LETTER FROM THE GUEST EDITORS

The term "aesthetic" derives from the Greek "*aisthetikos*" meaning "sensitive, perceptive," which in turn was derived from "*aisthanesthai*" meaning "to perceive (by the senses or by the mind) or to feel."

> **"***Popularized in English by translation of Immanuel Kant, and used originally in the classically correct sense 'the science which treats of the conditions of sensuous perception.' Kant had tried to correct the term after Alexander Baumgarten had taken it in German to mean 'criticism of taste' (1750s), but Baumgarten's sense attained popularity in English c. 1830s (despite scholarly resistance) and removed the word from any philosophical base. Walter Pater used it (1868) to describe the late 19c. movement that advocated 'art for art's sake,' which further blurred the sense.***"** (Online Etymology Dictionary 2013)

"Aesthetic" has evolved to relate to "beauty," "pleasing appearance," and "appreciation or response to the beautiful," (Merriam-Webster 2013) and "aesthetics" is currently defined as "the theory or philosophy of taste; the science of the beautiful in nature and art, especially that which treats the expression and embodiment of beauty by art." (Webster's 2013)

These succinct and unambiguous definitions belie the ambiguous and sometimes contradictory usage of the term, in part because of the subjective nature of what is perceived as beautiful, and in part because of the broad application of the term in diverse fields ranging from art, architecture, and gastronomy to mathematics, physics, and computation. Similarly, we find ambiguity and inconsistency in the treatment of aesthetics in cartography, even though most cartographers would agree that aesthetics holds an essential, and even critical, position in the field. This special issue of *Cartographic Perspectives* aims at illustrating the diversity of approaches to the discussion of aesthetics in cartography.

This issue was spawned from a number of activities at the 2012 Annual Meeting of the North American Cartographic Information Society (NACIS), which in turn resulted from a series of informal conversations among cartographers Aileen Buckley and Jaynya Richards (Esri), religious studies professor Lillian Larsen (University of Redlands), and geospatial scientist Steve Benzek (US Army Geospatial Center—US Army Corps of Engineers). This seemingly unlike-

ly congregation of people from such diverse fields is not so surprising when it is revealed that Benzek studied cartography under Buckley at the University of Redlands and collaborated with Larsen while vthere. These four initially came together to discuss maps that Benzek and Larsen had produced together. Their objective was to provide a more accurate representation of the uncertain nature of the Apostle Paul's travels. The group's critiques of Benzek's maps morphed into explorations of how Benzek had capitalized on cartographic design to portray not only the fuzziness of the information actually known about Paul but also a feeling for the substantive and temporal nature of the theme (Figures 1 to 4).
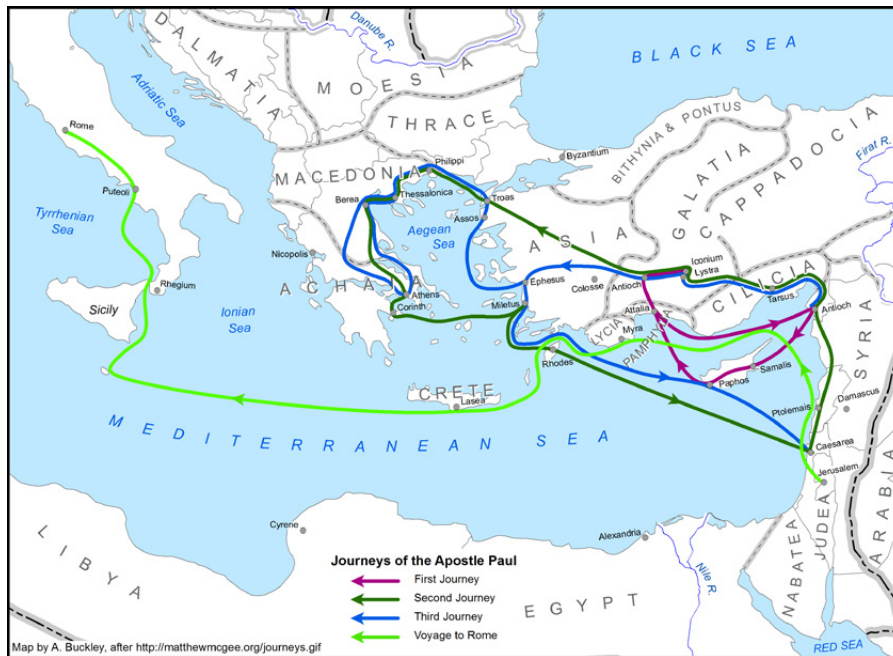

