The Beauty of Clear Communication

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ABSTRACT

Users see aesthetics in the Essential Geography of the United States of America, *a map that was made to communicate clearly, supporting the idea that, in cartography, there is a relationship between clarity and beauty.*

KEYWORDS: Aesthetics, Visual Separation, Map Elements, Weight, Hue

Our goal for the *Essential Geography of the United States of America* (Imus 2010) was to achieve the graphic depth and clarity that a map must have if it is to reveal the interrelated patterns of basic United States geography. However, users also appreciate the map's aesthetics.

Guided by the principle that, to the greatest extent possible, nothing should confuse or distract the user, we made each design and production decision to enhance the depth and clarity of the communication.

To minimize user confusion, we tried to eliminate ambiguity by creating as much visual separation as possible between all classes of map elements, without sacrificing overall balance. We did this by controlling each element's weight (size and density), hue, pattern, content, position, font, shape, and/or orientation. Likewise, we controlled the same graphic variables to create visual unity among similar elements.

To avoid distracting user attention away from the communication, we moderated the visual separation between elements in deference to a balanced presentation in which each map element draws an amount of attention to itself appropriate to its importance to the overall geographic story. To avoid cognitive overload, we sought a level of graphic and content generalization in keeping with the size and quantity of detail users can reasonably be expected to perceive.

Finally, because a map is a communication between the cartographer and the user, we attempted to visually analyze the communicative success of each map detail. If the communication was clear to us, we assumed it would be clear to other users, too.

Below, descriptions of two *Essential Geography* design considerations provide examples of ways in which we created visual separation between classes of map elements.

USING VARIATIONS IN WEIGHT, HUE AND CONTENT TO CREATE VISUAL SEPARATION BETWEEN THE UNITED STATES AND ITS SURROUNDINGS

We used weight to visually separate the United States from its surroundings by making US landforms, land cover and political boundaries as dark as possible without making overprinting lines and type hard for the average user to see under normal light, and the landforms and political boundaries of surrounding countries as light as possible without eliminating all of their expressiveness (Figure 1). We also lightened near-shore water as much as possible without making it appear to be white (Figure 2).

We created visual separation based on hue by printing subtle yellow over the United States, rendering an ivory color, but did not print yellow over surrounding countries (Figure 3), and we selected cyan for surrounding oceans, gulfs, etc., instead of a hue like aqua, which, because aqua incorporates yellow, would have had less visual separation than cyan from the abundant yellows and greens of the United States (Figure 2).

Figure 1: Variations in weight and content help to create visual separation between the United States and surrounding countries.
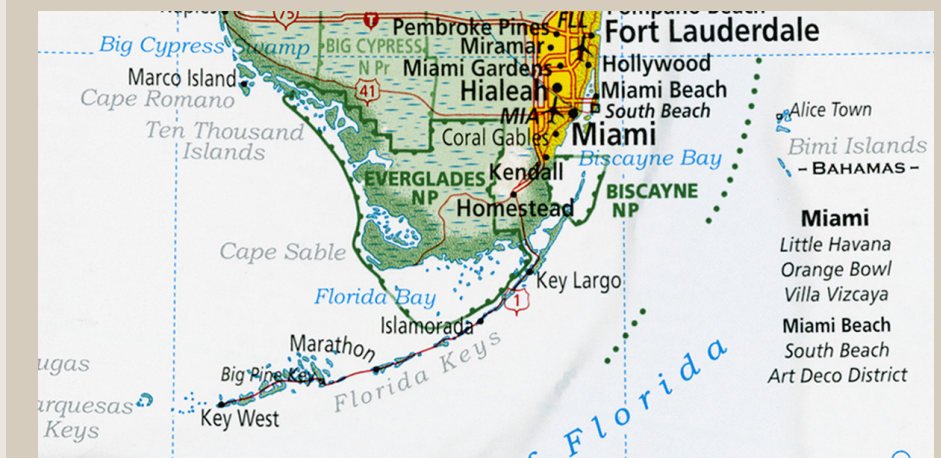

Figure 2: Highly contrasting hues and weights enhance the visual separation between the United States and near-shore water.

