

Lithography in 1960

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Present problems in lithography

The past twenty-five years have seen remarkable developments in the technique of offset-lithography. These advances have been along two main lines. First of these has been the steady transition from a craft process with more than a sprinkling of witch doctory to a branch of applied science. The second is the continued extension of offset from a process having rather limited application to a highly versatile method of printing which is now a serious competitor of letterpress. He would be rash indeed who would prophesy the end of letterpress or the extinction of gravure—are there not already signs of big developments in both?—nevertheless, the post-war years have undoubtedly been, from the printer's point of view, the age of offset-lithography.

In saying that offset has been moving slowly from a combination of craft skill and witch doctory to a branch of applied science, I have no intention of belittling the craftsman's skill nor the quality of the best offset printing produced during the past half century. Nevertheless, in 1934, plate making and lithographic printing were still uncertain operations. No matter how skilful were the operatives, such troubles as scumming, thickening, and "walking off" were common and no certain remedies were known. Gums, etches, stale beer, and other preparations were applied in a desperate but blind attempt to alleviate the troubles, the causes of which remained uncertain. Now, the theoretical basis of lithography is pretty well understood and it is quite possible to predict with some certainty what will be the effect of this and that solution on the quality of the image and the life of the plate. The whole operations of plate making and printing are simpler and more reliable.

Secondly, in pre-war days, offset was largely a process reserved for special work. It was very good for printing on

rough papers—those which were quite unsuitable for letterpress. It lent itself well to large work such as posters. The tone reproduction and colour density were, however, weak and this accounted in the main for the poor appearance of half-tone illustrations prepared by offset. Today thanks to improvements in inks and plate making techniques, to better halftone screens and other innovations, prints of good colour density can be made on art papers; and books, and even newspapers, printed by offset are quite common. The quality of offset has been improved to such an extent that it is now only a little inferior to the best letterpress, while it retains all its versatility.

The present Conference is a logical sequel to the PATRA Letterpress Conference held at Harrogate in October 1957. The proceedings of the 1957 Conference have—despite what we thought was an optimistically large printing order—been out of print for some time—a proof of the success and value of the Conference to those who participated in it. The printed record of these papers and discussions has been regarded by many as a standard work of reference on modern letterpress printing. This should be equally true of the Conference now convened: certainly no pains have been spared in collecting together the most reliable and up-to-date information on offset printing yet available.

This Conference provides a good answer to the perennial question: 'What has PATRA done?' This question is still asked often enough, usually with evident relish and in full expectation of the answer, 'Nothing'. Detailed examination of our conference papers will reveal that PATRA has made important contributions to every section of the programme except phototypesetting and electronic colour correction. The record is no bad one in view of the limited nature of the Association's resources.

I shall not comment in detail on the various subjects to be discussed: I merely draw your attention to a few salient points. First, under 'Camera and Colour Correction', the principles of masking for colour correction have been known for a considerable time and many different methods of applying these principles have been devised. Thoroughly practical schemes have now been devised. Thoroughly practical schemes are now available; when are printers generally going to use them? They reduce substantially the amount of hand retouching necessary and the general quality of the work can be greatly improved.

The problem of tone reproduction, which is so serious in

offset, can be solved by the use of suitable contact screens and I am glad to say that we are now within sight of the commercial production of the PATRA-I.G.T. contact screen which has been designed specially for offset work.

For many years photographers have been used to the idea of purchasing ready-prepared films and dry plates which have only to be developed and fixed according to a simple and defined procedure to yield satisfactory and reproducible results. Few of them would wish to go back to the days of wet plates and so-called portable dark-rooms. All the indications are that lithographers are in the same state of transition as were photographers some seventy-five years ago, and that the next few years will see the increasing use of presensitized plates which need only simple and standardized processing.

Many of the troubles which still arise in offset printing are due to the paper—as for example, non-drying and fluffing. The causes of these difficulties are now firmly established and they may be removed by using suitable materials and taking certain precautions. It is possible and indeed desirable, to test the paper beforehand in order to make sure that it has properties likely to keep in check these troubles. One of the objects of the present Conference is to promote simple, do-it-yourself testing which we hope will develop into a more comprehensive and scientific examination of raw materials as the value of such testing becomes apparent to the user.

The whole process of lithography depends upon the mutual repulsion of grease and water—in this case, ink and water. It has been known for a long time that such repulsion in lithography is not as great as could be desired and that in certain circumstances a mixing of ink and water—that is, emulsification—can take place. Until recent years surprisingly little has been known of the formation and behaviour of ink-water emulsions. The elucidation of these principles has done much to reduce the former uncertainty of offset printing. More is known, too, of the various factors which influence the distribution of ink and water on offset machines.

More and more attention is being given in these days to colour and no colour printer can afford to remain ignorant of the basic facts of colour science. The use of instruments and automatic means of colour control on the press is almost essential for high quality work, especially in days of rising costs. Finally, the science of electronics has

invaded almost every part of our daily life and the introduction of electronic methods of colour and tone control cannot be delayed indefinitely if we are to retain a fair share of the world's printing. You will find information on all these subjects in the concluding sections of our Conference.

We are asked from time to time why we do not arrange more conferences and courses of an instructional nature; they would be well attended. The answer is simply that there are limits to the inroads that can be made into the time of our research staff. Conferences like this are of value only so long as new results are emerging from the laboratory, otherwise the source of information dries up; and it is only too easy for research and technological staff to find that almost all their available time is spent in teaching, writing, enquiries, and discussion, little being left for original research. On the other hand, unless the results of research reach the shop floor, the work, however useful it may be potentially, remains largely ineffective; and the promulgation of new ideas, facts, and methods is best made by personal contact—that is by conferences and discussion groups. It is as nice a task to adjust correctly the amounts of time to be spent at the research bench and the lecture bench as it was to steer unscathed between Scylla and Charybdis. No doubt we shall continue to be criticized on the grounds of (a) too much research, too few conferences, (b) too little research, too many conferences. At all events, we hope that those who attend the present sessions will find their participation helpful and informative, while those who cannot be with us in person may still derive some benefit from a study of the printed record.