

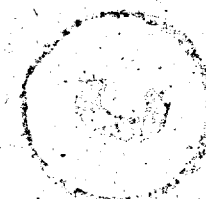
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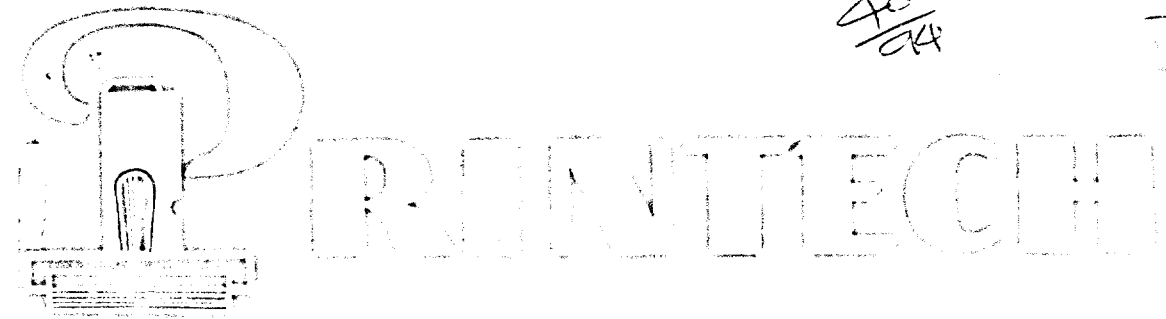
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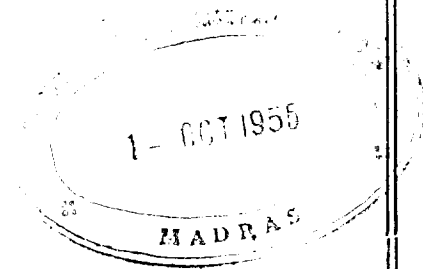
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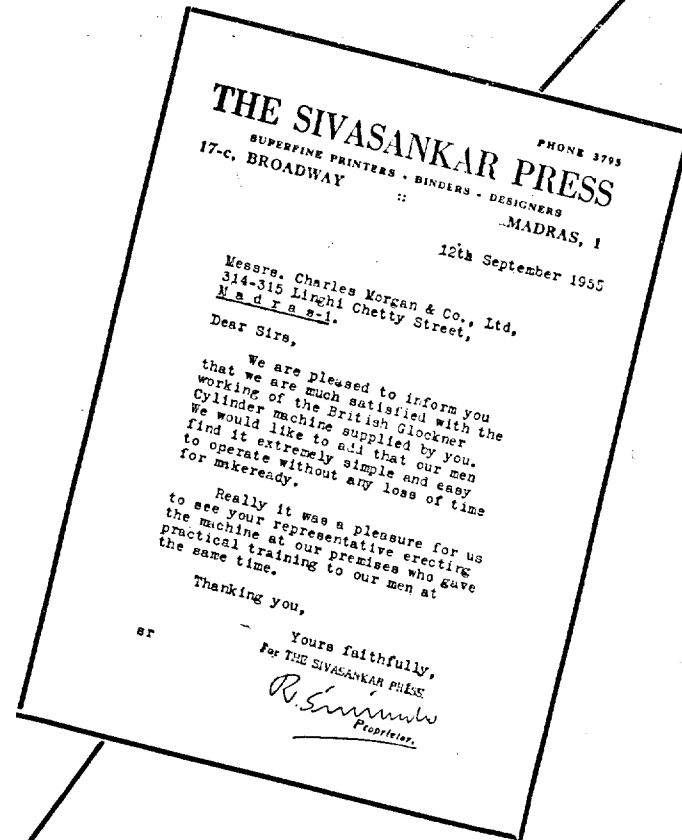
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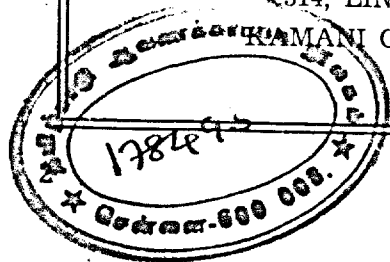
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OFFICIAL MONTHLY JOURNAL

