The Joachim DeBrum Photograph Project; Digital Restoration and Archiving in Micronesia

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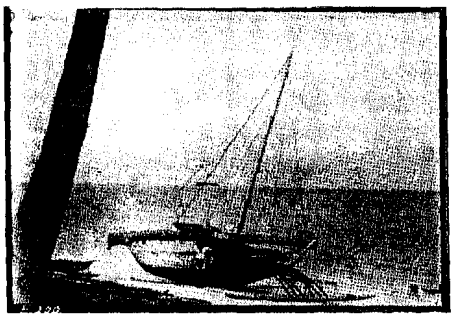
ABSTRACT
The Marshallese Cultural Society is undertaking digitization, retouch/restoration, printing and electronic storage and archiving of over 2400 photographic glass plate negatives created between 1890-1930 in the Marshall Islands. This poster paper presents a summary of the technical, organizational, cultural processes that have brought the project to fruition.

KEYWORDS: glass plate digitization, Micronesian history, Joaquim DeBrum



DEBRUM PLATE E-200 (DEBRUM COLLECTION)

PROJECT DETAILS
The Marshallese Cultural Society, a nonprofit organization located in the Marshall Islands, is now undertaking the digitization of the glass plates with the goal of capturing the images before further deterioration. The plates, ranging in size from 2"x3" to 8"x10", are being scanned and archived as 1600 dpi TIF images. The images will then undergo a restoration effort as needed. Restoration includes adjusting the scan's tonal range to maximize photographic detail as well as retouching areas of damage (cracks in the glass, cracks in the emulsion, and deterioration of the emulsion due to time, mold, salt and a variety of unknown elements). For ease in identification, a re-sized (falling within 7.5" x 10") 200 dpi image is made for printing purposes.

There are almost 2500 glass plate negatives that survive today and are being housed currently in a facility that generally has controlled air quality. For years, however, the plates were housed on an outer island in elements not conducive to long life of emulsion. That we have the plates at all with images intact is probably a miracle. They were saved from WW2 bombings by being

removed to a small island and buried for a time.

The project has complemented technical efforts with a focus on gathering background information on the plates. Commentary on the photographs has been solicited and recorded from Joaquim's surviving son Leonard DeBrum, who at present time is 85 years old. Comments are documented in writing or recorded on videotapes and audiotapes. Comments are then transcribed as background information for each photograph whenever possible. An electronic searchable database of photographs and comments has been established.
The material end product of efforts has included the following:

- High resolution digital files of the entire original DeBrum collection
- Digital files of retouched and restored photographs stored on CD's
- Archival quality digital prints of the restored photographs
- An electronic data base for the photographs

THE PROJECT PROCESS – TECHNICAL ASPECTS

The glass plates look to be a combination of collodian or wet plates and dry plates. They were lettered and numbered with what appears to be India ink at some point, but it isn't clear whether this was done by Joaquim or someone else, or if it was done at the time the images were taken, or much later. The glass plates were organized by a couple from Illinois working on a grant sometime in the late 1970's, and at some point they were catalogued, but the records we have of this are incomplete.
In a traditional darkroom situation, the glass plate negatives would be contact-printed plate emulsion to paper emulsion, rendering the positive on the light-sensitive surface with processing. To accomplish this on a scanner, a transparency adapter is used to supply the light that passes through the negative. To avoid the problem of Newton rings which occur when glass touches glass we have developed cardboard shims that hold the plates just off the glass surface of the scanner, while also taking into account the depth of focus capabilities of the scanner.

When there is surface damage to one side of the plate, it has been found that more detail is acquired by scanning the plate with the unscarred side towards the scanner and then flipping the image digitally once it is in Photoshop.

DeBrum plate E-55 detail scanned with damaged glass towards scanner. (DeBrum Collection)

DeBrum Plate E-55 detail scanned with damaged glass towards the transparency adapter and flipped in Photoshop. (DeBrum Collection)

The scanning software is utilized to get the most accurate exposure for each plate. Since the exposures of the plates vary immensely, so do the scanning exposures. The final scan is done at 1600 dpi, maximum optical resolution for this scanner. Once the image is scanned and is opened in Photoshop then a variety of tools can be utilized for cropping to the image and adjusting tonal qualities. For now, these primary scanned images are stored on CD's to be moved to whatever stable storage media is next. From these images come the 1600 dpi images being restored digitally. This takes place on a separate layer in Photoshop. These images will eventually become reunited with their primary scan once sufficient work is done.

TECHNICAL HARDWARE AND SOFTWARE

2 Macintosh G4's with 512 MB RAM
Adobe Photoshop 6.0
Epson 1600 scanner with transparency adapter
Yamaha CD/RW burner
Adaptec Toast CD burning software
Epson Stylus Photo 2000P Printer

THE PROJECT PROCESS: EXPANDING SKILLS AND ACCESS

The digitization project has not only been a process for restoring and archiving lost photographs, it has been a learning opportunity for Marshall Islanders associated with the project. In a general sense it has brought a new awareness of the kinds of things that digital imaging technology can accomplish. In more concrete terms it has resulted in a core of individuals who are becoming proficient in scanning and manipulation of digital images. Individuals who began with minimal computer skills are now comfortable and confident with fairly complex computer tasks. Engaging indigenous people with an exploration of their cultural roots has yielded expertise that several are already applying in other areas of work and personal interest. We are hopeful that the finesse and expertise gained during the project will translate into discriminating use of appropriate new technologies in this part of Micronesia.

