# The Armchair Traveler Plugs In: Multimedia Cartography as a Visual Supplement to Travel Writing

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Travel writings, such as Stuart Stevens's West African adventure, *Malaria Dreams*, provide readers with interesting and entertaining stories. However, because they seldom give adequate treatment to the geographic, historic, cultural, and political issues, they leave the reader with an incomplete impression of the landscape. The accounts of these journeys can benefit from an interactive "visual supplement" that contains animations, maps, photos, drawings, graphs, and sounds. A visual supplement can complement the text and augment a reader's overall experience. This paper presents some issues pertinent to creating effective visual supplements and includes examples from a prototype for *Malaria Dreams*.

INTRODUCTION

Travel writing, once a genre preoccupied with detailed, factual descriptions, has recently acquired a lighter tone. The disturbing, complex journeys of contemporary Lévi-Strausses and Conrads languish on shelves in favor of accounts that transform faraway locales and peoples into the settings and casts for exotic comedies of errors. These books are often light in substance as well as tone. The authors recognize that readers with a sporadic yen for the unfamiliar might be troubled by facts and concepts, and so they simply omit subjects that fail to entertain.

Literary lightness also makes it easy to omit maps, photographs, and diagrams. Although the omissions are not a problem for editors who view travel books as pure escapism, they can be troubling for those readers whose interest is piqued by the unfamiliar facts, statistics, dates, names, and locations that many current authors seem to gloss over or toss aside. These omissions are a prime reason why a travel book often needs the enrichment of a visual supplement—an interactive, multimedia, animated "knowledgebase,"[1] rich in background details that increase the content and dimensionality of the book.

*Malaria Dreams* by Stuart Stevens (1989), though thoroughly entertaining, is a perfect example of a travel account in need of a visual supplement. It narrates the adventures of two professedly unprepared and misinformed Americans who career across Africa in a ramshackle Land Cruiser. The protagonists, Stuart and Ann, tour six African countries—the Central African Republic, Cameroon, Chad, Niger, Mali, and Algeria—beginning in the tropics, crossing the Sahara Desert, and ending up on the shores of the Mediterranean. Despite the vast area covered, the reader learns less about West Africa's lands, peoples, topographies, climates, and cultures than about how well Stuart and Ann confronted and surmounted various difficulties.

Fortunately, as "travel-lite" books such as *Malaria Dreams* are rising in popularity, accessible multimedia authoring programs are becoming

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[1] Abbe Don (1990) describes a knowledgebase as a hypermedia database from which the user retrieves blocks of multimedia information, such as individual graphics, text passages, animated sequences, and musical excerpts.

increasingly available. These programs (such as Macromedia DIRECTOR) are useful in creating visual supplements to travel books or other geographical texts. While the creation of interactive multimedia presentations was previously only open to those with computer programming skills, DIRECTOR and similar packages allow non-programmers to become multimedia authors and encourage talented graphic designers, animators, educators, authors, and cartographers to create their own programs directly.

This new technology opens the door to the possibility of generating much needed visual supplements to the recent form that travel literature has taken. With this hypothesis in mind, I decided to attempt to employ this new technology to create a visual supplement for Stevens's *Malaria Dreams*. The objective in creating a visual supplement to *Malaria Dreams* was not to produce a comprehensive, encyclopedic knowledgebase. Neither the time nor the resources were available to do so. Instead, an "operational prototype" was created (Des Roches 1994) in order to explore the design challenges and usefulness of visual supplements. The prototype is a scaled-down yet fully functional example of a visual supplement's effectiveness. A selectively representative operational prototype is similar in quality or concept to a marketable visual supplement and affords an efficient demonstration of how the re-telling, restructuring, and re-formatting of a recent travel book can enrich the reader's overall experience.

Construction of the visual supplement was carried out in two stages. The first step, and by far the most time-consuming, was the collection and creation of raw material needed for the program. This included researching, compiling, scanning, modifying, creating, and designing maps, photographs, music, and statistics. However, this very process and the fact that the user does not have to go through it her/himself are what make visual supplements so appealing. Although the average reader wants to know more about subjects in the book, s/he is probably not willing to research the material for months on end. In the grand tradition of Britain's Domesday Project (Openshaw and Mounsey 1987), *Malaria Dreams's* visual supplement serves as an organized collection of geographic and spatial information. This information is available in multiple formats and, most importantly, in a single package.

The second stage in creating the visual supplement was the construction of the interactive program. For this task, the multimedia and animation package Macromedia DIRECTOR was chosen because it allows virtually any digitizable media to be incorporated into a presentation, its software is flexible, and its range of multimedia and animation functions are extensive. Although not usually mastered in a single sitting, DIRECTOR is far more user-friendly than most comparably complex software (see Macromedia DIRECTOR 4.0 review for the Macintosh on pages 42-43 in this issue).