Figure 1: This map of the depicts the Apostle Paul's travels as definitive routes with implied chronology, which is an inaccurate representation of what is actually known about Paul. Map by Aileen Buckley.

Noting that aesthetics was becoming increasingly central to their discussions, the group of four searched for examples of maps that were visually pleasing but also communicated the nature of the data with high fidelity. A bounty was found, often from authors outside the field of cartography. Their desire to discuss this theme with cartographers and others outside the field led the group to approach the NACIS board with a proposal to offer a workshop dedicated to the subject at their upcoming 2012 meeting. Enthusiastic about an opportunity to promote cross-disciplinary discussion and to address the central theme of aesthetics in mapping, the board suggested that the theme be integrated into the existing structure of the conference. With a specific goal of including researchers and developers from outside the field of cartography, financial support was solicited to aid a selection of people who would not normally find themselves at a NACIS conference. Working closely with Neil Allen (the NACIS 2012 program chair), Benzek, Buckley, Larsen, and Richards organized two special forum sessions on the first morning of the conference; these were intended to set the stage for informal conversations over the next day and a half. A wrap-up session was also scheduled that would allow anyone interested in further discussions to reconvene. These activities culminated in a report to all conference attendees at the closing banquet.
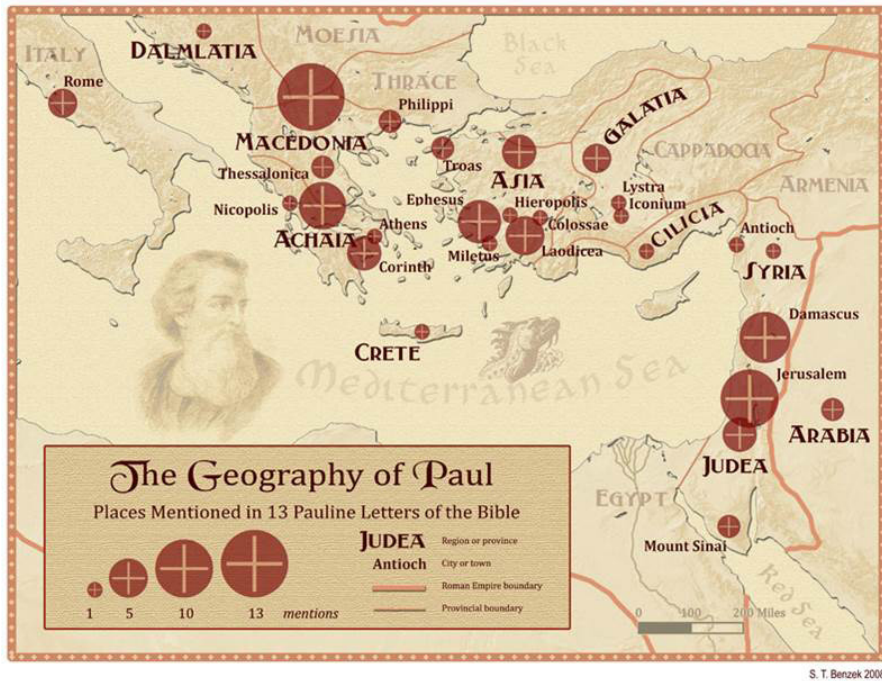
Figure 2: Replacing travel routes with graduated symbols representing citations, this 2008 map by Benzek and Larsen more accurately represents the information known about Paul. At the same time, it imparts a feeling of the historical nature of the subject matter. Map courtesy of Steve Benzek.

