From Charts to Glyphs: Rudolf Modley's Contribution to Visual Communication

Charles R. Crawley
Epic Systems Corporation

SUMMARY

Visual communicators have much to learn from Rudolf Modley, who designed many pictorial symbols in the 1930s and 1940s. His symbols can be used today, and he also proposed many design principles that are worth studying. His call for an international system of symbols is as pressing and pertinent today as it was when he argued for it over 20 years ago.

The symbols designed by Rudolf Modley (Figure 1) are very much alive today. They are used—much as he created them—as clip art in brochures, newsletters, newspapers, magazines, software, and even on television (Figure 2). Though developed mainly in the 1930s and 1940s, these designs still have a crisp, clean, contemporary look. They can now be modified through computer drawing and painting programs and thus adapted to modern settings. This article assesses Rudolf Modley's contribution to visual communication, as one of the forerunners of today's renaissance in that field.

MODLEY'S BACKGROUND

Rudolf Modley was born in Vienna in 1906. He graduated from the University of Vienna with a doctor of jurisprudence (law) degree. While living in Vienna he came under the influence of Otto Neurath, whom he later referred to as the "Father of Pictography" (Modley 1976, p. ix).

Neurath, who was keenly interested in communicating statistics through visuals, developed a style of bar chart that can still be seen today (Figure 3). He also used "pictographs" (pictorial symbols) that told stories and made certain points (Figure 4). Neurath had great hopes for his pictographs. He incorporated them into the ISOTYPE (International System of Typographic Picture Education) system, which he thought would evolve into an international picture language that all people could understand (Neurath 1936, Lupton 1989).

Modley worked under Neurath in the 1920s in the Vienna Gesellschafts und Wirtschaftsmuseum (Social and Economic Museum), and then left for the United States in 1930. Modley did some graduate work at the University of Chicago and later became a curator of the Museum of Science and Industry in Chicago.

In 1933, Modley started the Pictograph Corporation in New York City and served as its

This article has been peer reviewed.

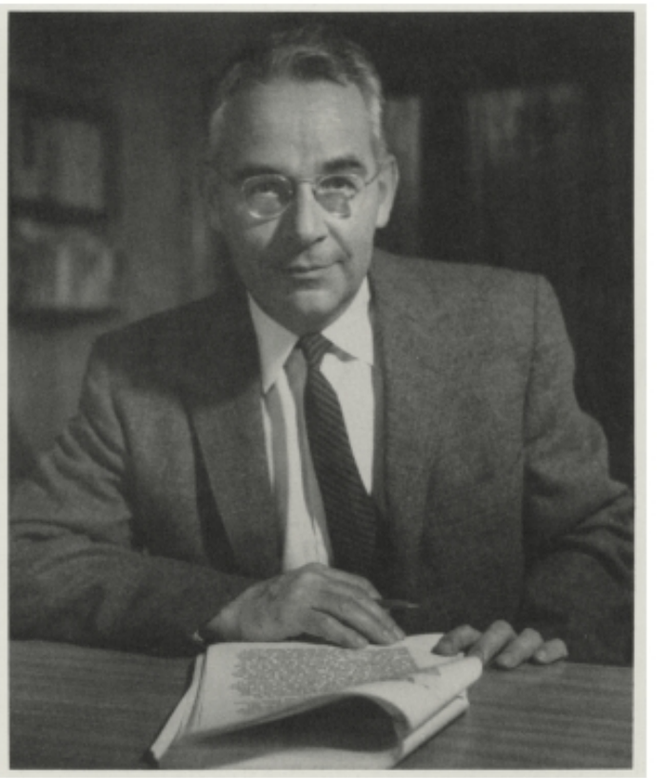

Figure 1. Rudolf Modley, from a photograph taken by Trude Fleischmann, c. 1970.



Figure 2. Modley's pictorial symbols are still widely used today.



Figure 3. This is a typical Neurath bar chart. It shows the average number of marriages in Vienna from 1911 through 1932.



Figure 4. This is one of Neurath's pictorial stories. The original caption reads "Go to the medical man, if your baby has Rachitis."

president until 1945. During this time he and his designers developed pictorial statistics in the Neurath style for a wide variety of news and business magazines, corporate reports, and government publications (Figure 5 on page 22).

