

The New Hieroglyphics

One picture is worth more than ten thousand words—Chinese Proverb

During a trip of a lifetime several years ago, my wife and I spent two amazing weeks in Egypt. Truly the cradle of civilization, the archaeological sites along the Nile River take visitors back through thousands of years of history. What was most remarkable about the experience was the firsthand knowledge gained from the sojourn.



JOHN E. STAUFFER

Stauffer Technology

Greenwich, CT

Everywhere we turned, we were confronted with hieroglyphics—the pictographs used by ancient Egyptians to record their daily activities. Were it not for the Rosetta Stone and the painstaking research of archaeologists, hieroglyphics would still hold their countless secrets of a bygone era. Today, however, Egyptologists are able to decipher the glyphs, bringing mute figures back to life after ages of oblivion.

My interest in hieroglyphics resurfaced when I began to read about the new food safety icons being considered by the food industry. More recently, icons representing macronutrients have begun appearing on consumer products. We seem to be moving “back to the future” with the introduction of newly styled hiero-

glyphics. Is this manifestation a passing fad or does it presage a trend of some consequence?

Digital and Analog Information

The world has come a long way since the time of the pharaohs. Our lives have become digitized, with all alphanumeric characters convertible into binary code. Our number system uses 10 digits, the Roman alphabet comprises 26 letters, nature depends on 92 chemical elements, and computers run on zeros and ones. With rare exception, analogue information has been relegated to the past. Photographs are now taken with digital cameras, and phonograph records have been replaced by digital recordings. Even our bodies are coded! After the discovery of the double-helix structure of DNA, we learned that the complete blueprint for life is written in four bases abbreviated A, C, G, and T.

The advantages of digital information are overwhelming. Data can be collected, processed, transmitted, and stored without limitations. Ambiguity has been banished—there is no mistaking a one for a zero. Digitization is the ultimate in reductionism. Practically everything in the world can be reduced to a sequence of characters.

But just as we are becoming accustomed to our new vernacular, certain misgivings are appearing. Society is stubbornly refusing to relinquish all ties to an analogue world. Traffic signs continue to use symbols, businesses jealously guard their logos, and, of all places,

icons march intrepidly across our computer screens. Almost anything to do with health and safety conjures up certain ideograms.

Is there a revolt brewing against the digital age? One concern is that a string of electronic ones and zeros is just so much gibberish to users. This code must be converted via software and hardware into meaningful patterns to be comprehended. However, because computer technology is in a never-ending state of flux, digital records have a limited lifespan (7).

Additionally, digital communication is like a straitjacket. Its complete lack of imagination limits free expression. In reaction to these restrictions, text-messaging has spontaneously appeared on the Internet. Shorthand contractions such as, “if u cn rd ths u cn gt a gd job,” and homophones such as, “2 moro,” are part of everyday usage (8). Expanding the possibilities are acronyms, e.g., “cwot” for complete waste of time and “ttyl” for talk to you later, and emoticons, such as keyboard characters that convey facial expressions. Almost unnoticed, an entirely new language is evolving.

The Psychology of Symbols

A symbol is not what it appears to be. It stands for some other thing, whether an object, abstract idea, or situation. The connection between a symbol and what it stands for is not always easy to fathom. In spite of our familiarity with countless symbols, at some point in our development we had to learn their significance.

A study with small children has shown that under a certain age, youngsters have difficulty in projecting themselves from their immediate surroundings to a new or different situation (3). They take everything at face value. On the other hand, more mature individuals are capable of making an association between a representation and the item it represents.

Regardless of attempts to accelerate the maturing process of infants, they seem incapable of faster learning (6). Notwithstanding parents’ infatuation with learning toys, these products have shown no apparent effect. Although these psychological studies on learning were limited to children, adults must go through the same thought processes. We need to sort out the duality of symbols, which are both real in and of themselves and at the same time represent something else.

The ease with which we can interpret symbols, and thereby benefit from them, depends in large measure on five U’s. Symbols need to be unique, uniform, understandable, universal, and useful. We need to be able to retrieve symbols from our subconscious for quick reference. Their messages must be loud and clear.

Visual Operations Management

The practice of using visual aids to communicate with workers is known as visual operations management (VOM). Messages may include procedures, policies, and directives (9). The judicious use of symbols and drawings has several advantages: they are immediately recognizable, overcome language barriers, and require little or no explanation. Whether seasoned workers or new employees are involved, the advantages are considerable.

Unintentionally, there are many visual clues already present in the workplace environment. For example, the degree of cleanli-

ness and tidiness says something about an operation. Visual aids are designed to reinforce a favorable impression. They convey a sense of culture that management wants to encourage. VOM can contribute to higher productivity, greater efficiency, better safety, and improved quality.

Recognizing the benefits of VOM, the International Association for Food Protection has sponsored a pioneering project to create and adopt a set of food safety icons (12). These icons should be useful in addressing 11 concerns of food processors: 1) refrigeration/cold holding; 2) hand washing; 3) cooking; 4) hot holding; 5) cooling; 6) wash, rinse, and sanitize; 7) cross-contamination; 8) no bare hand contact; 9) temperature danger zone; 10) do not work if ill; and 11) potentially hazardous food.