OF THE INDIAN FEDERATION OF PRINTING TECHNOLOGISTS

Vol III No 1 AUGUST 1955 SECOND ANNUAL NUMBER

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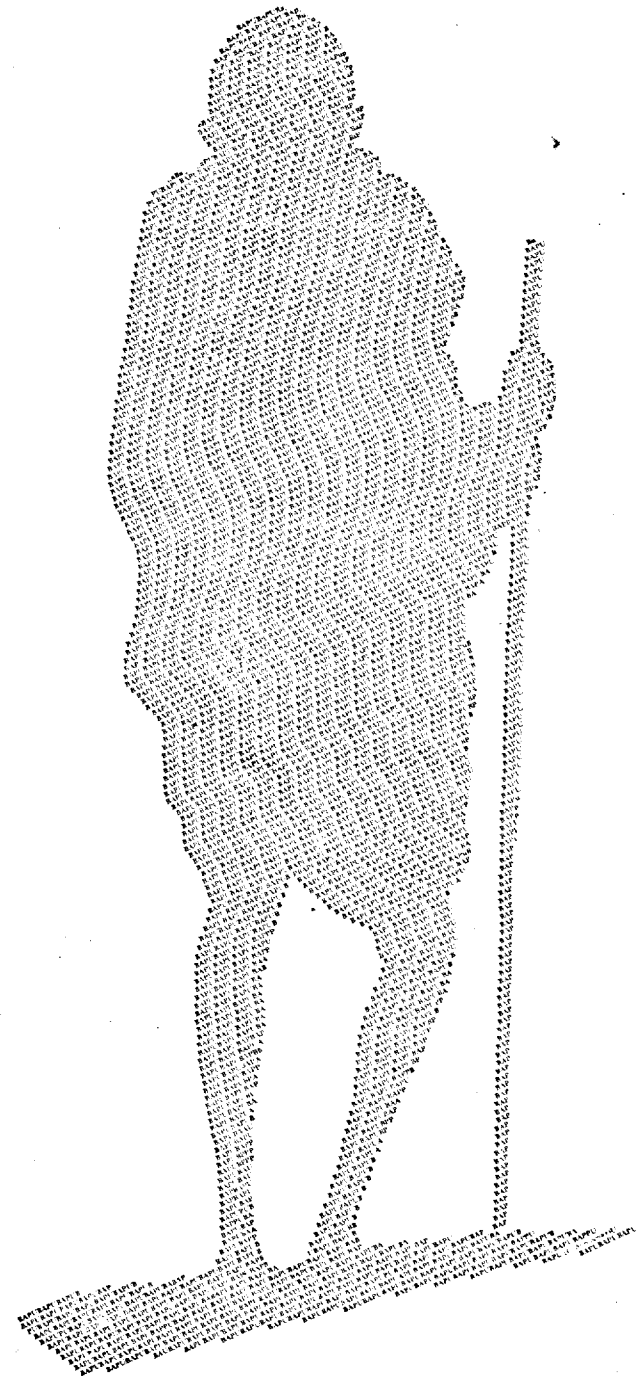
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MAHATMA GANDHIJI, Father of the Nation

THE SECOND MILESTONE

AS PRINTECH enters the third year of existence, we have a sense of some achievement and great hopes for the future. The two years that have passed have not been without difficulties; there have indeed been tests and tribulations, but thanks to the goodwill and co-operation of members of the Federation, of the master-printers and other well-wishers in the trade, we have not only crossed the hurdles but have actually gained considerable strength.

This does not, however, mean that we are not conscious of the fact that PRINTECH has not yet reached that state of perfection so essential for a technical publication of this kind. There are many limiting factors, which we are arduously trying to overcome. The first of these is a strange reluctance on the part of members of the I.F.P.T. and others engaged in printing in this country to contribute material to the pages of this journal. We should be happy if this is done, for it is essential that a technical journal should be of help in solving the technical problems of printers in this country and also in giving publicity to new knowledge gained by anyone in the trade in the course of his work. We would therefore appeal for contributions of this nature from all printers in India.

The year that has just gone by has been full of important events in India and abroad. The most important of these, so far as the printing trade in India is concerned, was undoubtedly the All-India Printers' Conference and Exhibition held in Madras in February. Apart from its educative value, it brought the I.F.P.T. and the Federation of Master Printers close together—a happy augury for the future of both organizations. We should also like to record here that PRINTECH was the only publication to cover the All-India Printers' Conference and Exhibition fully.

Another event—of greater long-term significance—has been the coming into being of the first of the Regional Schools of Printing and Allied Subjects to be set up in India. This is of special importance to our Federation, first because more technically qualified men will come into its fold in the future years, secondly because the Printing Section of the Central Polytechnic, Madras, which is the *alma mater* of a large number of present members of the I.F.P.T., has had the honour of being converted into the first Regional School

in India, and thirdly because we have allways been pleading for rapid spread of education in printing technology in this country. PRINTECH has from the start been emphasizing the need for proper training for students and newcomers into the field; this theme figures in an interesting article in this number also—"Training for Tomorrow".

