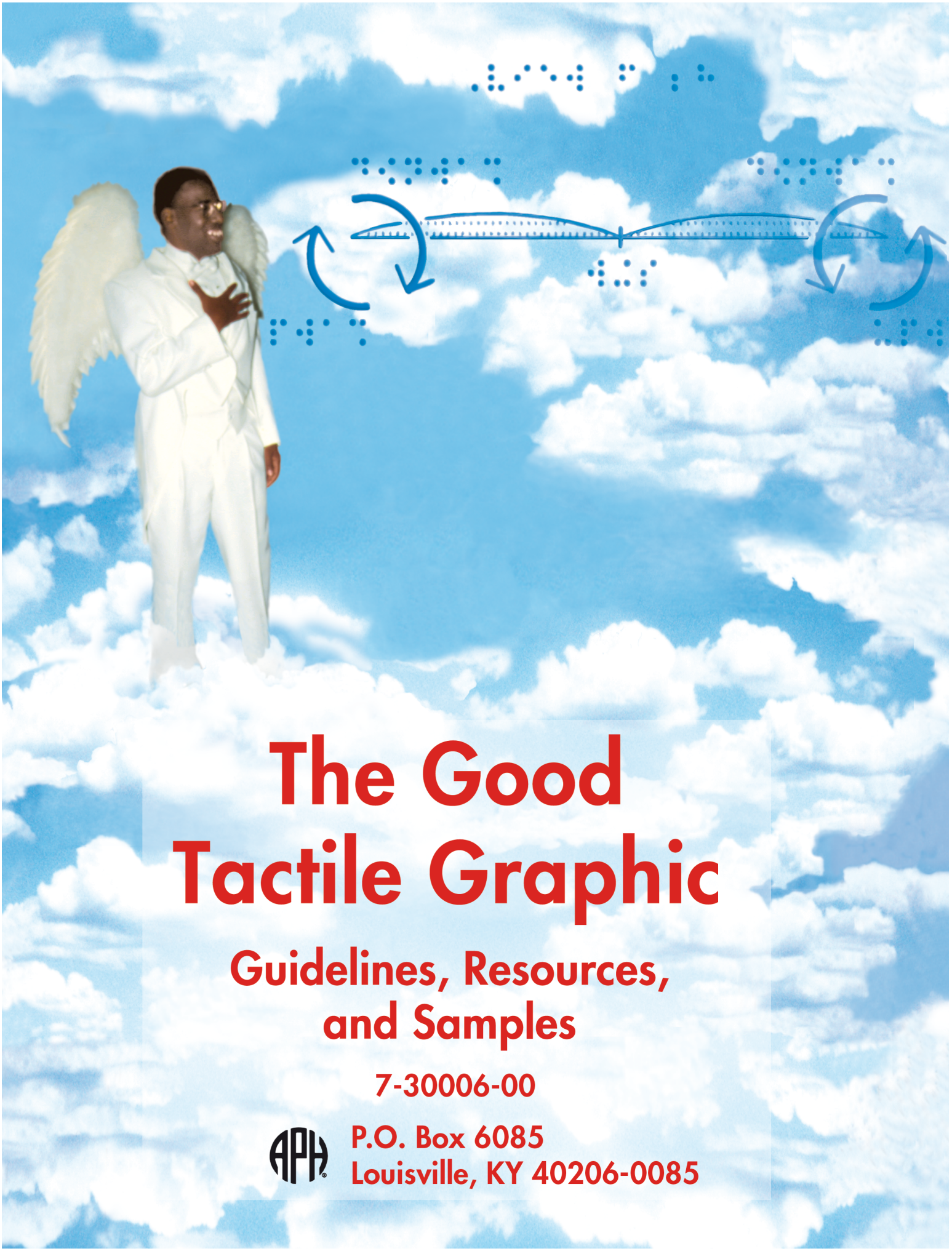

The Good Tactile Graphic

Guidelines, Resources, and Samples

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APH
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Guidelines, Resources, and Samples

This booklet accompanies the set of videos called *The Good Tactile Graphic* and *Creating the Good Tactile Graphic.* It includes specific design principles, references, and samples of some of the tactile graphics shown in the videos.

This project owes acknowledgment to many people, including Mary Nelle McLennan, Frank Hayden, and Tom Poppe of APH for help above and beyond expectations; Wanda Pierce for creative vision and thoughtful planning; and Nancy Amick and Jane Corcoran for exemplary dedication and care in tactile graphic design.

AMERICAN PRINTING HOUSE
FOR THE BLIND, INC.

Guidelines for Design of Tactile Graphics

General

1. Decide if a tactile graphic needs to be made at all. Omit the graphic if it doesn't convey essential content.

   a. Consider using a description to replace all or part of a graphic.

   b. Remember that children need to build up tactile skills with simple figures. Consider providing graphics in children's books even if they are not needed for content.