He also wrote a book, *How to Use Pictorial Statistics* (1937), which was later revised and expanded as *Pictographs and Graphs* (1952). These two books contain most of Modley's design philosophy.

Modley also published a compilation of the symbols developed by the Pictograph Corporation in *1000 Pictorial Symbols* (1942). He included many of these symbols, along with other international symbol systems, in his *Handbook of Pictorial Symbols*, published by Dover Books in 1976.

In the later part of his life, Modley moved to western Connecticut with his wife and two children and served as a management consultant in a variety of fields. He continued his interest in the development of symbols, especially international symbols, and wrote several articles on the subject.

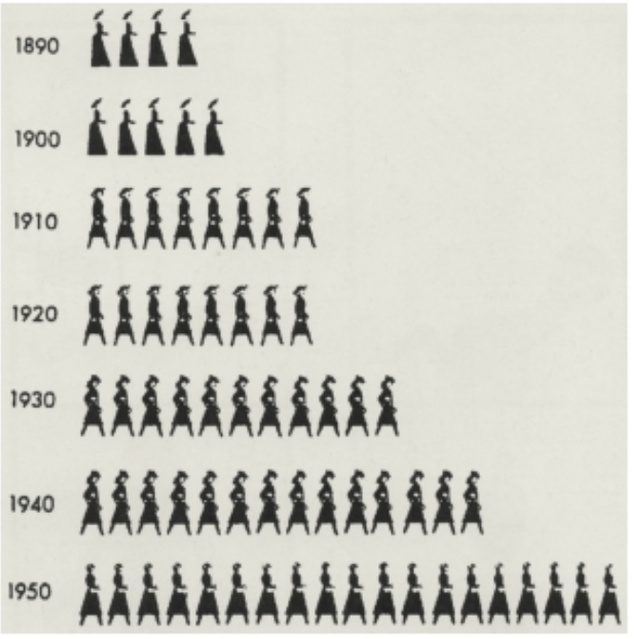

Figure 5. Modley used Neurath's style of bar chart. This chart shows the growing number of women entering the work force from 1890 to 1950.

He and Margaret Mead, the famous American anthropologist, developed a newsletter called "Glyphs" which was published until his death in 1976.

MODLEY'S DESIGN PHILOSOPHY

Modley's interest in visual communication started with statistics. This was due, in part, to Neurath's influence. Modley also believed that pictographs had a wider value than their use in statistics. He thought that pictorial charts were the way of the future (Figure 6):

> Well executed charts win the attention of modern men and women who in their hurry limit their attention to those things which are simple, informative and arresting (Modley, 1937, p. 5).

He believed in the power of the picture to attract a reader's attention and to convey information quickly and interestingly.

Modley would have felt comfortable in the age of the "self-documenting Macintosh," which needs little or no documentation, or the comic book technical manual, which has more pictures than words:

> The ideal chart would have no lettering. It would be self-explanatory. No charts ever reach this ideal, but if we plan carefully we can approach it (Modley, 1937, p. 73).

Modley also believed that there was an emotional component to pictures: ". . . visual communication conveys a personal feeling which arouses the interest of the average reader" (Modley, 1952, p. 4). A good symbol can make an abstract concept concrete and relate itself to the real life of a person (Figure 7).

MODLEY'S DESIGN PRINCIPLES

Which design principles guided Modley and the designers who worked with him in creating their symbols? Modley expressed some of this thoughts for making good pictorial symbols in *Pictographs and Graphs: How to Make Use of Them* (1952, p. 47). A symbol should

1. Follow principles of good design.
2. Be usable in either large or small sizes.
3. Represent a general concept, not an individual one.
4. Be clearly distinguishable from other symbols.
5. Be interesting.
6. Be capable of being used as a counting unit.
7. Be usable in outline or in silhouette.

Even though Modley believed in the universality of pictorial symbols (principle number 3), he still held that symbols should represent the particular. For example, Modley did not try to create a "universal person," as did Neurath; instead Modley depicted individual people in his pictographs, as amply illustrated in his *Handbook of Pictorial Symbols*. In this he clearly differentiated himself from Neurath, who had attempted to create an international picture language. Modley believed that symbols had to be accepted by a national audience and continually modified for new generations. "If new symbols are created and old ones replaced, pictography will have a language which is continually alive" (Modley, 1952, p. 52). This means that symbols depend upon their environment to be understood and are subject to technological change.