Figure 3: Benzek and Larsen's 2009 version of the map was again more representative of the known information and the period mapped, but the addition of the text and table at the right reduced the area for the map on the page and may draw attention away from the map. Map courtesy of Steve Benzek.
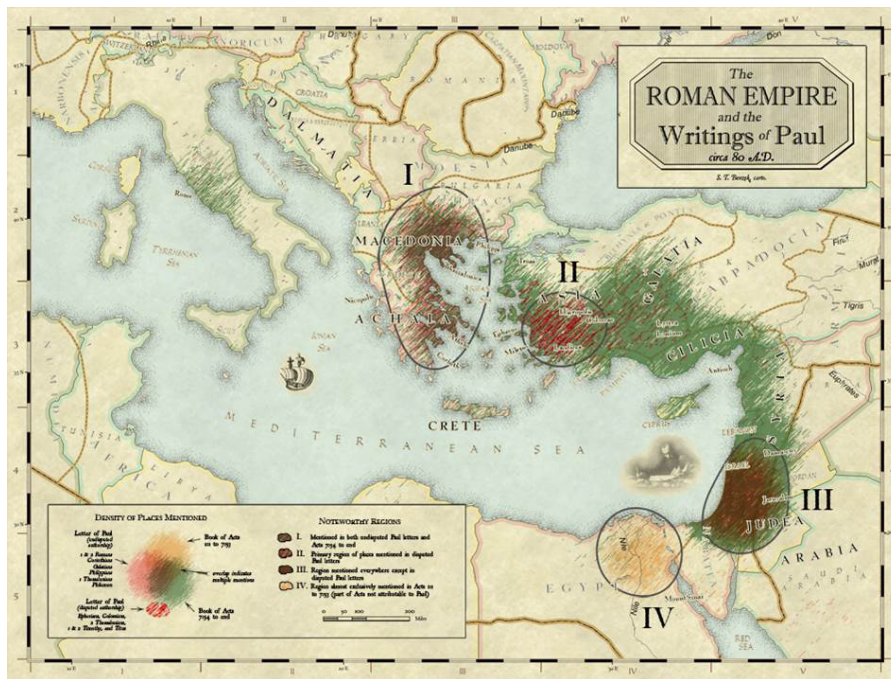
Figure 4: Benzek and Larsen's 2012 map may best represent the fuzzy nature of the information known about Paul's travels, although this became known as "The Scratchy Map" at the 2012 NACIS Annual Meeting. Map courtesy of Steve Benzek.

In the opening session, the forum organizers introduced the theme of "Aesthetics in Mapping" and laid out the agenda for the sessions. As a means of helping participants begin thinking about the subject, they also introduced a number of themes that were central to their prior discussions:

The power of maps as portals and destinations. Just as a novel or work of art can serve to inspire the imagination and transport a viewer or reader to a place, time, or mood, so too can maps.

Design principles. Visual unity, hierarchy, balance, scale, dominance, contrast, and texture are but a few design characteristics considered when creating a map. Conveying complex ideas and emotions—such as pathos, sadness, joy, anger, irony, and satire—can influence the application of these principles and create a powerful visual effect.

Iconography. The branch of art history that studies the identification, description, and interpretation of the content of images: the subjects depicted, the particular compositions and details used, and other elements that are distinct from artistic style. Elements of iconography can convey a message or particular aesthetic; iconography can be applied to improve the message, content, or impact of maps.

Tools, techniques, and technology. Graphics programs, such as Adobe Photoshop and Illustrator, in concert with mapping and imagery software, such as ArcMap, are not necessarily optimized to provide the right tools, techniques, and workflows to incorporate subtle and complex aesthetic characteristics into cartographic products. What changes and improvements could enhance the application of aesthetic considerations in modern mapmaking?