THE FUTURE

With the integrity of the images on the glass plate negatives ensured in the new digital format there is a tremendous range of opportunities for future uses. The project members envision three significant subsequent projects. One is to convert the images and accompanying commentary into an html format to allow widespread access to low-resolution versions of the materials via the web. A second goal is a book of high quality DeBrum photos with accompanying notes and historical background. A third goal would be to produce multimedia cd's incorporating the images, video, audio, etc. that could be disseminated to outer islands where they may have computers that could read CD's but not Internet access. Any future undertakings will of course depend on support from the DeBrum family. We are hopeful that we will be able to identify a confluence of interests wherein there are benefits to the DeBrum family while the Marshallese and the greater Pacific communities gain from easy access to the photograph collection.

BACKGROUND

The Marshall Islands are located in eastern Micronesia just above the Equator. The islands are renowned as the home of some of the best indigenous navigators in the Pacific. The islands

are also famous for Bikini Atoll—site of United States nuclear testing in the 1950's and source of inspiration for naming the bikini swimsuit.

Much less known and incompletely documented is the cultural history of the islands. The scattered atolls were neglected backwaters of the Spanish Empire from the time of Magellan's circumnavigation until the islands were formally ceded to Germany in 1886. American missionaries first arrived in 1857.
Traders followed and by the 1870's the islands had emerged as a center for the lucrative Pacific copra trade with a strong German trade presence. The islands remained a German colony until the League of Nations awarded the islands to Japan in 1918. The German colonial period was a time of major transition for the Marshalls: the culture transformed from an isolated and traditional semi-nomadic island culture to a trade economy familiar with Western ways and artifacts. Documentation of the social and material changes experienced by the Marshall Islanders during this time is limited.

JOAQUIM DEBRUM

Joaquim DeBrum (1860-1937) compiled the most complete visual record of life in the Marshall Islands during the German colonial period as a series of extraordinary glass plate negative photographs. Joaquim's father was a Portuguese seaman who was one of the first European traders in the Marshalls. His mother was the daughter of Marshallese chief. Thus, not only does DeBrum's life coincide with a major transformation of Marshallese society, he has a unique and intimate bicultural perspective on the process.

DeBrum Plate J826 – Joachim DeBrum (DeBrum Collection)

THE DEBRUM PHOTOGRAPH COLLECTION

During his lifetime Joaquim DeBrum took almost 2500 photographs of people and places in Micronesia. These photographs represent an invaluable record of Micronesian life and times. An occasional photograph has accompanied past historical and ethnographic publications. The overwhelming majority of the photos have not been preserved or collected for public and professional scrutiny. DeBrum's remarkable work survives, however, in the form of his original glass negative plates. Some of these plates are over 100 years old and all are suffering the ravages of time in varying degrees.

DeBrum Plate E-44 (DeBrum Collection)

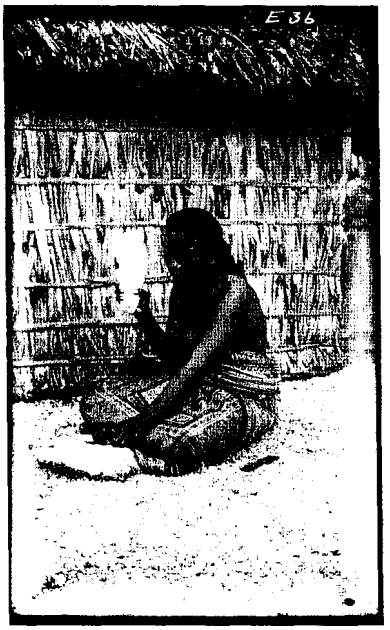
THE PROJECT PROCESS: THE TECHNOLOGICAL LINKING OF PAST, PRESENT, AND FUTURE

When Joachim DeBrum first brought his camera equipment to his island home in the Marshalls, he astounded the islanders with his near-magical ability to capture freeze his colorful living subjects into thin gray scale pictures. In his choice of subjects and photographic composition there is little doubt that DeBrum was doing more than creating photographs for albums; he clearly was aware of his role as a photographic ethnographer. The glass plate technology was a means of preserving images of a fast-changing island culture for posterity. Some of his photographs were, in fact, used contemporaneously in various German publications to convey a visual sense of the islands and its people. The passing of years has demonstrated unavoidable limits to the glass plate and photograph media. The original photographic prints themselves have been lost, filed away, given to various subjects or families, or have lost detail and quality. The glass plates have proved to be a durable medium so far but printing of new photographs entails risks to the integrity of the plates. The plates themselves demonstrate a clear and inevitable degradation.

