On the other hand **Edward R. Tufte** is well known for his beautifully designed books about the display of information.

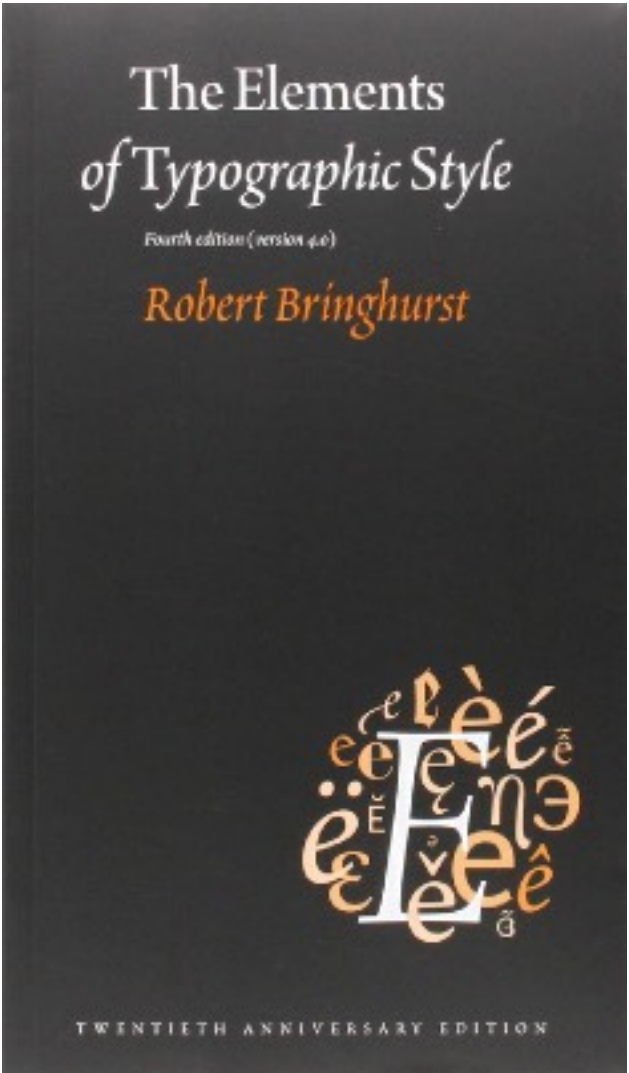We can see in this example from *Visual Explanations*, that he uses numbers for the margin notes.

one's lecture work."[21] Magicians practice in front of a mirror, friend, or video camera; when you practice, work on what your audience sees and also hears. To detect mannerisms of speech, turn off the video and listen to the audio only.

Finally, plan your arrival and departure so as to make a difference:

5. Show up early. Something good is bound to happen.

6. Finish early.

By arriving early, you can look the place over, have time enough to recover from a problem (for example, the room is already occupied; or the projector is missing), check the lights, and greet people as they gradually arrive to await your performance.[22] Give the talk and finish early: "People will be pleased with a nice short speech. I believe that Paul Halmos, a very great lecturer, noted that in a lifetime of giving and attending mathematics lectures he had never heard complaints about a seminar ending early."[23] Even magicians are urged to get on with their entertaining performances: "Always leave them wanting more. Get to the point. Be brief. Keep interesting them. Quit before they've had enough."[24]

Conclusion

THE techniques of disinformation and the pseudo-explanation of the automaton chess-player illustrate once again the supreme and enduring test of all information design, the integrity of the content displayed:

Is the display revealing the truth?
Is the representation accurate?
Are the data carefully documented?
Do the methods of display avoid spurious readings of the data?
Are appropriate comparisons and contexts shown?

Sometimes we have a clear empirical test of visual truth-telling: Was a wise decision made and prudent action taken on the basis of the displayed information? Thus, in our examples, the epidemic ends or persists, the space shuttle survives or explodes, the stairs escort us safely or trip us up, the map efficiently guides us to our destination or it confuses and misleads us.

Also professional standards of quantitative and graphical integrity point the way. For example, economists agree that graphs depicting money over a period of time should show inflation-adjusted (constant) monetary units.[25] To use undeflated monetary units is to distort the evidence, mixing up changes in the value of money with real changes in the data, just as rainbow color-coding of quantitative data confounds what happens in a color scheme with what happens in the data.

[21] Frederick Mosteller, "Classroom and Platform Performance," *The American Statistician*, 34 (February 1980), p. 14. See Judith M. Tanur, "Fred as Educator," in *A Statistical Model: Frederick Mosteller's Contributions to Statistics, Science, and Public Policy* (New York, 1990), ed. S. E. Fienberg, D. C. Hoaglin, W. H. Kruskal, and J. M. Tanur, pp. 111–129.

