

ATLAS REVIEW

A New Social Atlas of Britain

Daniel Dorling

Chichester: John Wiley & Sons.

1995. Cloth. Price approx. \$47.95

(ISBN: 0-471-94868-3)

*Reviewed by Henry W. Castner
Pittsboro, NC*

Daniel Dorling's *New Social Atlas of Britain* is a spectacular and challenging new atlas of equal population cartograms. It is cut from the cloth of Janos Szego's human cartography which asks the question: "How can actual events and processes in the world of man be translated into maps, and how can this translation be made comprehensible and accessible for the human brain?" (Szego 1987, 10). Szego's project was tied to advances in computer cartography beyond the early expressions in the language of that technology which the admits were not very refined or subtle. Unfortunately, he was unable to offer many examples that took us beyond what could be seen in Bertin (1967) or Tufte (1983). But he would, I believe, be pleased with Dorling's atlas which is clearly about human activities and is a splendid realization of the promise of the new technology. Whether Dorling's atlas will be seen as "user friendly, only time will tell. To his credit, Dorling makes every effort to help his readers come to terms with and become articulate about these unfamiliar maps.

Dorling has taken contiguous equal population cartograms as the basis of his atlas. In them, equal areas of space have been allocated to equal numbers of people, rather than to values or rates of some phenomenon. Readers are perhaps more familiar with hand-constructed isodensity maps (Eastman, Nelson, and Shields 1981) or the ball-bearing contrived isodemographic map (Skoda and

Robertson 1972). In these images the shapes of the enumeration areas are distorted so that their contiguity and relative positions are roughly maintained and the overall shape retains enough elements of the undistorted geographic area to remain recognizable. For the cartograms in Dorling's atlas, a circle was assigned to each of the some 10,000 wards and its size was made proportional to their population. In a few cartograms he alternatively used the 459 local authority districts or the 633 parliamentary constituencies. Wards are the smallest administrative areas used to elect politicians in Britain. They vary little in population within the same district but may vary greatly from one district to another. Because urban wards tend to have larger populations than rural wards, the location of cities and towns are rather easily discerned. Wards have the added advantage in that their size tends to correlate strongly with land use.

To help his lay readers, Dorling compares the resultant images of his cartograms with sending every person in Britain to a small flat island providing standing room only. Each household is asked to keep together and to stay as near to its neighbors as possible, while allowing everyone equal room. If everyone was given a colored placard to hold overhead in reply to a question, then a bird's-eye view would show a population cartogram of an answer to that question. Obviously such a gathering is an impossibility but it can be simulated by a computer. And Dorling has been writing such programs for some years, starting with a cartogram of British counties in 1989 as part of a student dissertation. The computer program for this atlas moves each ward circle so that none overlap but as many as possible retain their geographical neighbors and their cardinal relationships. As a result, the coastline must be

distorted and Britain takes on a new form although it is reminiscent of the true and familiar geographic shape. But because of the concentrations of population in urban areas, viewers must get used to the bulbous Southeast England around London and enlargements in such areas as the West Midlands, West Yorkshire, and Strathclyde.

Atop the image, there is an unintended Britannia-like figure (with shield and sword held aloft) that is Scotland! The circles are filled with a tint of gray or red to correspond to the classes, most often five, into which the census data has been divided. Black is always extreme minimum; red the extreme maximum. In this way, comparisons from page to page are more easily made.

The impetus for this atlas began in 1992 with the first releases of new census data. Numerous short programs were written to transform, store, compress, and retrieve the census and other data used to create the various cartograms. The basic statistics are usually presented in percentages and then the simple differences in those percentages (rather than the percentages of a percentage) are mapped. This procedure diminishes the impact of local changes and allows national comparisons to be more easily made.

The atlas is in landscape format with 11.5 by 8.25 inch pages, divided into two columns usually with two cartograms or with text and statistical diagrams. The text is often used to discuss both the nature of the variable being mapped and characteristics of the data as well as to describe some of the more interesting patterns to be seen. After a lengthy 19 page introduction to the data, the cartograms, and the detailed ward structure of the images, Dorling provides eight full color images. One is a traditional map of population density for 1991 of residents per square kilometer. The key

shows what percentage of the land area of Britain is in each of the 15 classes. The other seven images are cartograms of general topics against which the more specialized cartograms to follow can be compared. They include population concentration, the largest ethnic or national minority group, those not working, housing wealth, illness rates, composition of the workforce, and the political party shares of ward voters. These images are overlain with the county boundaries to help relate them to more familiar geographies.

