

# Field Notes as a Web Site: Integrating Multimedia into Anthropological Documents

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*Anthropologists are increasingly returning from the field with digital images and other media, along with their field notes. This article lays out the "Web site model" for integrating digital images, audio, and other media files into unified field note documents through the use of a Web page editor. It explains how to generate multimedia galleries and link them within textual documents, to help restore the intuitive relationships between image, sound, and word that earlier technological limitations dissolved. This allows the ethnographer to review descriptions of particular events, interviews, or periods of participant observation with all the available forms of recording, as part of a single text, rather than artificially separating out the review process by medium.*

**Keywords:** *field notes; multimedia; digital imaging; Web site; database*

Anthropologists bring back all manner of things from the field, but by far the most common forms of primary anthropological field information are field notes and images. Some may also use audio- and, increasingly, video-recording methods. Anthropological field notes take various forms (Bernard 1995:180–207; Emerson, Fretz, and Shaw 1995) but almost always comprise a linear stream of text; images are a different kind of information, traditionally on different media, and used disparately (accessed on occasion for lectures, publications, or reminiscing). The physical forms have changed over the years, as typescripts and boxes of slides have been replaced with word processor files and hard disks full of digital images, but the management of text and imagery in conventional anthropological records have not taken advantage of these new technologies.

This article describes a unifying structure called the Web site model of primary anthropological record keeping. In this model, the anthropological

materials are arranged in the form of a Web site, although it is an entirely private resource rather than an Internet Web site. The field notes and linkages with imagery and other information are in hypertext markup language (HTML), but as described here, the anthropologist needs at most a rudimentary knowledge of HTML, and most tasks can be accomplished with no background in the language. We demonstrate Web site field notes with material from our own recent fieldwork on class and media in Indonesia (Barkin) and on biotechnology in India (Stone).

Our primary focus is on the use of private Web sites of widest applicability, which is in the management of text and still imagery. However, we also show how this approach can be extended to include audio, video, and nearly any other medium that can be accessed as a computer file. Although we discuss these techniques in reference to field notes, they may just as easily be used with other sorts of textual documents such as interview transcripts. The Web site provides a forward-looking platform for integrating anthropological information of all kinds, which may include databases, spreadsheets, links to Web sites, other writings by oneself or others, and other information sources of the future.

### WHY COMPLICATE THINGS?

Field notes carry a deep association with romantic images of ethnographic research (see Bond 1990; Sanjek 1990). One imagines the prewar anthropologist returning home with stacks of ragged notebooks, annotated maps, and dog-eared papers from the field. But while ethnographers of previous generations had little choice as to how they recorded their observations, many anthropologists today do not experience such technologically barren field conditions. Even in rural areas that are “off the grid,” generators are increasingly common, and the ability to use solar power cells to recharge laptop batteries has enabled ethnographers to type up their field notes on a computer, even in some of the most isolated corners of the world. Anthropologists using digital cameras have discovered the need to download their photographs—somewhere or other—while still in the field, having traded the convenience of cheap and permanent celluloid film for the manifold benefits of digital imaging. And anthropologists increasingly have access to the Internet during fieldwork, allowing them to transmit and store notes, images, and other digital information as they produce them. We may still scribble notes on napkins, but most of us now feel the need to transfer them onto our computers every so often, trading nostalgia for a digital form that we can later search, code, data-

base, and just refer to more easily and from more locations than was possible in the past.

But issues of access and automated analysis are not the only benefits of converting field notes to digital format. Integration of text and multimedia can help restore intuitive relationships between image, sound, and word that earlier technological limitations dissolved. Multimedia field notes allow the ethnographer to contextualize images, sounds, and video into written comments, descriptions, and inferences. By performing this process as part of the original act of field note recording, particularly with descriptive and analytic notes (see Bernard 1995:186–91), the anthropologist creates a richer and more evocative ethnographic document from which to draw on later; it allows one to review descriptions of particular events, interviews, or periods of participant observation with all the available forms of recording, as part of a single text, rather than artificially separating out the review process by medium.

This stands in contrast to the goals of qualitative analysis software, which decontextualizes pieces of text or media for the purpose of finding data elements that share similar codes or topics assigned by the researcher. Although field notes in the Web site format remain just as open to coding and analysis with applications such as Atlas.ti as any other textual format, our goal is not to classify or cross-label bits of field data but rather to holistically integrate them into abundant and naturalistic primary documents. In a sense, we are facilitating a different sort of analysis, based on a detailed and broadly encompassing review of entire events, while preserving the maximum possible contextuality.