George McCleary, professor in the Department of Geography at the University of Kansas, then presented a keynote address titled "Beyond Map Layout and Design…Aesthetics?" in which he traced the development of studies in aesthetics in art, cartography, and related fields. His research

has led him to consider aesthetics as "unity in design," with the result that the map "looks right" and "works."

Presentations were then delivered from invited participants with three different perspectives from outside the field of cartography. Johannes Moenius, director of the Institute for Spatial Economic Analysis in the School of Business at the University of Redlands in California, presented his work on spatial economic analysis with special emphasis on his application of GIS and visualization to the effects of technical standards on trade flows and the dynamics of comparative advantage. Elijah Meeks, digital humanities specialist at Stanford University, discussed projects that he has worked on that give Stanford faculty access to project design, visualization, and software development oriented toward the creation of digital scholarly media. He demonstrated a number of projects including the Republic of Letters (**republicofletters.stanford.edu**) and Orbis (**orbis.stanford.edu**), a geospatial network model of the ancient Roman world. Larsen and Benzek presented jointly on their project to map the travels of Paul the Apostle.

Stuart Allan, of Allan Cartography and Benchmark Maps, and Nathaniel Kelso, of Stamen Design, then offered commentary on the presentations. Subsequently, the floor was opened for discussion, which was quite lively given the large number of attendees and the interesting topics that had been presented.

After a short break, the session continued with presentations from two longtime NACIS attendees, Mark Denil (National Ice Center) and daan Strebe (Mapthematics, LLC). Denil kicked off the second session with a presentation titled "Style and Taste," in which he defined style as a collection of appropriate choices of graphic elements, which can therefore be "parameterized," whereas taste requires selection and arrangement of the style choices. Strebe followed with a presentation titled "The Impotence of Maps, or Deconstructing the Deconstruction of Their Construction," in which he offered a number of somewhat controversial views, including the decreasing importance of maps and the suggestion that not all maps should be made for all people. These presentations set the stage for an extended discussion with the audience and the presenters. The room was rearranged to support a forum with the invited participants, along with Allan and Kelso, at the front of the room. Audience members were then invited to question the forum participants or offer their own comments and observations.

The afternoon of the second day, an open session for those interested in furthering the discussion was offered in the informal setting of Stanford's Restaurant across from the conference venue. Participants included Benzek, Buckley, Denil, Larsen, McCleary, Meeks, Strebe, Dave Imus (Imus Geographics), Mary Edin (City of Portland, Oregon), Sven Fuhrmann (Department of Geography, Texas State University), Joshua Greenburg (Skagit County, Washington), Iain Crawford (US Department of State), Karen Cook (Spencer Research Library, University of Kansas), and Mark Kumler (GIS Program, University of Redlands). Discussions over appetizers, wine, and beer were lively, and it was clear that the subject of aesthetics and mapping is of great interest to many in the NACIS community as well as outside the cartographic mainstream. There was general consensus that one of the most productive and useful outcomes of the events was the opportunity to bring together members of the NACIS community and participants from outside the field of cartography to discuss a theme of shared interest.

At the closing banquet, Buckley recapped the events and shared a summary of the various discussions, which was challenging given the breadth of topics explored and variety of views held. Recurrent themes included the following:

What does "aesthetics" mean? Does it matter if the term is not defined specifically? This conversation was spurred by many comments from audience members and forum participants, but in particular McCleary's keynote presentation on the historical development of aesthetics in various disciplines, as well as his reference to Leland Wilkinson's definition of aesthetics as "perception."

Is aesthetics akin to informational fidelity? This discussion was sparked by Larsen's view that the "beautiful map" was the one that most accurately depicted the nature of the data and was therefore graphically elucidating. For these types of maps, *what* you are showing is in sync with the *data*.

What role does graphical fidelity play in the consideration of aesthetics? This conversation was triggered by Gordon Kennedy's (Washington State Department of Transportation) comment about making maps that look historical by using techniques that were used at the time. He suggested that *how* you are showing something has to be in sync with *what* you are showing.