The basic structure of the program was simple and patterned after Monmonier's (1993) "navigation" and "narration" concepts for creating dynamic cartographic programs in which the user can either "navigate" through various interactive, interlinked map interfaces[2] or initiate a "narrative sequence" (a non-interactive play-through). The visual supplement combines these two approaches in a hierarchical, hypermedia

**CONSTRUCTION OF THE SUPPLEMENT**

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[2] An interface is any interactive computer screen within a program. It usually contains buttons or similar elements which, when activated, perform a function. Interfaces can also be keyboard-command oriented in which case the user must type in a command to activate a function.

format—what Monmonier and Gluck (1994) call an "open script." In this approach, users choose individual narrative sequences, which when completed, will either return users to the previous interface or allow them to choose another sequence. The supplement is interactive throughout; users can return to any previous interface, stop, or pause in the program at any time. The prototype is illustrated in Figures 1-4 (pages 38-39) with a series of representative snapshots and written descriptions.[3]

CONSIDERATIONS IN
PROTOTYPE DEVELOPMENT

A major concern for any multimedia application is the memory requirements of the program. A complete visual supplement to *Malaria Dreams* (including color photographs and video clips) would require most, if not all, of the 660 MB of memory available on a CD-ROM. As CD-ROM drives are still not as common as floppy disk drives, a compressed prototype supplement was created to fit on a 1.5 megabyte floppy disk. This limitation severely restricted the incorporation of sounds, complex color images, and three-dimensional terrain representations because their memory needs dramatically exceeded those of simpler multimedia elements. Consequently, only a few examples of these complex features were included in the operational prototype. Their effectiveness in enhancing the overall program was amply demonstrated, but most disk space was allotted to less memory-intensive features.

Another problem encountered is the computer screen itself. The stage (or "playing area") was formatted for Macromedia DIRECTOR's smallest default screen setting (nine inches) in order to make the program compatible with as many Macintoshes as possible. This tiny workspace, coupled with a current standard screen resolution of 75 dots per inch compels cartographic generalization, and detailed maps become both impractical and annoying. However, the program's multimedia nature makes detailed maps unnecessary because the animated overlays and transformations (Figure 5, pages 38-39) allow even the simplest map's information content to transcend the spatial limitations imposed by screen resolution and size.

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In order to achieve the greatest effectiveness, multimedia information must be visualized through a clear, accessible, engaging interface. A large repository of graphic information is of no use to a reader who finds using it tedious or confusing. An intuitive and engaging multimedia interface that provides both clarity and accessibility will appeal to the user both aesthetically and logically. This is achieved by continually giving the user context and by providing continuity. The main way to orient and guide users is through intelligent interface design. Maps are the logical choices for the interfaces in this program, as the subject matter is geographic in nature (Lindholm and Sarjakoski 1993). These interfaces must be easy to comprehend and use. It is essential, for instance, that users navigating around the supplement be continually aware of where they are. To prevent users from becoming baffled and disoriented, all buttons leading back to the map interfaces from interfaces or sequences further down in this hierarchical structure are miniatures of the maps in these interfaces (Figure 6, pages 38-39).

One of the most appealing (although memory-intensive) ways to provide context for multimedia presentations is through sound. For example, in the supplement created for *Malaria Dreams*, sound is used to provide context during the introductory sequence: traditional music from

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[3] The prototype for *Malaria Dreams* is available on floppy disk and through anonymous ftp (file name: malaria_dreams.sea.hqx). For information on obtaining a copy see the *Message from the Editor* (page 1).

the Central African Republic (where Stuart and Ann spent the first third of their journey) sets the stage and underscores the African milieu. If used extensively throughout the program, sound would further enhance and contextualize the reader's experience. A "voice-over" could be used with animated maps, decreasing the need for explanatory text[4] and allowing both the author and the viewer to concentrate on graphic elements. Sound could also provide the proper pronunciation and accent of native place names and other unfamiliar words.

Continuity in the use of text is also essential. While voice-overs are useful in accomplishing this purpose, they are also memory-intensive. As an alternative (the one used for *Malaria Dreams*), a "running verbal commentary" accompanying the graphics is also effective (Monmonier 1992). The "commentary" for *Malaria Dreams* is strictly textual and accompanies almost every sequence. It describes the action on stage in relation to the relevant section or passage in the book. This link to the printed version of *Malaria Dreams* is reinforced by spelling place names in the same way as the text does. Though often subtle, spelling makes a statement about the author's point of view; spellings are often contested, and choosing one version of a word over another may privilege a certain perspective. Though the supplement author's sympathies might lie elsewhere, using the literary author's spellings in the visual supplement keeps the continuity of the program intact.

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Continuity and context are also maintained through growing maps that zoom in on or enlarge a portion of a map (Figure 7, pages 38-39). Ruggles (1987) considers "growing maps" one of the most effective ways to provide continuity, for they avoid disorienting the user by providing a common point of reference. Again, the user is guided through the program and is not allowed to become lost.