Figure 3: Variations in hue and content add to the visual separation between the United States and surrounding countries.
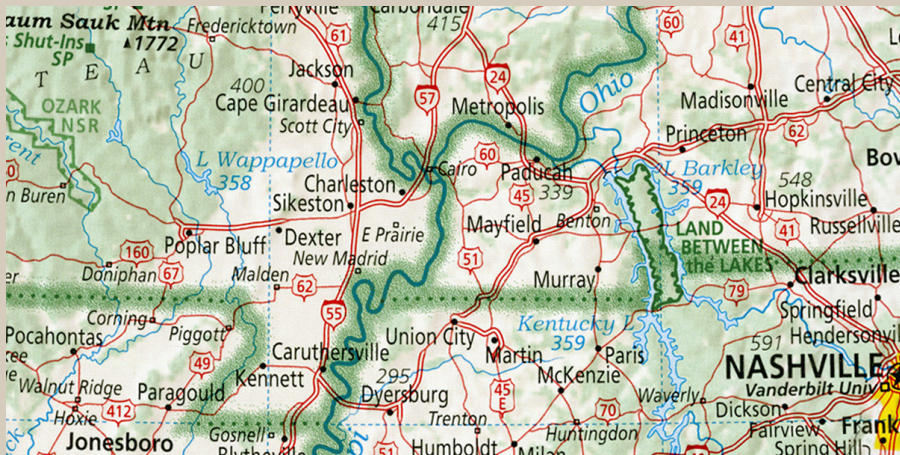

Figure 4: Variations in weight, hue and pattern each help to create visual separation between political boundaries and transportation features.

Figure 5: Distinctly different weights and patterns create visual separation without reliance on hue.

We varied content to create visual separation between the US and surrounding countries by including land cover—forest and urban areas—only inside the United States. (Figures 1 and 3).

USING VARIATIONS IN WEIGHT, PATTERN AND HUE TO CREATE VISUAL SEPARATION BETWEEN POLITICAL BOUNDARIES AND TRANSPORTATION FEATURES

Political boundaries and transportation features are the visually dominant classes of line symbols on the *Essential Geography*, making the visual separation between them of great importance to the map's clarity and overall appearance of simplicity. To create visually separate weights, we used heavy lines to represent political boundaries and thin lines to represent transportation features (Figure 4).

Graphically distinct patterns also help to visually separate these two line symbol classes. Speckled lines with soft edges and embedded dots represent political boundaries, and solid lines with hard edges represent transportation features (Figures 4 and 5).

We used hue to create visual separation by selecting green for political boundaries and red for transportation features (Figure 4). Most users perceive the greatest visual separation between hues like green and red, which lie directly opposite each other on the color wheel. Users who cannot appreciably differentiate between green and red can perceive a visual separation between political boundaries and transportation features based on their distinctly different weights and patterns (Figure 5).

Figure 6 shows that each Continental Divide symbol has a unique weight and shape, and that they are individually positioned. This was not done because variation is pleasing to the eye, although it often is. We did this because we felt that the presence of strong mechanical uniformity on an otherwise diverse and undulating field would create a visual distraction that could draw user attention away from the communication, and because individual spacing allowed each symbol to be placed in the position of greatest expressive value.

Figure 6: To avoid visually distracting the user with mechanical uniformity, Continental Divide symbols vary in value, shape and position.

In *Cartographic Relief Presentation*, Eduard Imhof observes a relationship between clear communication and aesthetics: "…in cartographic affairs, as in all graphic work, the greatest clarity, the greatest power of expression, balance and simplicity are concurrent with beauty" (Imhof 1982, 359). Our experience with the *Essential Geography*, a map that nowhere trades clarity for aesthetics, supports Imhof's observation. On the Imus Geographics website, comments on the *Essential Geography* like, "it's gorgeous" and "beautiful work," suggest that users see beauty where only depth and clarity of communication were sought.

Clarity creates visual harmony. Harmony in maps, like harmony in music, is beautiful. When users say that a map is beautiful, we believe they are unconsciously responding to the beauty of clear communication.

ABOUT THE AUTHORS

David Imus made the *Essential Geography of the United States of America*.

Paula Loftin was artistic editor.

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