2. Graphics should be tactually clear and contain only relevant information, based on an understanding of what is being taught and what the student's task is. Visual information that is irrelevant to the meaning or purpose should be omitted.

3. Graphics should be redrawn in 2 dimensions where possible, with the exception of some mathematical and scientific diagrams.

   a. Replace 3-dimensional figures with cross-sections or front-side-top views whenever possible.

   b. Look for perspectives that allow you to redo a 3-D print picture in 2-D.

4. Follow the Braille Authority of North America's (BANA) "Guidelines for Mathematical Diagrams." In cases where a graphic has been replaced by a table or chart, use "Braille Code for Columned Materials and Tables."

Design

1. Avoid clutter and simplify.

   a. "Clutter" occurs when different symbols and lines are so close or so similar that they become hard to distinguish. Spacing is the key to avoiding clutter.

   b. Symbols and lines closer that 1/4" may be hard to tell apart, depending on the medium and tools being used.

c. Shapes with sides less than 1/2" long may not be recognizable.

d. Distort the spacing or shape of the original picture if necessary to allow uncluttered spacing of the tactile elements, providing this would not violate the purpose of the picture.

e. "Simplify" means to eliminate unnecessary elements of the original picture. Focus on the relevant parts and omit details that are purely decorative or distracting.

f. When the print picture includes people, animals, objects, etc., replace them with simple lines, symbols, and/or labels (e.g., use the label "hand" instead of drawing a hand).

2. Split complicated graphics into separate drawings showing layers of information, or into an overview and detailed view.

a. Explain the separation in a transcriber's note.

b. Carry over some labels and common points from one drawing to another for reference.

3. In general, use texture sparingly and only to add information.

4. When necessary to avoid confusion or to give important information, differentiate between bodies of water and land on maps by using a different areal symbol (texture).

    a. Use a very low, closely spaced texture for water.

    b. An areal texture indicating ocean should extend far enough to be perceived as a continuing expanse, but need not fill the entire page.

Symbols (Lines, Points, and Textures)

1. Limit the lines, points, and symbols on a drawing to ones that can be easily identified one from another by touch.

    a. Use the most prominent symbols for the most important features in the graphic. Don't allow high or "noisy" textures to draw attention away from the important features.

    b. Feel the copy of the graphic the reader will receive to see if you can follow all lines.

2. Be consistent in using symbols within graphics of the same type within the same transcription (e.g., always use the same symbol for water on maps).

3. Use different tactile symbols for different types of information (e.g., in a map of the United States, the tactile line used to indicate state borders should be different from the tactile line used to indicate international borders).

4. Lines, points, and braille must be physically separated by at least 1/8".

   a. This may need to be 1/4", depending on the medium and symbols used.

   b. Apply the 1/8" separation rule to all features that are separate, even if doing so introduces some spatial distortion.

Lead Lines

1. Use lead lines only as a last resort. Use keys or notes as alternatives.

2. Do not use arrows as lead lines.

3. The linear symbol used for lead lines should be different from any other lines used in the graphic and should be tactually distinctive but less prominent.

   a. A lead line should begin as close as possible, without causing interference, to either the first or the last letter in the label, and should end as close as possible to the feature being labeled.

   b. Break the lines of the graphic to allow lead lines through.

Labels

1. Explain and define all graphic symbols, either on the same page, facing page, or special symbols page.

2. Identify all important features (e.g., capitals, bodies of water, etc.) of the graphic, even things not labeled in the print version. Place titles at the top of the page. Do not make unlabeled graphics. (There may be exceptions in some testing situations.)

3. Place labels in a manner that leaves the reader no doubt as to what is being identified. Single letters on the graphic should be preceded by either the letter sign or the capital sign.

4. Use two-letter US postal codes where applicable (and other two-letter codes where postal codes are not applicable) for labels on maps.

5. Words in labels need not be capitalized if their meaning will not be confused.

6. Use Grade 2 braille contractions in labels.

7. A two-cell braille symbol is preferable to a one-cell symbol for labels.

8. Try not to break the integrity of a shape with a braille label (e.g., the border of a state with its braille label).

Indicators and Scale

1. In a transcription where north is at the top of the page on all maps, indicate this in a preface and do not indicate north on each map. On single maps, or when north is not the top of the page, indicate direction by using a simple arrow labeled N.

2. Position scale and other indicators as consistently as possible, preferably at the top of tactile graphics.

3. When it is necessary to change the scale, this fact may need to be indicated in a transcriber's note.

Preliminary Information

Place all titles, keys, and legends before the graphic. Author's keys and legends precede the transcriber's keys and legends. If there is not room on the page with the graphic, place on preceding page.