Photographs are perhaps the most obvious choice for integration into ethnographic field notes, already being associated with text through various print media. One need not be conducting a highly visual project to want to keep track of ethnographic photos, but for many projects, the integration of images into field notes during the fieldwork process can save a good deal of organizational work later.

There are rudimentary ways of integrating images into field notes with which many anthropologists are already familiar. The simplest involves inserting images into word-processing or spreadsheet files. On most word processors, images can simply be “dragged and dropped” into the document. Alternatively, one may insert an image by selecting the option from a menu—in Microsoft Word 2002 or Excel 2002, for example, the command is Insert/Picture/From File. This command format begins with the primary menu and then indicates each submenu that must be selected to get to the appropriate command. In this case, one would select the Insert menu, go down to the Picture submenu, and from there select From File.

Once an image has been placed in the document, one can move it around freely, rescale it, and change the ways text flows around or over it. This approach is convenient and simple. Inserted graphics are integrated into the document file itself, so display of the images is not dependent on original image files. However, it has various drawbacks. It can lead to very large file sizes depending on the size and number of images integrated. It can also create problems should one wish to edit the inserted images later or see them in their original size (which may be too large for the document). Integration of image files also makes it difficult to extract them later; one must keep both the word-processing document and original image files to maintain this option. This technique also offers no easy way of viewing the images on a large scale, or by themselves, in a slideshow format. Images are embedded in the text, and one must manipulate their individual properties to change the format of their display. Spreadsheets may offer inviting organizational possibilities that can be particularly useful for tasks such as kinship charting, but their handling of images can be clumsy and tedious.

### THE TEXT (AND HYPERTEXT)

While readily available software automates much of the process of creating Web sites, it is useful to understand what is involved in turning field notes into a Web site. In conventional usage, a Web site consists of one or (usually) more computer files residing on an Internet-connected computer and capable of being displayed by a browser. Some of these files may consist of programs or digitized sounds or images, but the basic Web site file contains plain text. Within the plain text file, there may be content (words to be displayed on the reader's screen) and HTML. HTML consists of simple commands for the browser, called "tags," which are enclosed in brackets (< >). A complete tag generally includes a start and stop command; for instance, the word "hello" is italicized by <I>hello</I>. Tags may contain parameters as well. For instance, text color could be changed to red by <FONT COLOR=RED>hello</FONT>. While these tags give the browser information on formatting and on how to insert images and other elements, their structural function is to encode the links to other documents, including media files such as images or videos. The essential tag in constructing these links is the <a> anchor tag, which designates part of the document—typically an image, word, or phrase—as a pointer to a target. The pointer is usually displayed in a distinctive color, and clicking the mouse on it leads the browser to the target. For example, let us say we have a description of a research protocol in a file named "PROTOCOL.HTML." The word "here" would be made into a pointer to the

protocol file with this HTML code: Click `<ahref="PROTOCOL.HTML">here</a>` to see the research protocol. HTML can become complex and impenetrable, and the built-in HTML generators in some word processors produce notoriously convoluted tags; Microsoft Word, in particular, generates tags bristling with extraneous proprietary information, though these data are not visible when a page is viewed through a standard browser. While the tags needed to create a field note page are relatively simple, the advent of Web page editors that generate this code automatically (e.g., Dreamweaver, FrontPage, Composer, or any number of shareware alternatives) allows even novice users to create sophisticated pages using familiar, word processor–like interfaces.

When using text from a word processor, it is first necessary to get field notes out of that application and into an HTML file (alternatively, text can be composed directly in a Web page editor such as those noted above). There are several simple methods to accomplish this. The field note text itself may be cut and pasted directly from a word processor into the Web page editor. Microsoft products allow dropping text from Word into FrontPage, retaining the formatting of the original text including fonts, colors, and point sizes, but the HTML generated to reproduce the formatting has the problems noted above. Some word processors, including Word, allow users to “Save As Webpage.” This automatically converts the document into HTML, retaining text formatting and even footnotes to the extent possible, though users wishing to edit the resulting code directly (rather than with a program such as FrontPage or Composer) will be confronted with volumes of proprietary data. Note that this proprietary code included by companies such as Microsoft in their automatically produced HTML can generally be deleted with no deleterious effects. Users are encouraged to experiment with these methods while keeping a safety copy of original field note text at all times.

