of The Field Museum, that the Fullers became interested in the Field Museum. According to Roland Force, "So firm did this association of man and Museum become that in 1958 the Board of Trustees, in recognition of Captain Fuller's great service to science and to the Museum, elected him a Patron of the Museum, a distinction shared at that time with only fourteen other individuals whose service could be considered truly eminent."

Captain Fuller played a significant role for four out of the five years that Roland Force served as Curator of Oceanic Archaeology and Ethnology at the Field Museum. Force got to know Captain Fuller so well, that he was even given the last piece that Fuller collected (after the museum's acquisition of the collection). It was because of this connection that Force had with Captain Fuller, that he was able to sum up (in the introductory section of The Fuller Collection of Pacific Artifacts, page 16-17) the importance of this collection almost 32 years in advance! He wrote:

> Captain Fuller was a compulsive man. He [had to] collect. He wished always to share his special interests, and this aspect of his compulsion allowed him to look at the culmination of his life's work and see that, through the Field Museum, it was indeed being broadly shared. He had the satisfaction of knowing that his collection had joined other fine materials-to complement and be complemented by them-in one of the world's great museums. He knew that his collection was completely catalogued and that the documentation he had provided was incorporated. He knew that his collection was featured in a new permanent exhibit. And he knew that what he, his father and his wife had striven to achieve was valued by others and would be preserved…for Alfred Walter Francis Fuller and those like him – the true collectors – there is no separation of the man and his collection, nor should there be.

The Sonobands and Walkie Record-All Instrument

A sonoband is a thin, flexible cellulose acetate loop. It is very similar in composition to a hypothetical hybrid of a Dictabelt and a Memovox disc. Each sonoband is two inches wide and has a diameter of roughly five-and-a-half inches with the grooves running along the length of the band. Although the recordist can cut grooves on both sides of the sonoband, Force only used the outside. Though the total possible record time on a sonoband is longer, the Fuller Collection bands clocked in at just over an hour per side at a rotation speed of approximately 15 RPM during transfer.

The following is a paragraph from the documentation included with the Walkie Record-All.

Operating instructions: This instrument is a combination battery operated recorder and reproducer. The recording is made on a plastic band, Sonoband, by means of dual-purpose recording and playback. The stylus is at the right of the Sonoband. As the Sonoband rotates the stylus automatically moves from the top or beginning, to the bottom or the end of the Sonoband in approximately 270 minutes. The numbers on the groove-finder are synchronized with the stylus position. When the stylus is at the top or beginning of the Sonoband the counter attached to the groove-finder, should read 000. By the time the stylus has traversed or gone to the end of the Sonoband, the groove-finder will read approximately 500. Thus each number represents approximately 10 seconds of recording time. The instrument is converted instantly from a recorder to a playback unit by turning the knob of the Rec.-PB.-lift switch knob marked Slowly at the end of the control panel from Rec. to PB. When this switch is in the Lift position, the stylus is lifted or removed away from the Sonoband. With the stylus thus lifted, or free from its position along the Sonoband (beginning at the top, or end at bottom) and the corresponding numbers on the counter may be changed by turning the disc or knob on the viewfinder which is at the extreme right of the control panel near counter.

"Unpacking" the Sonobands From the Human Error Filter

When viewing the specimen in drawers and on shelves, the affixed tags and various notes made by Fuller can be the most visible and eye catching aspects of the specimen. The tags had perfect penmanship in black ink grace tags that are artifacts in their own right. The Sonoband recordings were made at Fuller's house by Roland Force. They were transcribed at The Field Museum into typewritten form creating 27 volumes of information. While these transcripts contain much of the information gathered by Fuller about his collection, a lot of information was never transcribed from the Sonobands by Maryanne Force in her year-long transcription of the recordings. The un-transcribed discussions between Fuller and Force were noted in red ink in the transcripts. These "unpacked" discussions range from comments on other related specimens, stylistic notes and observations, personal stories, remarks about other collections and rival collectors, to name a few. They were noted in the typewritten transcripts in red ink. Still yet, portions of the conversations that Maryanne did transcribe were often condensed. For example, while the written type only notes one artifact as "Fijian club", the actual conversation was an involved tale of where the club could not be from, where Fiji was a default by process of elimination. These red flags of information had yet to be recorded after more than 45 years!