One of Modley's favorite examples of changing symbols was the symbol that was used for railroad crossings in Europe, which shows an old type of train. "One European railroad crossing symbol shows a railroad engine which looks more as if it were advertising a historic railway museum than a crossing" (Modley, 1974). Thus even though Modley's own pictorial symbols are now dated, he



Figure 6. These two pictorial stories show how life has changed since the introduction of electricity.



Figure 7. Modley's symbols have an emotional content that makes them speak to the viewer.

would not object to their modification so that they could speak to a new audience (Figure 8).

THREE TYPES OF SYMBOLS

Modley differentiated between three types of graphic symbols:

1. *Image-related symbols,* which are directly related to the thing they represent. Thus they can quickly become outdated, especially technological symbols such as the telephone.
2. *Concept-related symbols,* whose graphic form

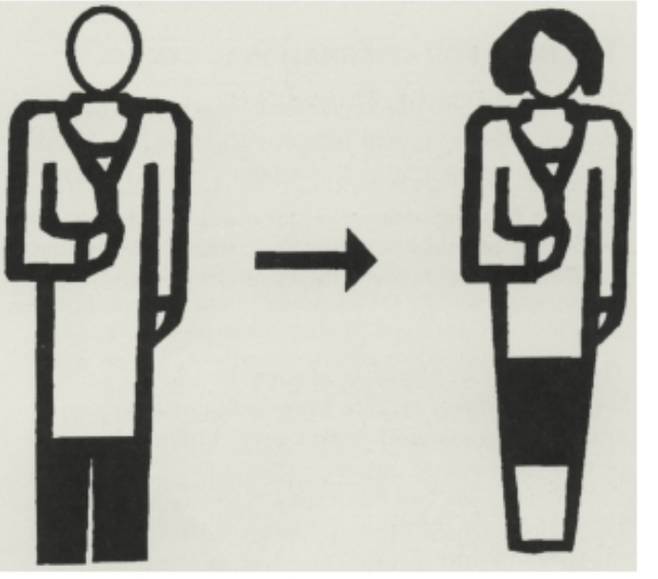

Figure 8. Not many women were physicians when Modley was creating his symbols. But with some modification, his symbols can be updated to be more inclusive.

Modley's wider influence resides in the symbols he designed over 50 years ago. That so many of the symbols created by Modley and his designers are still in circulation today attests to their continuing ability to speak to the viewer.

portrays the object or concept it represents, such as the symbol for right (→). These symbols are easy to learn and not generally subject to change.

3. *Arbitrary symbols,* whose shapes are assigned to them arbitrarily, such as letters, numerals, punctuation marks, and mathematical operators. They are harder to learn, teach, and recall than the other types of symbols, but once they are fully accepted, they end to be permanent (Modley, 1966).

Because arbitrary symbols are the most successful, according to Modley, symbol use is going to be limited. In fact, we use the same basic 50 symbols that were taught to our parents, grandparents, and preceding generations (Modley, 1974, p. 60). Some of these symbols include math operators (such as +, −, and ×), roman numerals (such as I, V, and C), and punctuation marks (such as the period, comma, and question mark).

THE NEED FOR INTERNATIONAL SYMBOLS

Although the use of symbols is going to be limited, Modley joined forces with Margaret Mead to call for the development of a new symbol system:

> A first requirement . . . for our technologically developed world is a set of clear, unambiguous signs that can be understood by the speakers of any language, and by the members of any culture, however primitive (Mead and Modley, 1968, p. 57).

These signs, or *glyphs* as Modley and Mead called them, would not require knowledge of a written or spoken language and would save thinking because of their immediate impact.

This sounds like Neurath's "international picture language," which Modley had expressed doubts about earlier in his life. Despite this change of position, Modley believed that a new international symbol system would allow people to communicate across the many natural and human-made barriers that separate them.

MODLEY'S INFLUENCE TODAY

Modley's influence extends to the work of contemporary visual communicators like Nigel Holmes, Graphics Director of *Time* magazine. In his book *Designing Pictorial Symbols,* Holmes acknowledges the influence of Neurath and Modley in the development of Holmes' pictorial symbols. In describing a pictograph designed by Modley (Figure 9), Holmes says:



Figure 9. This figure of an unemployed worker—created in the 1930s—still has much to say in the 1990s.