Some Web page editors such as Dreamweaver and FrontPage allow users to import non-HTML document formats, such as rich text format (RTF) or Word, directly into an HTML file. This process is generally preferable to the one above, if the editor is able to retain enough of the document’s original formatting during its importation/conversion process, since it avoids the proprietary data that word processors often add to the HTML file. This will vary depending on the importing editor and the file format being imported. Generally speaking, both RTF and Word contain more formatting data than HTML can even support, so either should be sufficient, if the importing editor is able to interpret and translate the data correctly. If the field notes are already saved in an importable format, this technique will also save a step in the process. In Frontpage, the simplest way to convert a word-processing file is to Insert/File and then select the document. Provided its file format is supported, the document will be converted automatically and inserted into the Web page currently open.

## THE IMAGES (AND THUMBNAIL TABLES)

Digital images may be acquired directly with a digital camera or by scanning conventional media (negatives, slides, or prints). There are various types of image files, each with its own advantages; the most common formats are jpeg (JPG) and GIF, which are recognized by web browsers. JPG files are best for most anthropological subjects because they support up to sixteen million colors (twenty-four-bit depth). Digital cameras usually save images in this format. JPG files also offer adjustable compression: in exchange for a decrease in image quality, files may be made quite small, whereas quality loss in a low-compression JPG image may be almost impossible to detect.<sup>1</sup>

For our purposes, a crucial advantage of the JPG file format is that it allows text to be embedded in the file itself. Text can include information such as date and camera settings, which are generated automatically by the camera, or captions that are added later by the anthropologist. The information can be easily extracted and displayed by various programs, but it remains part of the JPG file regardless of software being used. There are many programs available for managing images, including some very good ones available at low cost; we have been particularly impressed with JAlbum (freeware) and ThumbsPlus (Cerious Software, \$79.95). Almost all image managers use a gallery or thumbnail table to display images and allow the user to select them for further operations such as editing, keywording, moving, or e-mailing (large, up-to-date collections of shareware and freeware products can be found at sites such as [download.com](http://download.com) and [tucows.com](http://tucows.com)). These image managers can also generate thumbnail tables of selected images in the form of HTML files, and this is the key to integrating text and images in Web site field notes. In our method, the image manager produces an HTML file that creates a table of captioned thumbnail images, with each thumbnail linked to the larger or original images; this HTML is then incorporated into the same file with the field note text.

To explain the process of creating an HTML-based field note document, let us discuss how we created the example page located at <http://artsci.wustl.edu/~anthro/fieldnotes/samples.html>. The page was created with the free software JAlbum and with Microsoft FrontPage, though nearly any Web page editor could have been used instead, including Netscape Composer, which is also available free of charge from Netscape, as part of the "Communicator" software package. One advantage of using Microsoft products such as FrontPage is that cutting and pasting from applications such as Word will retain text formatting, including fonts, bold and italics, and even Web links. JAlbum is a good choice not only because it is free but also

because it is written in platform-independent Java and can therefore be run on non-Windows operating systems.

Users should first devise an orderly directory structure for storing digital images, for instance, with separate directories for each fieldwork trip or excavation season. This is because it is most simple in JAlbum and ThumbsPlus—as with most thumbnailers—to convert complete folders of images into thumbnails. Next, JAlbum can be used to create a gallery of thumbnail images. In this case, we selected the Create Slides option to standardize the sizes of the images and also to make them easier to upload to the Web. Depending on the user's images and purpose, there is an option to link directly to the original images (which saves disk space but does not standardize image sizes or facilitate uploading to the Web), copy the originals to your new "output" folder (which facilitates putting the originals on the Web but may consume considerable disk space), or simply link the thumbnails to the standardized "slides," as in this example. JAlbum is exceptional for its slide option, as most thumbnailers allow linking only to the original images; many ethnographers today prefer to take high-resolution photos that are best for printing and cropping but that are much too large to be displayed on conventional monitors without being sized down.

