

Not only computing – also art

JOHN LANSDOWN

As assiduous as ever in pursuing knowledge on your behalf, I attended yet another conference this month, Computervision 81, which dealt with the impact of computers (particularly computer graphics) on various industries and disciplines: education and science; government and manufacturing; entertainment, art, design and advertising. In attempting to embrace as wide a range of applications as possible, the organisers inevitably were faced with patchy treatment of some; not only because the presentations varied greatly in quality but also because computer graphics is obviously penetrating very much deeper in some areas of endeavour than others. Essentially the conference struck me as an overview designed to appeal to executives in the media business and, in the face of this, the choice of some presenters was, to put it no higher, a trifle idiosyncratic. Despite the (presumably costly) importation of many American pundits – some of whom had nothing worthwhile to say – to my mind by far the best presentation was that of John Aston of the BBC. Originally billed to speak on 'The use of graphics in Open University teaching', Aston actually gave a stimulating review of the importance of design in visual communication as it applies to television. He contrasted the very high quality of hand-produced lettering for television captions with the generally abysmal quality of the computer equivalent but showed very effectively how work going on in Cambridge and at the BBC (and ITV) was changing that. Under the sub-

heading of his talk 'Old skills, new tools', and with the aid of impeccably produced and presented slides, he illustrated how careful design and spacing of lettering both improves the overall appearance of the output and its legibility, and hence, the viewers' comprehension.

Regular readers of these columns will know the importance I attach to the skills of the designer and artist, and that I believe the computer graphics industry is doing itself considerable harm by not making more use of those with professional design and visualisation training to help them make computer output better. The way printed letter forms, for example, have evolved over hundreds of years is not accidental. The addition of serifs, different stroke thicknesses and letter weights has come about to improve legibility and understanding and to make best use of available technology. It is not for nothing that pages in books, magazines and newspapers are divided into columns and that justification of lettering is so carefully done in conventional typography. (Compare with much computer typesetting where justification is achieved simply by varying the spaces between words – with some very nasty results.) It is always a matter of sadness to me when I come away from computer graphics conferences feeling that the hundreds, perhaps thousands, of years development of general graphic skills seems to have been ignored in the work of most computer graphics experts. It is not as though their own output had

the punkish vigour of a growing new design discipline – it is generally just bad, and hence self-defeating.

Auntie keeps up the good work

Also speaking at Computervision 81 was Bill Gardner, the Senior Systems Analyst of the BBC Computer Graphics Workshop who, with his colleagues Robin Vinson and Ewen MacLaine, is responsible for much of the computer graphics gradually coming on to our TV screens. Addicts of the excellent 'Money Programme' will recognise the sort of well designed and informative output shown in Figures 1 and 2. Work such as this, maybe up to a dozen per show, is very quickly prepared on the computer system originally designed for the General Election programs. Speed is of the essence as the workshop only receives its data at about midday for presentation to be recorded in the late afternoon. Of course, this is one of the areas where computer graphics scores: where a series of roughly similar diagrams have to be prepared time after time using essentially modular elements and it is nice to see how the presenters make use of the system. Those old enough to remember the work of the Isotype Institute under Otto Neurath will feel the same sense of excitement at seeing these drawings. Gardner's work is not confined to statistical diagrams: Figure 3 shows the high quality of lettering achievable for title sequences – this from the 'Children in Need' programme.