[22] Joseph Lowman, *Mastering the Techniques of Teaching* (San Francisco, 1984), p. 49.

[23] Mosteller, "Classroom and Platform Performance," p. 16.

[24] Daniel Fitzkee, *Showmanship for Magicians* (San Rafael, California, 1943), pp. 78, 91. Similarly, Henning Nelms, *Magic and Showmanship: A Handbook for Conjurers* (New York, 1969), p. 229: "Stop before the audience has had enough; a wise showman always sends them away wanting still more." Recall Samuel Johnson's famous comment on Milton's *Paradise Lost*: "None ever wished it longer. . . . " *The Lives of the Most Eminent English Poets* (London, 1783), volume 1, p. 249.

[25] Paul A. Samuelson and William D. Nordhaus, *Economics* (New York, 1985), pp. 104–105, 226–228; Edward R. Tufte, *The Visual Display of Quantitative Information* (Cheshire, Connecticut, 1983), pp. 64–68.

The accuracy of visual representations can be checked against the real thing, if someone is willing to do the work. Errors do persist, however. A 1622 map depicting California as an island was reproduced in 182 variants, as the distinctive mistake traces out a disturbingly long history of rampant plagiary. The last copyist published in 1745, after which California cartographically rejoined the mainland.[26] Then there is Albrecht Dürer's gloriously wrong engraving of 1513 that portrays a fanciful two-horned, armor-plated rhinoceros. Copied repeatedly in guides and textbooks and even made into a monument, the bogus rhinoceros, along with a fable about its battles with the elephant, was taken as real for some 200 years until finally confronted with too many sightings of actual rhinoceros.[27]

AND for the world of magical illusions, standards of truth-telling in illustration should at least rule out six-fingered conjurers, two of whom apparently perform below:[28]

HUMP →

[26] R. V. Tooley, *California as an Island* (London, 1964); John Leighly, *California as an Island* (San Francisco, 1972); Glen McLaughlin with Nancy Mayo, *The Mapping of California as an Island* (Saratoga, California, 1995). The map shown here is from Nicolas Sanson, *Cartes générales de toutes les parties du monde* (Paris, 1658).
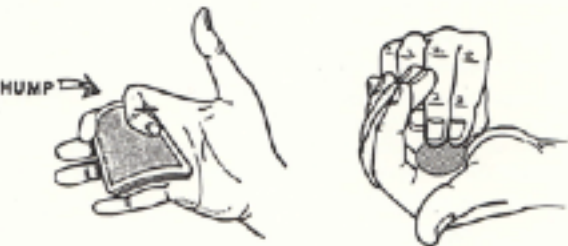
[27] F. J. Cole, "The History of Albrecht Dürer's Rhinoceros in Zoological Literature," *Science, Medicine, and History: Essays on the Evolution of Scientific Thought and Medical Practice* (London, 1953), ed. E. Ashworth Underwood, pp. 337–356.

[28] At far left, Cliff Green, *Professional Card Magic* (New York, 1961), p. 128, showing an error by the well-known illustrator, Edward Mishell. The extra finger is not needed in performing the depicted manipulation. Unnoticed for years, the slip was spotted by Richard Kaufman, who then drew a homage to Mishell's sixth finger—at near left, Richard Kaufman, *CoinMagic* (New York, 1981), p. 260.

Robert Bringhurst uses both side notes and footnotes.

The Elements of Typographic Style

The Elements
of Typographic Style

Fourth edition (version 4.0)

Robert Bringhurst

TWENTIETH ANNIVERSARY EDITION

ΦΥΣΙΣ AS THE SOUL/ THE SOUL AS ΓΝΩΣΙΣ. The second proposition of Thales declares that the All is alive, or has Soul in it (τὸ πᾶν ἔμψυχον). This statement accounts for the mobility of φύσις. Its motion, and its power of generating things other than itself, are due to its life (ψυχή), an inward, spontaneous principle of activity. (Cf. Plato, *Laws* 892c: φύσιν βούλονται λέγειν γένεσιν τὴν περὶ τὰ πρῶτα· εἰ δὲ φανήσεται ψυχὴ πρῶτον, οὐ πῦρ οὐδὲ ἀήρ, ψυχὴ δ' ἐν πρώτοις γεγενημένη, σχεδὸν ὀρθότατα λέγοιτ' ἂν εἶναι διαφερόντως φύσει.) ...