We then selected the "appearance" of our Web page using the customized "fieldnotes" option available for download at [http://artsci.wustl.edu/~anthro/Anthro\\_Notes.zip](http://artsci.wustl.edu/~anthro/Anthro_Notes.zip). To become available in the program, this file must be placed in the "templates" folder of the directory to which JAlbum was originally installed. As an alternative to installing this template, users can choose the "standard/plain" appearance option, or any of the available template options, although darker styles may lead to illegible notes. Note that different template options allow users to display some or all of the built-in JPG data when viewing the image, including camera settings and captions. Advanced users may be interested in creating their own templates that display only the information they wish to see; instructions are included in the JAlbum help files.

Once the page was generated, we opened up the file (usually "index.HTML" in our output folder) in our Web page editor. Note that one may use Microsoft Word or other Web-capable word processors to edit the page, but a standard Web page/HTML editor is recommended. We then have an automatically generated Web page full of our image thumbnails, complete with links to intermediate and full-size versions of the images, as well as a built-in slide show option that allows us to move through the images without going back to the text or index page.

At this point, users may drag the thumbnail images from the automatically generated JAlbum page into field notes or other text, either by creating a sep-

arate table column for them or by positioning them directly in the text. Keeping thumbnails in a separate cell of a table helps maintain the flow of text and can be easily accomplished by creating a two-column table in one's Web page editor and placing field note text in one of the columns and photo thumbnails in the other. Some may prefer to have photos integrated into the text itself, however. In that case, it is important to set the "wrapping style" or "word wrap" in the image properties dialog so that text can flow around the image rather than being completely interrupted by it. Alternately, users could cut and paste the field note text into the JAlbum page; because the transfer is occurring between two HTML pages (rather than from a word processor file to an HTML page), the formatting should be retained, even in simple editors such as Netscape Composer.

In the example page, after converting note text into HTML format (in this case, just by cutting and pasting from Word to FrontPage directly), we dragged and dropped the images near the appropriate text while keeping them in JAlbum's table structure for a clean, organized appearance. Links from the thumbnails to the larger images are retained automatically. Alternatively, the thumbnails in the automatically generated HTML page may be cut and pasted into an existing HTML document that already contains field note text. In such circumstances, the thumbnails' hyperlinks may be compromised if they cannot locate the targeted images. To avoid this, field note pages should be in the same directory as the automatically generated thumbnail page.

Creating field note documents in Web page editors and with image thumbnailing software will vary somewhat depending on the specific applications used; however, the basic process remains the same: (1) using an image album maker or thumbnail generator to create a Web page of linked thumbnails, (2) opening the image index page with a Web page or raw HTML editor, and (3) integrating field note text into the index page appropriately or copying the thumbnails (along with their links) into an existing field note document imported or copied into an HTML page.

## AUDIO AND VIDEO

Using the same HTML style discussed above, it is very easy to integrate audio and video files into your multimedia field notes. We will provide a short summary here, but see Maloney and Paolisso (2001) and Barkin (2004) for a full discussion of this process for audio and video, respectively. First, users must download or "capture" sounds or video clips from analog or digital sources onto a computer. Sound can be captured with any number of

applications, including the sound recorder application built into Windows, but we recommend a utility that can capture directly to MP3 format. MP3 sound recorder is a simple, inexpensive program for recording directly to MP3 format, but many other options are available, including studio-quality multitrack packages such as Cool Edit Pro, which allows users to edit and apply numerous effects to audio recordings; this can be useful in clearing up or enhancing recordings made under inhospitable circumstances.

Video brings with it a separate set of considerations, largely as a result of file sizes that are significantly larger than those of still images or audio. The MiniDV format—which we highly recommend not only for image quality but also ease of capture to computer—consumes 3.6 megabytes of precious disk space for every second of video captured. This means a gigabyte of storage will be required for every four minutes of video captured. There is now, however, an alternative. While MiniDV, S-VHS, and Hi-8 video formats all use their own low-intensity forms of compression during recording, computer users can apply significantly more powerful compression codecs<sup>2</sup>—such as MPEG 4, Divx, or Windows Media 9—to their captured video, cutting disk space requirements dramatically.

For our purposes, the key is to store relatively high-quality video without using huge portions of hard drive space. Using new compression codecs and plenty of computer processing power, visual anthropologists can increasingly achieve this goal by converting video files into a compressed format that retains the video's full resolution, frame rate, and reasonable image quality, while reducing file sizes dramatically. With a very fast processor, users can even capture video directly into one of these compressed formats from their camcorders, saving the time and tedium of having to first capture video in the bulky original format, compress it, and then delete the large original file(s).