There was quite a bit of discussion relating to "The Scratchy Map" (the 2012 map of the journeys of Paul the Apostle by Benzek—Figure 4). A central topic was the use of mapping techniques that automatically allow the reader to perceive the true nature of the data, which are especially useful for "uncertain" or "incomplete" data. There was also discussion of the concept of an "aesthetics slider," which some people found disturbing.

The topic of clarity as a requirement for aesthetic design was also raised. Imus remarked that in his experience, clarity often leads to people finding a map aesthetically pleasing. Furhmann questioned whether "clarity is for map readers who don't have time" and "aesthetics are for people who do have time."

Also discussed was the subject of aesthetics in situations that give the control to the map user. This conversation was spurred by Meeks' presentation on mapping complex data in a compelling and understandable manner using an interface that allows users to control the display. This raised the issue of the effects of multiple perspectives and modular approaches on the aesthetics of the maps.

Participants also discussed the need to get peoples' attention (i.e., "the business case for aesthetics"), which was the theme of Moenius's presentation on aesthetics for maps of economic variables.

The subject of map critique was also raised when Martin Gamache (National Geographic Society) asked about teaching critique methods in schools. Cindy Brewer (Pennsylvania State University) responded that the goal of teaching critiques is to shape students' understanding of what a good map is rather than ask their opinion about good map design because they do not yet know what "good" map design is.

Strebe's presentation "the Impotence of Maps" sparked a lively discussion about the utility of maps. He also questioned the authority of maps and whether cartographers can or should disregard some audiences for some maps.

As a result of these events, this special issue of *Cartographic Perspectives* was organized around the theme of aesthetics in mapping. Bernie Jenny, assistant professor at Oregon State University, offered to co-edit the special edition with Buckley. The result is this timely and timeless collection of papers. Authors for this issue were offered a range of publication formats including full papers,

reviews, opinion pieces, design studies, and more; the result is a heterogeneous collection of formats. The issue also offers a range of viewpoints, reflective of continuing and fruitful discussion around the theme of aesthetics.

The issue opens with a selection of opinion pieces. In "Cartographic Design and Aesthetics FAQ," Alex Kent, Ken Field, Jenny, and Anja Hopfstock provide a "brief introduction to aesthetics and its relationship with cartographic design" through a set of carefully selected questions whose answers are aimed at providing some concise definitions for mapmakers. Nat Case considers what it means to make a beautiful map in "Function and Beauty." Truly beautiful maps are expressions of things that people want and need rather than works that are dressed up to look good to the client. In "A Lay Mapmaker's Perspective on the Dilemma of Cartographic Design," Moenius views aesthetics as the marketing of the map, which must be balanced with accessibility, accuracy, and astounding content—a balance that must ultimately result in a map that meets the consumers' needs. He concludes that "a map should not be designed so that the message it has can be understood, but rather so that it cannot possibly be misunderstood." Strebe re-presents his NACIS talk in "The Impotence of Maps." He reminds us that not everyone needs maps and that maps are no longer central to the acquisition of information. No longer a "primary authority," a map is now "a visual artifact representing information that is encoded elsewhere as digital structures." Given that maps have moved from the center to the periphery, Strebe suggests that giving up the idea that everyone needs a map allows us to focus our map design efforts on those who do need them.