The seven major sections of the Atlas which follow cover topics on population, demography, economic, housing, health, society and politics. In total, 106 topics are treated. Many of them are to be expected: e.g., land use, fertility, occupational structure, household demand, availability of central heating, family type, and electoral registration. Some others are new and refreshing: e.g., residents imputed, early retirement, overcrowding, avoidable death, car availability, and electorate not voting.

Dorling correctly acknowledges that because of the graphic complexity of the images, and, despite all the computer programs and statistical methods employed in the generation of the images, atlas users will need to gain some experience to read them. And the human eye-brain will be the instrument that must detect and interpret the patterns which the cartograms reveal. To assist in this, Dorling does a number of things, some of which have already been mentioned in this review. In addition, all but one of the seven sections is introduced by a traditional land area map juxtaposed with a population cartogram to help readers make the visual transition.

While the images are quite complex, Dorling claims that the simultaneous display of 10,000 circles allows one to see both local

and national patterns. A familiarity with the geography of Britain would certainly help in this. For this reviewer it is possible to isolate the patterns of the extreme classes and the overall divisions between lower and higher percentage changes, i.e., between areas of black and red. As one might expect, London and some of the other large conurbations are often dominant features of these images. But the images that attract the greatest attention are those where these urban areas do not stand out.

In his acknowledgments, Dorling pays tribute to the countless people who "diligently fill in census forms, voting slips, birth certificates, mortgage applications, unemployment cards and all the other paper work which is used to organize British society." His hope is that some of that information is being returned in the pages of his atlas. Clearly this return will be useful for those interested in the social geography of Great Britain. But it will also appeal to the much larger audience that is currently exploring the possibilities of graphic visualization for it provides fascinating and challenging examples for thought, reflection, and perhaps even map user research.

BIBLIOGRAPHY

- Bertin, Jacques. 1967. *Semiologie graphique*. Paris: Editions Gauthier-Villars.
- Eastman, J. Ronald, W. Nelson, and G. Shields. 1981. Production considerations in isodensity mapping. *Cartographica*, XVIII (1): 24-30.
- Skoda, Lou and J. G. Robertson. 1972. Isodemographic map of Canada. *Geographical Paper* #50, (Ref. #En 36-506/50). Ottawa: Lands Directorate, Department of Environment.
- Szego, Janos. 1987. *Human Cartography*. Stockholm: Swedish Council for Building Research.
- Tufte, Edward R. 1983. *The Visual Display of Quantitative Information*. Cheshire, CT: Graphics Press. □

cartographic events

April 10 - 12, 1996

Fourth International GISRUK 96
University of Kent at Canterbury
Kent, UK. Contact: Judith Broom, Computing Laboratory, University of Kent Canterbury, Kent CT2 7NF, UK. +44 (0) 1227 827695, fax +44 (0) 1227 762811, e-mail: gisruk96@ukc.ac.uk.

April 21 - 24, 1996

ASPRS/ACSM Annual Convention and Exhibition
Baltimore Convention Center, Baltimore, MD. Contact: ASPRS/ACSM '96 Registration Coordinator, 5410 Grovenor Lane, Suite 100, Bethesda, MD 20814

June 4-7, 1996

Ninth Annual Towson State University GIS Conference
Towson, MD. Contact: Jay Morgan, Dept of Geography & Environmental Planning, Towson State Univ., Baltimore, MD 21204-7097, (410) 830-2964, fax (410) 830-3888, e-mail: e7g4mor@toe.towson.edu.

June 12 - 16, 1996

CCA/ACC
Toronto, Canada. Contact: Shelley Laskin, co-chair of Organizing Committee, Globe Graphics, 664 Balliol Street, Toronto, ON, Canada M4S 1E7, (416) 481-9513, fax (416) 487-1644, e-mail: shelley@io.org

July 27 - August 1, 1996

URISA 96
Slat Lake City, UT. Contact: URISA, 900 Second Street, NE, suite 304, Washington, D.C. 20002, (202) 289-1685, Fax (202) 842-1850, e-mail: training@urisa.org, http://www.urisa.org

October 2 - 5, 1996

NACIS XVI

see pages 10-11 for details