Remember: Feel every graphic you make before sending it on.
If you can't identify its features,
your reader probably can't either!

APH, 1997

Resources

Here are some written resources for help in designing good tactile graphics:

Guidelines for Mathematical Diagrams
1983, Braille Authority of North America
(Order from: National Braille Association / 3 Townline Circle / Rochester, NY 14623 / (716) 427-8260)

The official "rule book" for transcribing math diagrams into tactile form. Covers a range of difficulties and includes printed and (in the *Supplement*) tactile samples.

Production of Tactile Graphics Using Swell Paper
by Yvonne Eriksson and Monica Strucel
1995, TBP, The Swedish Library of Talking Books and Braille
TBP / Sandsborgsv. 52, 122 88 Enskede, Växel / Sweden / phone (08) 39 93 50

A useful guide to graphics production with swell paper, with printed samples and details of how they were designed. Especially interesting are the sample lines, symbols, and areal patterns.

Stereocopy: Rising to the Occasion
by Wayne Schaper
1998, Canadian National Institute for the Blind Library
CNIB Library / 1929 Bayview / Toronto, ON / Canada
M4G 3E8 / (416) 480-7520

Rising to the Occasion deals mainly with making braille labels in stereocopy drawings, but it also has useful tips for working with swell paper in general.

Tactile Course Manual
Constance Craig, ed.
1998, Canadian National Institute for the Blind Library
CNIB Library / 1929 Bayview / Toronto, ON / Canada
M4G 3E8 / (416) 480-7532

The *Tactile Course Manual* has 11 lessons ranging from techniques to design theory. The emphasis is on hand-building and vacuumform production, but stereocopy is also included.

Tactile Graphics Research Project Report
Part I: Research Findings & Recommendations
Part II: Interim Measures and *Supplement*
1996, Canadian Braille Authority
(Order from: CNIB / 1929 Bayview Ave. / Toronto, ON / Canada M4G 3E8 / (416) 480-7591. Call or write for latest prices and mailing charges.)

Part I of the report describes a survey of tactile graphic producers done by CBA and discusses the conclusions drawn from it. *Part II* gives thorough, specific production guidelines that the CBA recommends as standards--a very practical and helpful booklet.

Tactile Graphics
by Polly Edman
1992, American Foundation for the Blind
AFB / Suite 300 / 11 Penn Plaza / New York, NY 10001 / (800) 232-5463

A large (500+ pages) and appealing look at the theory and practice of making tactile graphics. Polly Edman brings sensitivity to the needs of blind students, an experimental flair, and an artist's touch to her work. The book is illustrated with lots of pictures of good and bad tactile graphics, production tools, and children's drawings.

Tactile Graphics, An Overview and Resource Guide
by John A. Gardner
1996, Oregon State University
(Article available at
http://dots.physics.orst.edu/tactile/tactile.html)

This article "introduces the reader to some of the possibilities and to some limitations of using tactile graphics for conveying information to blind people." It describes methods for producing tactile graphics and includes a resource list of supplies and devices helpful in tactile graphic production.

Tactile Graphics Guidebook
by John Barth
1981, American Printing House for the Blind
APH / 1839 Frankfort Ave. / Louisville, KY 40206 /
(800) 223-1839

Written as a guide to working with diagramming foil, the *Tactile Graphics Guidebook* has a lot of useful and well-researched information that applies to all kinds of tactile graphic production.

The following are sources for tools and supplies that were mentioned in the videos:

American Printing House for the Blind
P. O. Box 6085
Louisville, KY 40206
(800) 223-1839
Tactile Graphics Kit, Tactile Graphics Starter Kit, Braille Transcribers' Kit: Math, and many other materials for teaching students to read and use tactile materials.

American Thermoform Corp.
2311 Travers Ave.
Commerce, CA 90040
(213) 723-9021
Thermoform machines, Brailon thermoforming paper, Swell-Touch paper and heating machine.

Braille Planet, Inc.
408 South Baldwin St.
Madison, WI 53703
(800) 347-9594
MegaDots software for braille translation.

Duxbury Systems, Inc.
270 Littleton Rd., Unit 6
Westford, MA 01886-3523
(978) 692-3000
DBT software for braille translation.

Howe Press
Perkins School for the Blind
175 N. Beacon Street
Watertown, MA 02172
(617) 924-3490
Tracing wheels, compasses with spur wheel on the end, raised line drawing kit including tools and sheets of mylar, and other transcribing aids.

Repro-Tronics, Inc.
75 Carter Ave.
Westwood, NJ 07675
(800) 948-8453
Tactile Image Enhancer and Flexi-Paper, Thermo Pen for writing on swell paper.