In the next section, four featured articles are presented. In "Understanding Aesthetics in the Mapping and Counter-Mapping of Place" Kent explores the function of aesthetics on the cartographic representation of place. He analyzes the aesthetic value of state topographic maps and suggests that the most effective maps are those that use the aesthetic language of cartography to "express their subject in such a way as to create in the mind of the user an attitude appropriate for engaging with its subject." Sidonie Christophe and Charlotte Hoarau also examine topographic map design in their article "Expressive Map Design Based on Pop Art." Their approach involves the use of inspired sources in select artistic domains, such as Pop Art, to "enhance the expressive and aesthetic properties of personalized maps." Denil revisits his NACIS presentation in "Style and Taste." He explores key concepts, such as aesthetics, clarity, style, design, taste, and what he calls "mapicity." He defines style as "a set of appropriate choices afforded by the schema of mapicity" ("that quality of map-ness that makes a map a map") and taste as "the ability to perceive and distinguish stylistic features and aesthetic dimensions." Together, style and taste have the ability to elevate a map to the position of an "aesthetic benchmark" and thus expand the scope of "mapicity." Fuhrmann takes a practical approach in "Undergraduate Geography Students Define Aesthetic Maps." In his study, naïve map users were questioned about what they found aesthetically pleasing in maps. His results indicated that clarity and "being visually pleasing/attractive" were key, but he also reports on a "possible aesthetic paradigm shift towards mobile and other interactive, web-based spatial representations." In "The Aesthetic of Maps," Anne Cristyne Pereira and Flávio Anthero Nunes Vianna dos Santos review Jan Mukařovský's theory of aesthetics and aesthetic function (existing to be perceived by the senses) as a basis to distinguish between artistic objects and aesthetic objects. They suggest that the use of a map is what will differentiate it as either an aesthetic object (a practical object for which aesthetic function is of secondary importance) or an artistic object (a decorative object for which aesthetic function is of primary importance).

In the third section, *Visual Fields*, Stephan Angsüsser describes the aesthetics of the hand-drawn Beijing-Shanghai high-speed railway map. He uses this map to demonstrate how aesthetics in mapping is partly related to the mapmakers and the map users and their "individual and cultural peculiarities," and he concludes that some "aesthetic codes" are also cultural codes. Imus and Paula Loftin reflect on the relationship between clarity and beauty in "The Beauty of Clear Communication." Using the *Essential Geography of the United States of America* map as an example, they explore how "clarity creates visual harmony." They suggest that users who think a map is beautiful are "unconsciously responding to the beauty of clear communication."

A final article by Field describes the International Cartographic Association's Commission on Map Design, which was formed in part to explore issues of "the value of aesthetics in map design." The goals and related activities of the commission are reviewed, including the commission's support of the NACIS activities that resulted in this special issue of *Cartographic Perspectives*.

In retrospect, a large number of people were involved in the development of this special issue. The four original organizers, Benzek, Buckley, Larsen, and Richards, were instrumental in prompting the series of events that led to compilation of this special issue and for organizing the activities at the 2012 NACIS conference. Financial support, provided by Esri, the University of Redlands Keck Foundation, NACIS, and the International Cartographic Association's Map Design Commission, allowed us to offer travel assistance to 10 participants. NACIS (in particular Neil Allen, Lou Cross, and Susan Peschel) must be thanked for facilitating the collection and disbursement of the funds and for providing the venue and logistical support for the events at the 2012 conference. The invited participants provided the sought-after perspectives from other disciplines and enabled excellent cross-disciplinary discussion. The session presenters, discussants, participants, and audience confirmed the interest in this subject and advanced the discussion.

Jenny was primarily responsible for editing this special issue, from finding reviewers through channeling drafts and reviews between the authors, reviewers, and journal staff to arranging the papers in their final order. Enormous credit must be given to the authors for their efforts and expertise resulting in the exemplary papers in this issue and for their careful revision of the papers as they went through anonymous reviewing and the production process. The anonymous reviewers must be thanked for their thorough critiques, carefully considered comments, and timely responses. The *Cartographic Perspectives* staff was supportive and professional. They must be thanked for their trust in us as guest editors. Editor Patrick Kennelly stoked the fires with a gentle yet persistent hand to keep the process alight. Assistant editors Daniel Huffman, Robert Roth, and Laura McCormick brought the papers to life and made this issue "real."

Thanks finally go to you, the readers, for your interest in this subject and your exploration of these papers. As with maps, we recognize the need for journals to get peoples' attention. For maps, we know that aesthetics helps, so we try to incorporate that into our design. With journals, high quality helps, so we did our best to assure that for this special issue. We hope you will find these articles useful, enjoyable, and thought provoking.

Respectfully,

Aileen and Bernie

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