> Finally let no one think that the stylized figures that appear in pictographs are cold and devoid of human characteristics and emotion. Look at this figure of a worker. He is unemployed. Not only is there no doubt about that, but the man's very sadness comes through the simple drawing. He is shivering. He is looking back, rather than to the future. So much can be conveyed by so few shapes (Holmes, 1985, p. 13).

Modley's wider influence resides in the symbols he designed over 50 years ago. That so many of the symbols created by Modley and his designers are still in circulation today attests to their continuing ability to speak to the viewer. One can imagine the joy Modley would receive in seeing their continued use, in their modification to meet a new age, and in the development of new symbols to take the place of ones that become dated. Ω

Acknowledgment

The author wishes to thank Peter Modley, Rudolf Modley's son, for supplying background and other materials about his father.

REFERENCES

Holmes, Nigel. 1985. *Designing pictorial symbols*. New York, NY: Watson-Guptill Publications.

Lupton, Ellen. 1989. "Reading isotype," in *Design discourse: History, theory, criticism*. Victor Margolin, ed. Chicago, IL: The University of Chicago Press, pp. 145–156.

Mead, Margaret, and Rudolf Modley. 1968. "Communication among all people everywhere." *Natural History* 72, no. 7: 57–63.

Modley, Rudolf. 1937. *How to use pictorial statistics*. New York, NY: Harper and Brothers.

———. 1952. *Pictographs and graphs: How to make and use them*. New York, NY: Harper and Brothers.

———. 1966. "Graphic symbols for world-wide communication," in *Sign, image, symbol*. Gyorgy Kepes, ed. New York, NY: George Braziller, pp. 108–125.

———. 1974. "World language without words." *Journal of Communication* 24, no. 4: 59–66.

———. 1976. *Handbook of pictorial symbols*. New York, NY: Dover Publications.

Neurath, Otto. 1936. *International picture language*. London, England: Kegan Paul, Trench, Trubner & Co., Ltd.

• Research or Folklore? •

Technical Writers face a great challenge today. The problems before us are becoming more complex to solve due to an increasing number of options. To make the correct decisions, we need to consult the existing research to determine which option has been proven the most effective in meeting our particular problem. But technical communicators, unlike scientists, do not routinely examine the existing body of research before tackling a problem.

The number of options we have available to us has grown enormously in the last few years. This is both a benefit and a burden. Many of the questions we face are the same, but the available solutions have increased. We ask ourselves many questions. Is hard-copy or online documentation most appropriate for this application? How should I organize my document? What word processing system affords the best flexibility for my needs? What types of graphics and what graphics package should be used? How should graphics be presented in this document? What user interface package should be used to create online documentation?

Few of us exhaust the existing literature to answer these questions. Many of us go with solutions we have used previously because we are familiar with them. Some of us use intuition. Probably some writer somewhere has already solved the problem and learned from the experience. There are immediate steps that can be taken to find out possible solutions. Any writer can identify relevant articles in the 38th ITCC Proceedings or other proceedings that present hundreds of articles, each arranged by topic. Each topic provides the name and often provides contact information for the author. Can you imagine a more valuable experience than discussing the relative benefits and disadvantages of a particular documentation approach with an experienced writer who has used this approach in the same situation? Can you picture the benefits of having this discussion and researching this approach *before* creating your documentation?

Dr. Frank R. Smith, editor of the STC journal, *Technical Communication*, writes in the 38th proceedings that "we need to be able to say that experimental research has proven conclusively that our recommended approach is superior. And if we are to do that, we must become familiar with the literature; we must learn what has been proven, and who is doing the work, and where it is being published."

Several writers have recommended the library at SMU, or the University of North Texas (UNT) in Denton. Technical Writing courses are offered at Richland College, SMU, and UNT, so their libraries should contain literature. STC members frequently receive information from vendors about new literature which can be ordered.

Writers can even contact other STC members or individuals at local universities and community colleges who are familiar with particular problems. For those interested, I have a list of technical documentation, divided by topic, currently used at Richland College.

David Wasserman

Reprinted from *Technically Write*, newsletter of the Lone Star chapter, January 1992.