The task force that supervised the development of these icons included representatives from industry, government, and academia. Their objective was not to prescribe the intended application of the visual aids but rather to supply helpful tools for general use. Only when the food industry begins to apply these icons can their worth be evaluated.

Government has long relied on symbols to identify the nature and quality of food products. One of the most recent official seals is the FDA's new pictograph for signifying a food that has been irradiated (1). Called the "radura," this symbol will be required on all packaging, along with the statement "treated with radiation" or "treated by irradiation" unless the word "irradiated" is incorporated into the product name.

The effectiveness of government symbols depends largely on their uniqueness and widespread usage. Recognizing the need for uniformity in the food industry, the U.S. Congress is considering new legislation under a bill titled "National Uniformity for Food Act of 2005" (2). This bill would put the FDA on the same footing as the USDA, which enjoys unbridled jurisdiction throughout the United States.

Other businesses in addition to the food industry have moved forward in the application of VOM. In many cases, these initiatives impact the food industry directly and must be taken into consideration. Perhaps the most advanced program is a new system for chemical classification to be used on labels and containers. These classes include flammable solvents, corrosive acids, and compressed gases (5). Largely an outgrowth of the Department of Transportation (DOT) diamond placards, the new pictograms are part of the globally harmonized system (GHS). Many of these placards are second nature to us, like the depiction of flames to warn of flammability. With the backing of the United Nations, the objective is to make GHS an international standard. Achieving this goal will make these symbols universal and aid in world commerce.

Nutritional Icons

It was inevitable that the food industry would adopt symbols to promote nutritional claims. In the maze of nutritional labeling, consumers are looking for information that is understandable. Not possessing advanced degrees in science, the average person wants to be able to sort out products that are healthy and meet particular needs. Food processors believe that icons are the answer.

As one of the leaders, General Mills has rolled out new packaging for its line of breakfast cereals (11). In a "goodness corner" on the front display panel, as many as six icons may be found at one time depicting such nutrients as whole grain, cholesterol, vitamins and minerals, calcium, fiber, iron, and fat. In addition, there is a nondescript icon claiming "helps reduce the risk of heart disease." These icons incorporate such graphics as a glass of milk for "calcium," an arrow pointing downward for "low fat," an iron bar for "excellent source of iron," a heart for "can help lower cholesterol," and a sheaf of wheat for "good source of whole grain." Altogether, the company is said to have created 26 icons.

Not to be left behind in the promotion of nutrition, Kellogg has introduced "easy-to-spot banners" on its boxes of cereal. Again, these banners contain easily recognizable icons that tout such healthful features as whole grain, low fat, energy, vitamins and minerals,

and calcium. Kellogg, however, has its own ideas of catchy symbols. For "low fat," it displays a slim profile that is somewhat mindful of the button in elevators used to close the door.

If there is any doubt that nutritional icons are going mainstream, McDonald's announced the development of five icons representing elements most relevant to nutrition: calories, protein, fat, carbohydrate, and sodium (10). These icons are to be used in conjunction with bar charts to provide visual displays on wrappers in its quick-service restaurants. The icons are quite imaginative (4). For example, for salt, a circle with three holes in it is displayed to resemble the top of a saltcellar. "Carbs" are identified by a fuel gauge since carbohydrates fuel your body. These icons made their debut at the Olympic Winter Games this year in Torino, Italy.

The lack of uniformity in nutritional icons should not be criticized too strongly at this early stage. It allows for some creativity in this new medium. The initiatives taken by the food industry are welcome and promise to make a lasting contribution to nutritional labeling.

References

1. Anonymous. Regulatory summary. *Food Technol.* 58(11):52, 2004.
2. Anonymous. 2005 National uniformity bill gets strong support in Congress. *Food Safety Mag.* 11(6):8, 2006.
3. DeLoache, J. S. Mindful of symbols. *Sci. Am.* 293:72, 2005.
4. Fister Gale, S. McDonald's USA: A golden arch of supply chain food safety. *Food Safety Mag.* 12(1):56, 2006.
5. Hogue, C. Signs of the global times. *Chem. Eng. News* 83(21):31, 2005.
6. Lewin, T. See baby touch a screen, but does baby get it? *N.Y. Times*, p. A1, Dec. 15, 2005.
7. Manes, S. Keeping our bits about us. *Forbes*, p. 60, Feb. 27, 2006.
8. McGrath, C. The pleasures of the text. *N.Y. Times*, p. 15, Jan. 22, 2006.
9. Stocker, G. Use symbols instead of words. *Qual. Prog.* 35(11):68, 2002.
10. Toops, D. I'm lovin' it; So should you. *Food Proc.* 67:50, 2006.
11. Warner, M. Influencing young diets. *N.Y. Times*, p. C1, Dec. 16, 2005.
12. Yiannas, F. Communicating food safety—Are words enough? *Food Prot. Trends* 23:368, 2003.