It is a general rule that the Greek philosophers describe φύσις as standing in the same relation to the universe as soul does to body. Anaximenes, the third Milesian, says: οἷον ἡ ψυχὴ ἡ ἡμετέρα ἀὴρ οὖσα συγκρατεῖ ἡμᾶς, καὶ ὅλον τὸν κόσμον πνεῦμα καὶ ἀὴρ περιέχει. "As our soul is air and holds us together, so a breath or air embraces the whole cosmos."[1]

The second function of Soul – knowing – was not at first distinguished from motion. Aristotle says, φαμὲν γὰρ τὴν ψυχὴν λυπεῖσθαι χαίρειν, θαρρεῖν φοβεῖσθαι, ἔτι δὲ ὀργίζεσθαί τε καὶ αἰσθάνεσθαι καὶ διανοεῖσθαι· ταῦτα δὲ πάντα κινήσεις εἶναι δοκοῦσιν. ὅθεν οἰηθείη τις ἂν αὐτὴν κινεῖσθαι. "The soul is said to feel pain and joy, confidence and fear, and again to be angry, to perceive, and to think; and all these states are held to be movements, which might lead one to suppose that soul itself is moved."[2] Sense-perception (αἴσθησις), not distinguished from thought, was taken as the type of all cognition, and this is a form of action at a distance.[3]

1 Frag. 2. Compare Pythagoras' "boundless breath" outside the heavens, which is inhaled by the world (Arist., *Phys.* 213b22), and Heraclitus' "divine reason," which surrounds (περιέχει) us and which we draw in by means of respiration (Sext. Emp., *Adv. Math.* vii.127).
2 *De anima* 408b1.
3 *De anima* 410a25: Those who make soul consist of all the elements, and who hold that like perceives and knows like, "assume that perceiving is a sort of being acted upon or moved and that the same is true of thinking and knowing" (τὸ δ' αἰσθάνεσθαι πάσχειν τι καὶ κινεῖσθαι τίθησιν· ὁμοίως δὲ καὶ τὸ νοεῖν τε καὶ γιγνώσκειν).

All such action, moreover, was held to require a continuous vehicle or medium, uniting the soul which knows to the object which is known. Further, the soul and its object must not only be thus linked in physical contact, but they must be *alike* or *akin*. ...

It follows from this principle that, if the Soul is to know the world, the world must ultimately consist of the same substance as Soul. Φύσις and Soul must be homogeneous. Aristotle formulates the doctrine with great precision:

ὅσοι δ' ἐπὶ τὸ γινώσκειν καὶ τὸ αἰσθάνεσθαι τῶν ὄντων, οὗτοι δὲ λέγουσι τὴν ψυχὴν τὰς ἀρχάς, οἱ μὲν πλείους ποιοῦντες, ταύτας, οἱ δὲ μίαν, ταύτην, ὥσπερ Ἐμπεδοκλῆς μὲν ἐκ τῶν στοιχείων πάντων, εἶναι δὲ καὶ ἕκαστον ψυχὴν τούτων, λέγων οὕτως·

γαίῃ μὲν γὰρ γαῖαν ὀπώπαμεν, ὕδατι δ' ὕδωρ, αἰθέρι δ' αἰθέρα δῖαν, ἀτὰρ πυρὶ πῦρ ἀΐδηλον, στοργῇ δὲ στοργήν, νεῖκος δέ τε νείκεϊ λυγρῷ.

τὸν αὐτὸν δὲ τρόπον καὶ Πλάτων ἐν τῷ Τιμαίῳ τὴν ψυχὴν ἐκ τῶν στοιχείων ποιεῖ· γιγνώσκεσθαι γὰρ τῷ ὁμοίῳ τὸ ὅμοιον, τὰ δὲ πράγματα ἐκ τῶν ἀρχῶν εἶναι.

«Those who laid stress on its knowledge and perception of all that exists, identified the soul with the ultimate principles, whether they recognized a plurality of these or only one. Thus, Empedocles compounded soul out of all the elements, while at the same time regarding each one of them as a soul. His words are,

«With earth we see earth, with water water,
«with air bright air, ravaging fire by fire,
«love by love, and strife by gruesome strife.

«In the same manner, Plato in the *Timaeus* constructs the soul out of the elements. Like, he there maintains, is known by like, and the things we know are composed of the ultimate principles. ...»[4]

4 *De anima* 404b8–18.

The text on this page is set in ITC Mendoza 10/13 with 12 pt New Hellenic. On the facing page, the roman and italic are Figural 10/13; the Greek is 10.5 pt Porson. The caps in both Greek fonts have been resized. (The original edition of Cornford's book, printed in 1912, was set in the curious combination of Century Expanded and Porson Greek.)

The texts on this spread are adapted from F.M. CORNFORD's *From Religion to Philosophy: A Study in the Origins of Western Speculation* (London, 1912). Some of the Greek quotations have been extended, and some have been moved from the footnotes into the main text. This makes Cornford's prose seem more pedantic and less lucid than it really is, but it poses a harder test for the type and permits a more compact typographic demonstration.

108

109

14

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