Free tools are available from Microsoft and Real Networks that allow users to both capture and convert video to these companies' respective formats. At the time of this writing, Apple still required users to pay for its "Pro" version of QuickTime, required to encode or compress video, but note that both Windows Media Player and Real Player are available for Macintosh. To extract specific clips from larger captured sequences, we recommend simple free software such as Windows Movie Maker or iMovie for Macintosh users, both are included as part of newer computers' operating systems.

Once audio and video clips have been recorded and placed in a folder, the procedure for linking them to HTML notes is simple. Linking to a sound file is no different than linking to a Web address, except that the file location on your hard drive must be selected rather than an Internet address. First, users must decide what text, image, or symbol will act as the visible link to an audio

or video file. We recommend using a small graphic of a speaker, film segment, or other appropriate symbol that makes it clear what sort of media is being linked. To connect a file, one must insert the symbol graphic into the HTML document, then select it, and with the image or text highlighted, choose an option such as “insert hyperlink” or “create link” (as in FrontPage and Netscape Composer, respectively). Users will be prompted to browse the location of the appropriate media file and select it. When the image or text linked to the media file is later clicked, one will be able to play the file or—if the file is later published to the Web—download it to a local computer.

Note that this process of creating hyperlinks to media files can be used on virtually any type of file that one’s computer can open, including spreadsheets and databases. This is a powerful organizational tool when implemented on a local computer, allowing the researcher to connect varied and potentially large data files to a given master document, illustrating the utility of hyperlinks outside the context of the Internet. We strongly recommend keeping all media files in the same folder as the HTML files (except when thumbnailing software creates its own subdirectories), for convenience in moving the complete multimedia notes onto recordable CDs or DVDs or for uploading to the Internet.

## DISCUSSION

These methods allow the anthropologist to create an unprecedented integration of media in a unified ethnographic document, enriching textual observations, quotes, and inferences with images, sounds, and video clips. Although the techniques were explained as part of a specific enterprise—the incorporation of multimedia into anthropological field notes—they can also be used for a variety of related purposes (see Barkin and Stone 2000). All of these techniques can be used to generate multimedia interview transcripts, for example, where users could click links for audio or video recordings from the interview. Also, the creation of independent image galleries could help organize large numbers of photographs brought back from the field.

Because these methods are based on the production of HTML documents, such galleries could also be easily uploaded to the Web, as part of a larger site visible to the public or as a means of conveniently and privately viewing and accessing images from remote locations across the globe. This can be accomplished by password protecting a site or by placing files in a nonpublic area of online storage. In the latter scenario, files could be accessed via an FTP (file transfer protocol) program, which uses one’s username and password to securely log into an account. In our experience, this can be an extremely con-

venient means of accessing complete collections of older interviews, notes, and other data while in the field (provided one can find a working Internet connection). In addition, the capturing and compressing of audio and video clips has a wide array of potential applications, including conference presentations, classroom use, and simple organization and storage of important segments. In a field that has long taken advantage of the visual media, we hope the methods outlined here will encourage more anthropologists to make use of the latest computer advances in their construction of field records.

## NOTES

1. The GIF format is often used for Web graphics and buttons but is generally inappropriate for photographs due to its 256-color limit. It is gradually being replaced by the PNG format, which provides superior transparency—one of the main advantages that the GIF format offered—while supporting twenty-four-bit color. The TIFF file format offers a completely uncompressed, full-quality image, but file sizes tend to be very large. Although archivists prefer this format, low-compression JPG images tend to be indistinguishable to the naked eye from TIFF files but with much smaller file sizes.

2. Acronym for coder/decoder, the term used to describe particular compression protocols. MP3, for example, is a codec for audio compression; it was taken from the Moving Picture Experts Group's MPEG 2, the video/audio codec used on the DVD format. In general, more advanced video codecs require more computer processing power to encode/decode in "real-time"; thus, when DVD drives were first introduced for home computers, an additional decoder card was required to watch DVD-format movies. As processing speeds of more than 300 MHz became more common, software decoders that shifted the processing burden onto the computer's CPU were introduced, and today those dedicated decoder cards have become obsolete. More recent codecs, including MPEG 4, Divx, Windows Media 9, and Real Media One all require even faster microprocessor speeds to decode, generally at least 800 mHz.

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