But this brings us to our most crucial problem, namely, the future of the young men who receive practical technical training in, and acquire theoretical knowledge as well, of the Graphic Arts. No useful purpose will be served by the starting of the Regional Schools of Printing if the certificates and diplomas issued by them are not adequately respected by the Governments, Central and State, and by the master-printers. Our experience hitherto has been that the very authorities under whose aegis examinations are held and certificates and diplomas are issued ignore these qualifications when it comes to selecting personnel for jobs in their own departments. This practice hardly conduces to faith in the utility of certificates and diplomas obtained after so much painstaking endeavour over a period of years.

We are perfectly willing to concede that at the moment the practical training imparted in schools of printing in this country may not be quite adequate or up-to-date. But the scope of technical education is rapidly expanding, and the present deficiencies will certainly vanish in course of time. Meanwhile, it is for the Governments and printing houses to see that qualified men get the requisite additional practical training, so that they may take their rightful place in the great industry. Only by such steps can talent be attracted to this field; if these are not done and if qualifications acquired after devoted study and work are brushed aside as of little consequence, standards will deteriorate and technical education itself will be reduced to an empty farce. It is the sacred duty of the Governments and master-printers to guard against this real danger. If the Governments show the way, we have no doubt that the private sector will follow suit.

It is our duty to refer to the greatest display of printing machinery and equipment—IPEX—which was held in London in July this year. The President of our Federation, Mr. R. Siddique, DIP (Lond), MIPTg M (Eng), who went on a world tour recently, witnessed this display, the most magnificent of its kind in the world.

We would be failing in our duty if we do not record here with gratitude the help rendered to PRINTECH by Sri S. Viswanathan, Proprietor, The Central Art Press, who at a critical time undertook to print the journal free of cost. In these days of high costs and low returns, this is a sacrifice indeed. Messrs. Charles Morgan & Co. Ltd., have continued to help us by supplying "Gateway" Proven art paper for the wrapper free of cost. To the many advertisers whose support has been invaluable for the growth of the PRINTECH our thanks are due; equally so to the many others who did everything that was needed of them to help the journal.

We are also much indebted to Sri A. Veeraswami, Proprietor, Gita Press, Madras, for having allowed us to have our office in his premises and for all the help extended to us.

We should like to inform publishers in this country and abroad that our journal reaches practically every qualified printer in the country and also many others in the trade, and it would be worthwhile for them to have their publications relating to the Graphic Arts reviewed in these columns. Publishers are also requested to send us extra copies to be handed over to the Federation for addition to its library, which is growing. We would also appeal to master-printers who can spare technical books or donations for the library to oblige.

The frontespiece has been reproduced by the special permission of the Director of Government Press, Hyderabad and our thanks are due to him for the same.

Finally we should like to inform the readers of PRINTECH that there is to be a change in the editorship. Mr. K. Mohan Rao is laying down the heavy responsibility with this number and Mr. V. R. Sivaram is taking over from the next issue.

C. N. CHITTARANJAN
Hon. Secretary

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FIRST REGIONAL SCHOOL OF PRINTING IN INDIA OPENED

The inauguration of the Southern Regional School of Printing at Madras on the 8th of August this year marks a milestone in the history of Printing Education in India. The School was inaugurated by Hon'ble Sri M. Bhaktavatsalam, Minister for Industries and Agriculture, who also switched on the new Original Heidelberg Platen machine presented by The East Asiatic Co. (India) Ltd. to the institution. There was a large gathering of representative printers of the city.

SRI S. Aruldoss, I.A.S., Additional Director of Industries and Commerce, welcomed the guests and said that he was happy that most of the gentlemen connected with the printing industry were present that evening. He traced the history of the Printing Technology Section of the Central Polytechnic and said that the course was started in 1925 as a part-time course of five years and that eminent men in the Industry were taking classes as visiting lecturers. In 1946, the full-time course of three years was started, leading to the award of the Diploma in Printing Technology.

In 1954, the Government of India accepted the recommendations of the All-India Council for Technical Education that the printing section of the Central Polytechnic be developed into a Regional School of Printing Technology. The Government of India accepted to contribute subject to a maximum of Rs. 4.5 lakhs upto 50% of the total non-recurring cost on development and 50% of the nett recurring expenditure, subject to a maximum of Rs. 70,000/- per annum. The Madras State Government have so far spent Rs. 3.4 lakhs and the Govern-

ment of India have paid Rs. 2 lakhs towards their contribution. The sanction accorded was subject to the following conditions:

1. That the scheme should be developed in accordance with that prepared by the All-India Board of Technical Studies in Applied Arts and approved by the Council.

