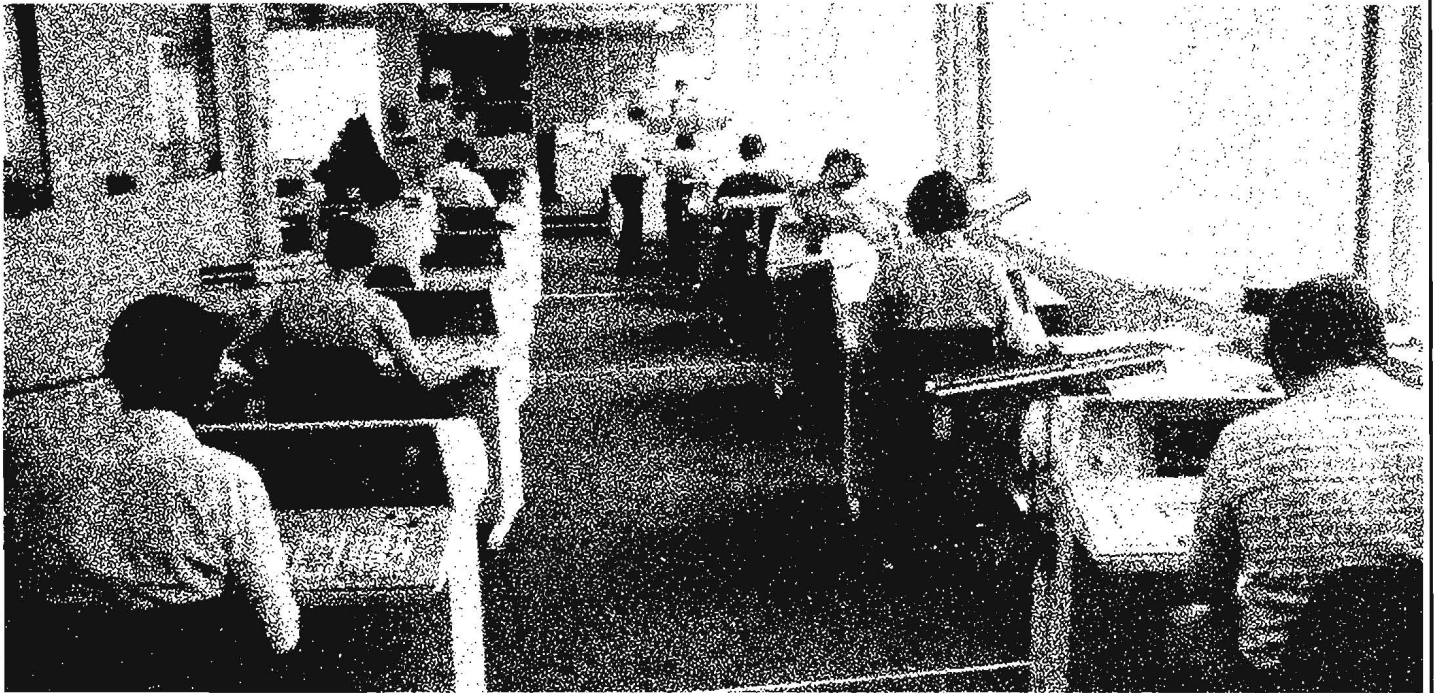# Printing World

DRUPA
PREVIEW

Knight Printplant Ltd,
covering the world of printing
at Drupa on the Komori/Knight
Printplant Stand 2B10.

Also see Drent continuous stationery
presses on Stand 3A05.

Ryobi Offset Presses Stand 11C16,
UK Agents Ry-Offset Graphics Ltd.

Fuji Plates, Stand 5F12,
UK Agents Graphnor Ltd.

COMPOSITION

DIGITAL KNOW-HOW
by Prof. Bryan Gaines

At this Drupa we will see the release of many new products which were developed more than three years ago but whose production was deferred during the spending freeze of the recession. This reflects a general slowing down of applications of new technology in the print industry during this period. However, the underlying circuit, computer and communications technologies have continued their pace of development.

Certainly the structure of the industry has changed dramatically since last Drupa. Many of the major equipment suppliers are under different ownership with different management and, possibly, different product objectives. How Allied Chemical view Mergenthaler/Linotype, what the objectives of Kodak are in Atex, Agfa in Compugraphic, Berthold in Alphatype, and so on, are major considerations in discerning product trends and strategies.

These multiple changes in ownership are not just coincidental. The structure of the printing industry itself is changing under pressures from new information technologies of electronic databases, and on-demand, toner-based printing systems.