DeBrum Plate D-69 Black areas on upper and lower parts of the plate indicate the loss of emulsion. (DeBrum Collection)

The technology used in this project is neither cutting edge nor radical. Nonetheless it provides striking advantages over the traditional photographic approach. Handling the fragile glass plates is minimized. The more flexible and forgiving process of digital scanning and software image

processing replace the challenging art of traditional dark room developing of prints. From the original high resolution scanned image multiple future images can be produced in the future without degeneration since the digital image is utilized as the negative. The electronic medium allows unprecedented portability and transmissibility as well as eventual archival retrieval for both the public and researchers. Last, with proper care and backup the images--both original scans and their incarnations as retouched photos--will endure as long as an archivist maintains the basic hardware/software/storage to retrieve the pictures...a kind of archival immortality. The technology allows generations of future scholars and island residents to study the first photographic documentation of Marshallese people and places.



DeBrum Plate E-36 (DeBrum Collection)

THE PROJECT PROCESS: ARCHIVAL RIPPLE EFFECT

An unexpected byproduct of the project was what we have come to call the "archival ripple effect". As we began our efforts we showed how photographs as well as negatives could be scanned and how fading or damaged photographs could be reproduced and revitalized through digital reproduction. It became quickly known within several of the island communities that old photographs could be brought to life (and small images could be enlarged for viewing as well as ease of identification). As a consequence we have received a steady stream of old photographs to the project office for reproduction and enlargement. Photographs that were undergoing a slow degradation in the perpetually warm, humid and saline climate came to us for restoration. Photographs that were hidden away as family treasures came to us for reproduction. In return for processing these old photographs the Cultural Center has been allowed to keep digital versions and prints of the photographs to add to archive files. Success has bred success. A growing central file of pictures from dating from the 1890's to the 1950's has accompanied the development of the DeBrum photograph digital project.

CHALLENGES AND SHORTCOMINGS

The most obvious challenge in putting together a project of this sort in a remote atoll (we are 2400 miles west of Hawaii—tiny specks of land in the vast Pacific Ocean midway between Hawaii and Guam) is logistical. After funding was obtained in the form of a grant from AusAid, it took almost 3 months to select, purchase, and transport needed equipment, software, and supplies here, (No overnight delivery service in the islands!) In these first few months we

have encountered no technical or equipment problems but troubleshooting and repair of failing equipment could cripple comparable projects in similarly remote areas.

The most critical challenge was not technical but socio-cultural. The DeBrum family has recognized for many years that the glass plate collection is exceptionally valuable. (There is a family story about Joaquim's sons taking the plates to an uninhabited island and burying them during the latter part of World War II for burial to protect them from air strikes that never materialized.) The family has been quite cautious in allowing reproductions of the photographs. There has been a proud sense of ownership accompanied by apprehension that others may copy the images for their own profit diminishing the value to the DeBrum family. One of the unfortunate results is that good copies of prints have been difficult or impossible to obtain in the past. Another result is that many of the plates have no readily accessible hard copy in recent years. In order to proceed with the project we needed to gain the trust and support of the 85-year-old son of Joaquim who has been the custodian of the films. Success in gaining this support evolved slowly. We first explained the digital process, producing some examples of digitally restored photographs that the project photographer had produced in the past (as well as some digitally restored prints of images that Leonard DeBrum had given us of family members in our first contact). We then successfully conveyed the news that the technology offered the opportunity to preserve and restore the images that would be ultimately lost in the glass plate medium. Finally and most importantly we were able to gain the trust of the DeBrum family. We believe this emerged from our enthusiasm for the pictures, our respect and administration for the Marshallese culture, and an unhurried deferential approach to hammering out a final understanding about the scope and goals of the project. It is interesting to note that although one of the attributes of the digital medium is the opportunity to distribute images widely, the family has been very explicit about limiting copies to those under control of the two Marshall Islands cultural museums.

A CONCLUDING OVERVIEW

Through digitization the DeBrum Photograph Project has reclaimed for perpetuity this collection of unique images--for the Marshallese people as well as ethnographers. The original glass plate negatives were a unique encounter of Micronesian culture and an early photographic technology put to use by a talented islander with intelligence and vision. The new digital technology results in unprecedented access, organization, and flexibility in archiving and reproducing images providing key insights to Micronesian history and culture. Through restoration and retouching, the photographs have gained an otherwise impossible clarity and completeness. Through digital storage and archiving the images have the capability for future widespread dissemination for public viewing and education as well as Micronesian cultural/historical study. Through involvement of indigenous Marshallese the project has provided local individuals and institutions training and insights in the use of digital tools to preserve, archive and disseminate images. In the final analysis the current success and future development of projects are dependent on interpersonal relationships—a working partnership of

technical experts, institutional leaders, and those who possess the artifacts and knowledge of the past.

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ABOUT THE AUTHORS

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Sue Rosoff is a photographer/digital imager for the Kwajalein Missile Range as well as for this project. She received an MA in Photography from UC Berkeley where she was the 1983 Dorothea Lange Fellow. She taught photography at colleges in Northern California and was a photographer/digital imager in Special Collections at California State University at Chico. She has resided in the Marshall Islands for almost 2 years