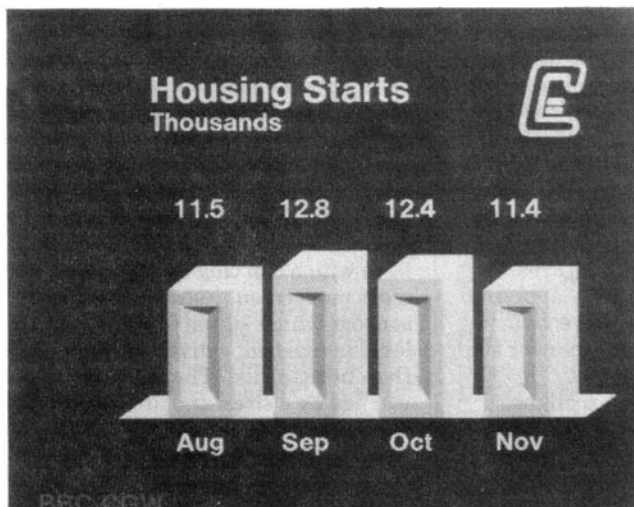


Figure 1

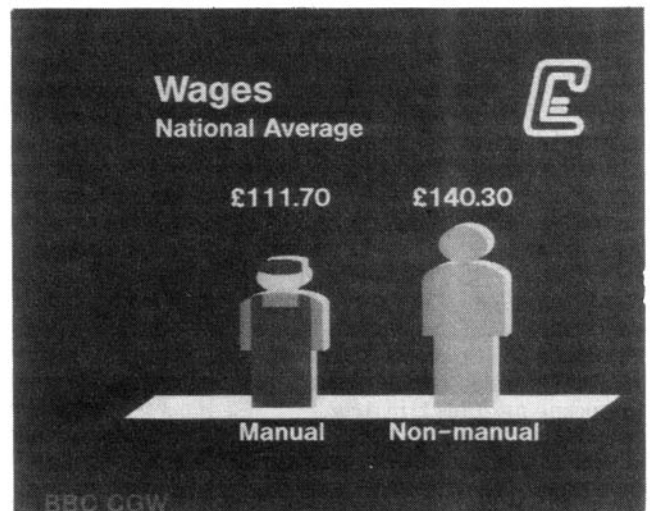


Figure 2

The Computer Graphics Workshop was formed in May 1980 and will, I believe, be as influential in the field of graphics and visualisation as the Radiophonic Workshop was in sound – look out for more.

Hypergraphics

Speaking of visualisation, a fascinating though somewhat esoteric book has come my way which should be of interest to anyone who finds this column of value. Called *Hypergraphics: Visualising Complex Relationships in Art, Science and Technology* and edited by David W. Brisson, the book contains 11 papers dealing with the geometry of multidimensional (mainly 3- and 4- dimensional) objects – if something 4-dimensional can be called an object. All of the papers have something of value but two interested me most. The first of these was 'Ambiguous Structures' by J. M. Yturralde – surely an ambiguous enough name for anyone: it sounds like an anagram – but of what? The other was 'An Improbable Four-Dimensional Illusion' by Scott E. Kim. Both these authors deal with the sort of impossible triangle illusion first described by Lionel and Roger Penrose in 1958 (Figure 4). Strangely, I was going to say, 'as far back as 1958' but I think I mean 'as recently as 1958' because it is difficult to appreciate that figures like this have been invented. They cannot, of

course, be built in three dimensions – they are two-dimensional but appear paradoxical to people who live in a 3-D world. Kim deals with a 3-D figure that would appear similarly paradoxical to someone living in a 4-D world! The book is published by Westview Press, Colorado for the American Association for the Advancement of Science.

You say color and I say colour

In the field of computer graphics there is a minor controversy raging on the subject of colour specification. Essentially the arguments hinge on the best method for standardising colour descriptions in programs. Should we use Hue, Lightness and Saturation, as is common in some parts of industry, or Hue, Chroma and Value as used by those familiar with the Munsell system, or Red, Green, Blue mixtures common in television, or whatever? There are many options all having their advocates and detractors.

Although not addressing this problem directly, a new book published by Springer-Verlag Berlin goes a long way toward helping one understand the complexities and possibilities of colour theory. It is called *Color Theory and Its Application in Art and Design* by G. A. Agoston and should be on the shelves of anyone who needs to know about colour – and who doesn't? It is quite a short book of

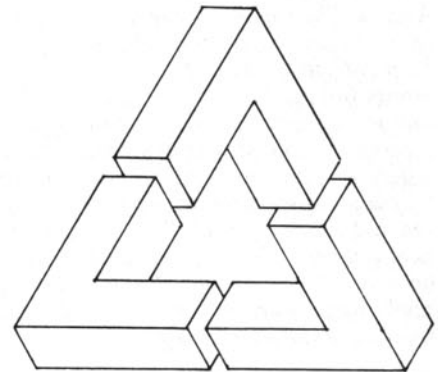


Figure 4

130-odd pages but is full of extremely useful information not normally available in handy form. It would have been even more useful to computer graphics workers had it dealt a little more fully with television colour but, nonetheless, is an important work and I recommend it.

A computer graphics profession?

It is becoming increasingly clearer to me, and to a number of my colleagues in the Computer Arts Society, that computer graphics is a subject in its own right and, for its proper development, requires skills and training somewhat different from those required for computing generally. Among these skills is not only a good sense of design both visual and structural but also a considerable awareness of 3-dimensional form and a feeling for spatial mathematics. For this reason, a number of us have concluded that there is a need to foster the idea of a computer graphics profession independent of the general computing profession. We believe that the interest shown by many young people in learning to use computers simply as drawing and visualising aids ought to be properly channelled but feel that present computer training, inevitably biased as it is towards business data processing and general scientific needs, is an inappropriate vehicle. Meetings are to be held with a number of educationalists and others to see what the implications of this idea might be and anyone interested is invited to contact Dr George Mallen at the Design Research Department of the Royal College of Art.



Figure 3