2. That the school should cater to the needs of Andhra, Coorg, Hyderabad, Madras, Mysore and Travancore-Cochin.

3. That the Advisory Committee should be constituted for the proposed Regional School of Printing Technology at Madras and the Central Government and the All-India Council of Technical Education should be represented thereon.

Students entering the Regional School will be trained in printing and allied technology, leading to the award of the All-India Certificate in Printing and Allied Technology. This is a part-time course of three years. Students who have passed the Matriculation or have undergone the preliminary training or apprentices or journeymen in the industry would be admitted and the courses offered are classified into 15 groups as follows:

SECTION A

- Group 1. Hand Composition
" 2. Lino and Intertype
" 3. Mono Keyboard
" 4. Mono Casting

SECTION B

Letterpress Printing

PRINTECH August 1955

SECTION C

- Group 1. Lithographic Art Work
- " 2. Lithographic Printing
- " 3. Lithographic Stone and Plate-making

SECTION D

- Group 1. Photo-engraving
- " 2. Camera Operation

SECTION E

- Group 1. Photogravure Plate-making
- " 2. Photogravure Printing

SECTION F

- Group 1. Binding and Stationery Manufacture
- " 2. Package Manufacture

SECTION G

Silk Screen Printing

The Government were grouping Sections E and F together and the Regional School at Madras will now have 13 groups.

The next stage is the professional training leading to the award of the All-India Advanced Certificate in Printing and Allied Technology. This course is divided into 10 groups:

SECTION A

- Group 1. Letterpress Composing
- " 2. Lino and Intertype
- " 3. Mono keyboard and casting

SECTION B

Letterpress Printing

SECTION C

Photo-engraving

SECTION D

- Group 1. Direct Litho and Offset Printing
- " 2. Offset and Lithographic Plate-making

SECTION E

- Group 1. Photogravure plate-making
- " 2. Gravure Printing

SECTION F

Binding, Finishing and Packaging

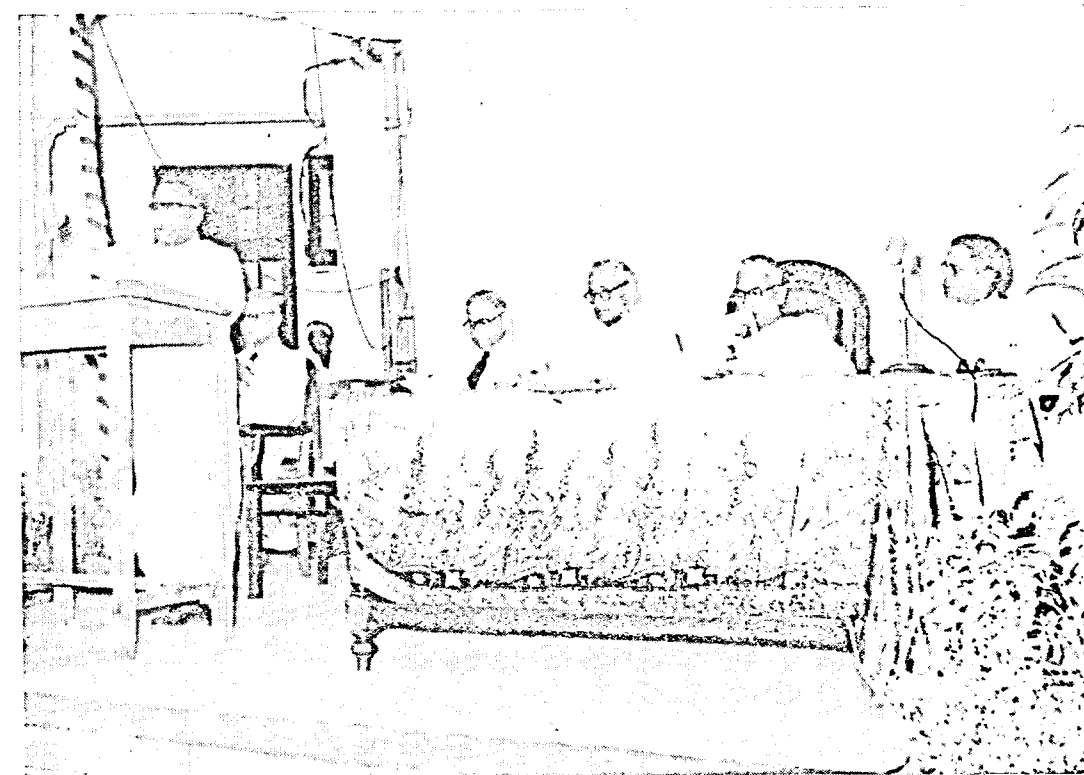
The Government have now sanctioned two groups under Section E so that there will be nine groups in the subjects in the Regional School.