Photographs probably provide the strongest visual context since they can convey the information from several lines of text in a single image. However, since these are static entities, care must be taken to avoid using too many photographs and thereby degrading the overall dynamism of the experience by creating a slide-show presentation. There was never much danger of this abuse in the operational prototype for *Malaria Dreams* because even simple black-and-white photographs consumed appalling amounts of memory.

Both context and continuity can be endangered by the dynamic cartographer's fascination with elaborate graphical sequences such as terrain flybys. These sequences should be avoided unless they are carefully designed and contain sufficient points of reference. For example, in the supplement to *Malaria Dreams*, while the most elaborate sequence (a three-dimensional topographic rotation) has the terrain of West Africa transforming from a cross-sectional to an oblique view to demonstrate variations in topography (Figure 8, pages 38-39), it also displays the locations of familiar cities to reacquaint the viewer with the landscape. As recommended by Campbell and Egbert (1990), an attempt has been made to balance each sequence's information content with its graphic integrity. With flybys, it is important to remember that, although they can be impressive, if they are poorly conceived or sloppily executed, they can disorient users who are not yet familiar with the landscape being represented.

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[4] In the interests of the hearing-impaired user, explanatory text should never be completely supplanted by the voice-over.

Though not primarily used for context or continuity, visual and sonic cues such as color changes, flashes, and beeps help keep the user engaged. These cues can be combined if a single one is deemed insufficient to grab the user's attention. In the *Malaria Dreams* program, for instance, sound announces a change between maps or graphs in cases where movement might be too subtle or in cases where there is no movement per se, but there is color alternation among objects (such as changing emphasis from one country to another). Although these color changes are usually dramatic enough to register on their own, it has been suggested that color generally is not as effective a signal as movement (Dorling 1992). The viewer is sure to acknowledge the changes on the screen if each color transition is accompanied by an attention-getting beep. Superimposing multiple indicators of change can then make up for elements that individually are not effective signals.

A final consideration in constructing a reasonably informative visual supplement is the "politics of information" described by Abbe Don (1990). Just as the cartographically naïve are prey to every Mercator-based map they encounter, some users of knowledgebases tend to believe that "information presented or generated by computers is true, objective, and comprehensive" (Don 1990). Although the operational prototype discussed here is inherently incomplete, readers who perceive a full commercial supplement as broadly encyclopedic are vulnerable to the program author's agendas or biases. Whether covert, overt, or completely unintentional, this manipulation of information is inevitable. No one supplement (or supplement author) can possibly include every piece of information related to a given book. Someone, somehow, must decide what is to be included and what will be left out. It is important to note that the multimedia author's decisions about links and interactivity affect the textual content as much as anything else.

CONCLUSIONS

Although this paper is but a skeletal treatment of the issues involved in creating a visual supplement to a travel text, the "operational prototype" admirably performs its role as a visual supplement to *Malaria Dreams*. The feedback it has received from people of varying backgrounds (cartographers, human geographers, and Afrologists—some of whom have actually read the book) has been very positive. Their suggestions have also been crucial in fine-tuning the program's clarity and accessibility.

Visual supplements can address a growing need. As readers become increasingly aware of multimedia and its capabilities, they will begin to demand books with multimedia components. The demand will probably not be limited to travel accounts; indeed, any book with a geographic orientation is fair game for supplementation by multimedia and dynamic cartographers. This may even result in writers who find their popularity waning if they refuse to join the ranks of the interactively supplemented.

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EDITOR'S NOTE

La aventura del oeste de Africa de Stuart Stevens, "Malaria Dreams", ofrece al lector historias interesantes y divertidas. Sin embargo, no presenta un tratamiento adecuado de la geografía, la historia, la cultura y los asuntos políticos, dejando al lector con una visión incompleta del panorama. Los relatos de estos viajes se benefician de un "suplemento visual" interactivo que contiene animación, mapas, fotos, dibujos, gráficos y sonidos. Un suplemento visual puede complementar el texto e incrementar la experiencia del lector. Este trabajo presenta algunos asuntos pertinentes a la creación de suplementos visuales efectivos e incluye ejemplos del prototipo de "Malaria Dreams."

RESUMEN

Les écrits de voyage, tels que *Malaria Dreams*, l'aventure ouest-africaine de Stuart Steven, offrent aux lecteurs des histoires intéressantes et distrayantes. Pourtant, et parce qu'ils portent généralement peu d'intérêt aux questions géographiques, historiques, culturelles et politiques, ils laissent au lecteur une impression incomplète du pays. Les rapports de voyages pourraient profiter d'un "supplément visuel" interactif comprenant animations, cartes, photos, schémas, graphiques et sons. Un supplément visuel peut renforcer le texte et rehausser l'expérience totale du lecteur. Ce document présente quelques ques-tions pertinentes à la création d'un supplément visuel efficace et inclut des exemples d'un prototype pour *Malaria Dreams*. ❑

SOMMAIRE