A decade ago it seemed likely that much of the pre-press equipment industry would sooner or later be absorbed into the computing and business equipment industries. The re-structuring during the recession has been rather different from this, and the logic behind it has been one of customers rather than technology.

Integrated

The materials suppliers have integrated vertically to become equipment suppliers and preserve their customer base when requirements for silver-based output materials decline under cost pressures. Thus it is logical now to look to Hoechst and DuPont for similar moves, but also not to forget IBM and Xerox who have become major forces in printing equipment supply without acquiring major parts of the pre-press industry.

Pre-recession we were moving towards integration of all pre-press operations into total composition systems, and also to links with other information industries such as word processing and database services. The availability of output units that could go direct-to-plate was generating pressures on front end system suppliers for full page makeup, but the problems of making composition terminals that were as fast as cut-and-paste, or of moving images around electronically as rapidly and economically as we can move them around on paper, had not been fully realized or resolved.

Databases

The increasing use of computer-driven composition systems by printers was making it attractive to consider information interchange with customers of data in digital format. On the one hand customers' word processors could be a source of copy requiring little further keyboarding. On the other hand keyboarded copy from printers' front end systems could be supplied in digital form to customers for re-sale through electronic database services.

Post-recession we can see that direct-to-press has become a major force with the increasing use of the Xerox 9700 and IBM 3800 as on-demand printing systems. The quality of output and the support with founts and imaging are still major limitations on the competition from these units for much printing business. However, we can expect the output resolution to increase steadily — it has gone from 100 through 200 to 300 pixels an inch, and will go on up through 500 where newspaper quality is attainable, to 1,000 where it will rival photo-image setting. None of the current limitations of precision mechanical engineering or digital data rates and storage are fundamental, and only time and market demand are necessary to achieve the higher resolution possible.

Meanwhile the pressure to squeeze the most out of 300 lines an inch has led to significant halftone image advances. On-demand printing technology is being boosted by the economic effects of the recession and inflation together. Inventory costs for publishers and booksellers have become the key to profits of those who survive, and the reduction of inventory through on-demand printing integrated with binding and packaging will be increasingly significant.

Similarly, cost reduction in data capture through all its processes of

sub-editing, keyboarding, composition and proofing is now essential. The word processors used by authors and other information originators will become a prime source of text transmitted via floppy discs or communication networks. The same economic pressures make it essential to squeeze as much return as possible out of any data capture operation and hence to sell material in computer-compatible form through database services.

The next generation of newspaper front end systems in particular will have to be geared as much to electronic data dissemination services as they are to newspaper composition. We can expect database and videotex system suppliers to participate increasingly in printing industry exhibitions.

The problems of full-page composition have now an even greater emphasis through the integration implied by on-demand printing and the multiple formats required in database publishing. Fortunately high resolution graphics technology has sharply declined in cost and makes the terminal itself low in cost. Image acquisition technology has also declined in cost and CCD array cameras can now image line art or continuous tone material in a few seconds on 2,000 by 2,000 grids. Local area networks make it possible to cope with the data throughputs involved without the bottlenecks of previous computer-based systems.

It remains only to program the overall system for ease of control and human interaction -- and this human technology is still the most difficult to accomplish. However, in the past year help has come from an unexpected source in that the Lisp programming language developed for artificial intelligence research proves to be well-suited to image composition and is also now available in cost-effective form.

Xerox recently announced a page makeup system implemented in Lisp and we can expect to see increasing use of such software.

Overall the structure of pre-press systems is changing. The old tasks are being done in new ways. The organisation of pre-press systems has been put into the melting pot and poured out into different moulds. In particular the typesetter is becoming the image-setter and can no longer be seen as a separate component. One side of the typesetter is being integrated with the press. The other side is being integrated with the composition system.

In the past much of the value of a typesetter has been the typefaces and typographic features that are available with it. Manufacturers of typesetters are finding increasingly that to continue to realize that value they must offer the typefaces in their own right. The marketing of digital typography independent of particular equipment is now a major trend.

Modularity

With all these changes, both in the suppliers and in the technology supplied, if there is one major feature of any system that the purchaser must now look for then it is standardized modularity. Can each system component be seen to perform a well-defined function independent of the others? Are the interfaces between components well-defined and obeying industry-wide protocols for data interchange?

If so, then there is a reasonable chance that the system can be upgraded as required to take advantage of the rapidly changing technology and also to be independent of any particular source of supply. If not, then the system may be obsolete before delivered and upgradable only through complete replacement.

The problem of coping with change has been a major one for this industry and it is becoming more severe, not easier. We should be looking to new equipment to be designed to minimise this problem and to use the decreasing cost and increasing power of digital technology to make systems simpler rather than more complex. This, hopefully, will be apparent in the new systems at Drupa. □