Roland Force published a catalog of The Fuller Collections of Pacific Artifacts in 1971, along with his wife Maryanne (see attached bibliography). The purpose of the publication was as Force stated in the preface: "to give the collection the prominence it deserves and to pay tribute to the collector. He also stated that "The Field Museum hopes to publish a complete listing of the collection at a later date."

The lengthy discussions between Captain Fuller and Roland Force is not unlike many other conversations that would occur in the Fuller residence between February and July of 1958 when the two gentlemen sat down and recorded Captain Fuller's notes on every one of the 6500+ specimens in his collection. As the conversation about the specimen in question develops, Captain Fuller addresses the motivation behind his collection. Sometimes, the discussions revolved more around how the specimen was acquired and whom he out bid or fooled, than about the historical background of the piece itself. In many of these stories, W.O. Oldman seems to be the main competitor, as heard in the discussions about the roles of other collectors

In 2003, The Field Museum hired The Cutting Corporation to preserve the sonobands. The Field Museum carefully packed and shipped the approximately 150 sonobands and two Walkie-Recordall machines that were also donated to The Field Museum. The motor of one of the machines still worked but both machines were not in working order.

Upon arrival at the sound preservation laboratory of The Cutting Corporation, the sonobands were not in prime physical condition. The sonobands had become deformed into a physical wave shape from being stored in two thin boxes wrapped one inside each other; such as the method some have stored magnabelts or Dictabelts. Another issue was that over time, possibly from Roland Force and others handling them without using gloves, the sonobands had significant dirt and debris—dried hand oil—on their surface. As they are of a cellulose plastic material, the sonobands had become brittle and the edges had begun to curl.

The Walkie-Recordall Revisited

The Walkie-Recordall itself is a very unusual device. Built into a small briefcase-like box, it is a vacuum tube based, but battery-powered, medium with its own internal speaker. Very Spartan by design, the machine uses every cubic inch of the case. Manufactured in the 1950s by Miles Reproducer Company, Inc., it even had a strip of radioactive material to negate the effects of static electricity.

The technical engineers at The Cutting Corporation were able to find one Walkie-Recordall machine that still had a somewhat operable motor among their collection of these machines. Unfortunately, when the sound preservation engineers at The Cutting Corporation first tried to play the sonobands on such a stock machine, they found the results completely unsatisfactory. The main issues were erratic speed consistency and very poor stylus tracking as well as the inability to play through the entire sonoband. They quickly realized they would have to heavily modify an existing machine. Similar to what many in the preservation community have found with Dictabelts, it is not a case of finding any player and immediately getting acceptable playback results.

Over the course of several months, The Cutting Corporation studied, modified, and built a suitable playback device. After selecting the machine that appeared to be in the best working condition, the engineers reverse-engineered the Walkie-Recorall, replacing electronics and parts as needed. Due to the obsolescence and uniqueness of the machine, there were some parts that were just not easily replaceable. The technical engineers had to come up with extraordinary ideas in attempting to solve replacing these obsolete parts. One idea included the use of an ordinary dime, with a hole drilled into its center as a replacement gear due to its similarity to the original. Another resourceful idea was using rubber bands to mimic the consistency of the outer edges of the main turning wheel. Leave it to the technical and creative minds at The Cutting Corporation to come up with unique ideas that often work.