He stated that the certificate courses of the Industrial School Section of the Central Polytechnic have been abolished and they have been merged with the Regional School of Printing. The School was offering the two courses leading to the award of the All-India Certificate in Printing and Allied Technology, and the All-India Advanced Certificate in Printing and Allied Technology. He stated that Diploma course of study already offered in the Central Polytechnic was of high standard and many of the students who have passed out of the Central Polytechnic taking this Diploma were occupying very high and responsible position in well-established presses all over the country. He also said that this course was very popular in this country and it was therefore in the interest of students undergoing Diploma course of study and the industry at large that these courses should be continued.

During the present session, training in 7 groups of subjects would be given:

Hand Composition
Lino and Intertype
Letterpress Printing
Lithographic Printing
Lithographic Stone and Plate-making
Photo-engraving
Camera Operation

He said that the part-time course has this unique advantage that these students being apprentices or junior journeymen engaged in the industry, the Institution and the Industry will work in close co-



Sri S. Aruldoss, Additional Director of Industries and Commerce, welcomes the guests

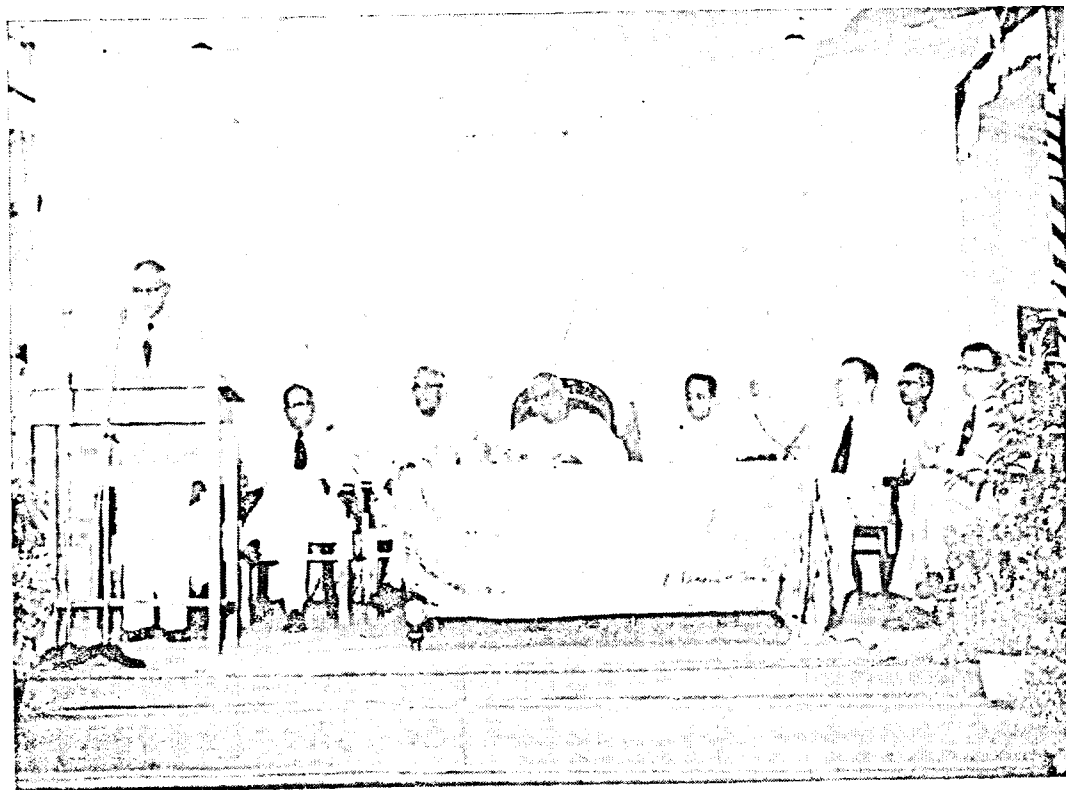
operation with each other, which is very necessary for a technical institution. He said that the other groups of subjects would be introduced when the building that is proposed to be put up for which the plans are now ready, is completed. He stated that the Institution is already equipped with the latest type of machines and equipment and when all the equipment required are procured, he was confident that the Regional School of Printing Technology, Madras, would be the best equipped Institution in the country and added that "regarding the standard of professional knowledge of the students, the positions occupied by most of the past students of this Institution will speak for itself. We will not rest contented here. All endeavour will be

made to push up the standard still further in keeping with the advancement of the industry."

He thanked the East Asiatic Co. (India) Ltd., for generously presenting to this Institution their Original Automatic Heidelberg machine and said a few more firms have also promised to give similar presents and hoped they would follow very quickly.

In the end, he said that the Regional School of Printing that will be inaugurated by the Hon'ble Minister of Industries and Agriculture was bound to grow from strength to strength with his blessing and co-operation of the industry.

Sri V. M. Philip, President, The Madras Printers' & Lithographers' Association



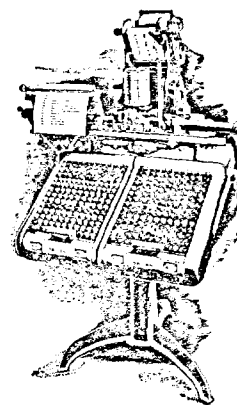
Sri V. M. Philip, President, Madras Printers' & Lithographers' Association, speaks

tion, speaking next said, "I consider this as a great occasion for the growth of the printing industry, because nothing is so important as the training of craftsmen." He referred to the Government of India appointing a Specialists' Committee of officials and non-officials, which resulted in the establishment of the Regional School of Printing. He said that the Printing Section of the Polytechnic was over a quarter century old and added that "it will be difficult to find in India another Institution with such a background and such an experienced staff and equipment."

He added that considering the diversity of courses offered, it would not be possible to house the Southern Regional

School of Printing in the Central Polytechnic compound, as a good deal of space was required for arranging the equipment for the practical training of students. He wanted the Government of India and the Government of Madras to earmark a liberal sum so that the Regional School may be shifted to an independent block of building specially planned to meet the needs of its multifarious courses in a commodious site where it would have ample scope for expansion and development. He also wanted that there should be provision for a hostel. He then said that it would be essential that full-time courses should be started soon especially for students who come from out-stations. On behalf of the

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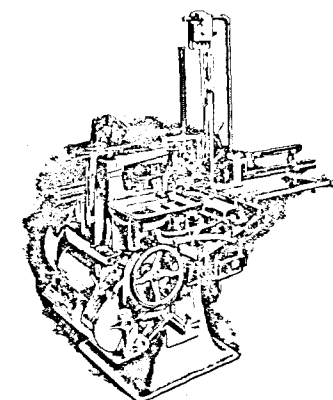


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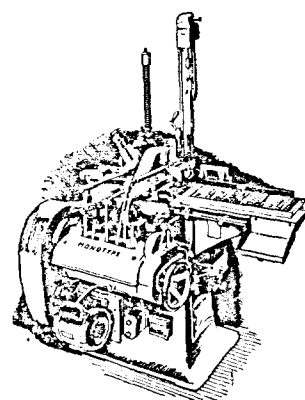
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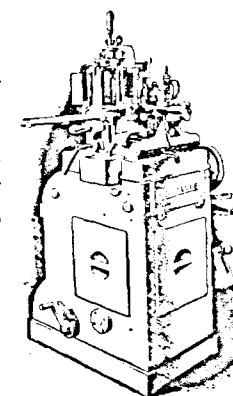
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Madras Printers' & Lithographers' Association, he wished the Institution all success and also thanked the East Asiatic Co. (India) Ltd. for their noble gesture in presenting a valuable machine for a good cause.

Sri S. Viswanathan, President of the All-India Federation of Master Printers, said that he was happy that the very first request made by the Federation immediately after its inception in 1953 has been fulfilled by the Government of India, starting the Regional School in Madras. He also stated that while the authorities might insist on the qualifications prescribed for students, they should not insist on such qualifications especially in the case of journeymen who are at present working in different presses and who might join the Institute to obtain a diploma. He added that it was necessary that the present staff should be sent abroad for specialised training. He also wanted the authorities to take the co-operation of the printing trade in drawing up the syllabus as only they, the trade, would know what kind of training should be given to those whom they have to absorb in the industry. He suggested the conducting of a short training course for the benefit of the employers in the industry.