At each step, the sound engineers collaborated with their dedicated technical staff scrutinizing the machine, and maximizing it to achieve the best possible transfer. When they could not play through the entire sonoband after replacing several parts because it was now too crowded in its original housing, they took the machine out of its box. Once out of its box, the problem of playing through the sonoband was solved but there were motor issues. The speed of the machine was inconsistent because the original motor was dying. To solve this, the technical engineers replaced the motor with a modern day variable speed motor of the appropriate power to play the sonoband at a relatively good speed. At one point, a model train battery was used to see if it would provide the correct speed. The process of trial and error of replacing various parts was repeated until there was a machine that was able to play a sonoband with acceptable quality.

Transfer Process

Before playback could begin, the engineers had to compensate for the physical problems mentioned earlier. To deal with the wave deformity, the technical engineers created an apparatus for the sonobands to un-wrinkle them. The sonobands had been stored several together (one inside of the other, approximately 75 sonobands) and had taken on curved positions as a result, residing in small boxes for such a long time. The apparatus worked well enough that several were created to carefully unwrinkle the bands, give them room to breathe, and return to a normal position. To clean the sonobands, they wiped the bands using lint-free cotton cloths dipped in distilled water and then set them to air dry. Unfortunately, the only thing the engineers could do to help the brittleness from turning into tears was extreme vigilance during playback.

Once the sonobands were on the custom machine, it was still very difficult to transfer them since the grooves were all very narrow. Using a microscope, the engineers saw that the grooves were far from straight. Several theories were developed to explain this. One theory is that the sonobands had shrunk over time - part of the natural deterioration process, causing the grooves to be misaligned. Another theory is that the sonobands did not maintain a constant position while rotating during the recording process. For example, one band had developed an air-bubble that caused it to re-orient itself upon the machine after each rotation during playback. A third theory is that Fuller recorded the bands at a level that was too loud, causing the grooves to distort; many of these bands had severely distorted audio. A combination of all of the above is most likely the culprit.

At the same time, the engineers had to select an appropriate stylus. The original machines featured a nail-like stylus; it had a long metal shaft that came together conically into a sharp endpoint. The stylus was obsolete and could have possibly been more damaging to the sonobands. Therefore, an appropriate stylus that could adequately reproduce the signal yet do as little damage to the groove walls as possible had to be found. After extensively trying styli of all shapes and sizes across the spectrum, the engineers settled on a 0.7 mil stylus as this one resulted in the best tracking performance.

The Field Museum

The Field Museum was incorporated in the State of Illinois on September 16, 1893 as the Columbian Museum of Chicago with its purpose the "accumulation and dissemination of knowledge, and the preservation and exhibition of objects illustrating art, archaeology, science and history." In 1905, the Museum's name was changed to Field Museum of Natural History to honor the Museum's first major benefactor, Marshall Field, and to better reflect its focus on the natural sciences, which more or less at that time, included anthropology. In 1921 the Museum moved from its original location in Jackson Park to its present site in Grant Park where it is part of a lakefront Museum Campus that includes the John G. Shedd Aquarium and the Adler Planetarium. These three institutions are regarded as among the finest of their kind in the world and together attract more visitors annually than any site in Chicago.

The Field Museum was founded to house the biological and anthropological collections assembled for the World's Columbian Exposition of 1893. These objects form the core of the Museum's collections that have grown through worldwide expeditions, exchange, purchase, and gifts to more than twenty million specimens. The collections form the foundation of the Museum's exhibition, research and education programs, which are further informed by a world-class natural history library of more than 250,000 volumes.

The Cutting Corporation

The Cutting Corporation, located in Bethesda, Maryland has been preserving archival audio materials since 1979. The Cutting Corporation is a full service archival lab capable of both audio preservation (accurate re-recording) and audio restoration (removing distortion, recovering signal loss, or recovering signal decay). Their services also include conservation, mastering, and restoring obsolete recording machines. The Cutting Corporation’s goal is to make recorded sound collections available to listeners for years to come. In addition, they provide informative tools so that archivists can manage the audio materials in their collection for preservation, restoration and accessibility. For more about The Cutting Corporation’s Sound Preservation Laboratory, visit www.cuttingarchives.com.

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