He said that while Government Presses in other countries were used mainly for doing confidential and special work for the Government, Government Presses in our country have been expanded lately to do the printing of books and other publications which has resulted in an economic crisis especially among the smaller printers in the country. He did not want that the Government should exploit the present economic condition by making the printers do their work at the minimum rates quoted by them. He sug-

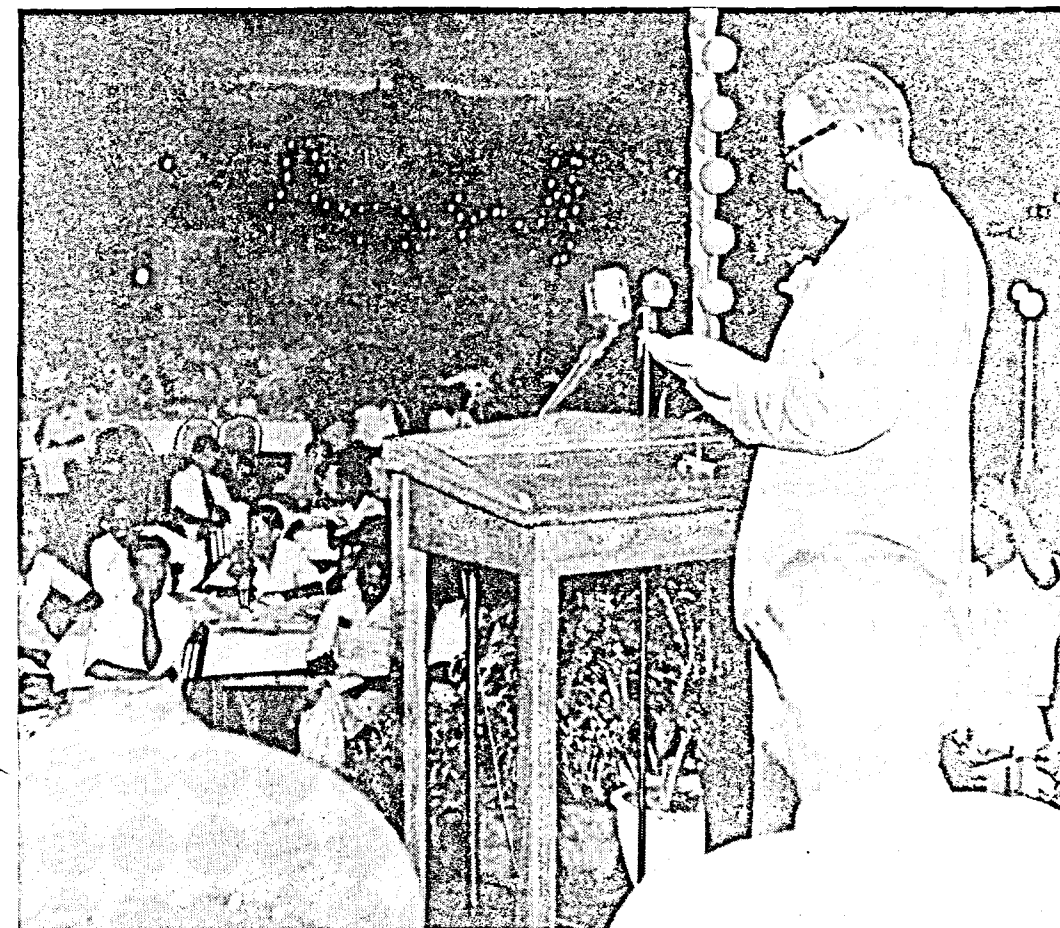
gested that a committee of representatives of the Government Presses and the trade should fix the rates for different jobs and work done at these rates. Since students would not have adequate practical training with the machinery at present available in the Regional School, he suggested for the purchase of more machinery and equipment for teaching the students, and pointed out that it will be easy for the Government to arrange and purchase such machinery as have become condemned or about to be condemned so that the students might use them in their practical classes in the earlier stages.

He pleaded for the inclusion of a factory for manufacture of printing machinery in the South in the Second Five-Year Plan, and said "When India can manufacture automobiles, air-crafts, etc., she could also manufacture printing machinery, and it would be good indeed if the Government would arrange for starting a plan without waiting for the public to take the initial step." He wished the students of the Southern Regional School a prosperous future and thanked the East Asiatic Co. (India) Ltd. for presenting the Regional School with a Heidelberg machine at this most opportune time.

Mr. O. Christensen, Manager of the East Asiatic Co. (India) Ltd., Madras, speaking next said:

I am most grateful to the organizers of this function for having been given an opportunity to address a few words to you before requesting the Hon'ble Minister for Industries & Agriculture to accept my Company's gift to the new Institution of Graphic Arts, the Southern Regional School of Printing.

The art of printing, as you may know, goes back more than 500 years to the time towards the middle of the 15th



Mr. O. Christensen, Manager, The East Asiatic Co. (India) Ltd., requests to accept the Heidelberg

century when Mr. Gutenberg, a German, first invented and developed it. Little did he realize what a tremendous gift of art was hereby handed over to mankind and little did he himself,—in common with many other inventors,—get in return for his efforts, at least as far as the material aspects are concerned.

Since then the art of printing has further developed through the centuries till to-day it has reached a degree of beauty and general appearance,—not to mention speed,—which nobody even in their wildest dreams had visualised years back.

When this development in India up till recent years has only been apparent to a small extent compared to western countries, the reason no doubt must be found in the limited scope for expansion that existed for the Industry. However, the independence of India set afoot a tremendous industrialisation which, together with the literacy campaigns and general improvement in standard of living, has already caused a complete change in the previously rather bleak outlook for the printing industry in India.

This industry, I gather, is one of the largest in the country and it is roughly estimated that as many as 100,000 printing presses are in existence. However, only a small proportion of these presses are of the more modern type and in view of the rapid increase in print demand, just referred to, a remodelling of the technical and practical aspects of the industry as a whole is imminent.

Encouraging signs and visible results show that those responsible for the speedy progress of the printing industry in India are fully up to the mark, and new colleges both professional and arts, are being opened; I may also mention the formation of the Book Trust recently which with the assistance of the Ford Foundation will publish literary books for supply to the general public at very reasonable prices.

It also deserves mention here of the admirable efforts that are being made by the various Master Printers Associations in India and their parent organization, the All-India Federation of Master Printers, to improve the standard of the Industry. I refer especially to the creditable efforts put in by the Madras Printers' & Lithographers' Association in organising the splendid Printers Exhibition early this year in Madras. This Exhibition was truly on an international scale and literally proved a meeting ground for East and West.

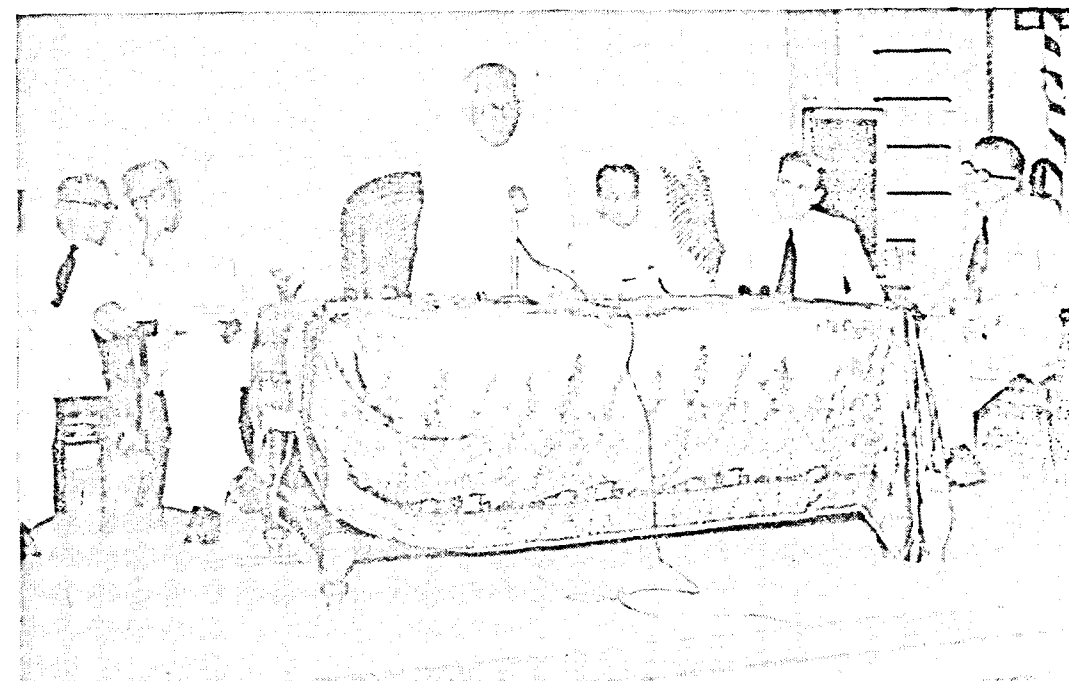
It has been said time and again, and rightly so, that South India usually sets an example to other parts of this great country, be it in national movement, social reform or accomplishments in the educational or artistic spheres. It is therefore no surprise when the Central Polytechnic claims to be the only institution with a section established, already for a considerable number of years, for

teaching printing, and it is gratifying to note that many students from this institution are now holding responsible positions within the printing industry.

I am very happy indeed that my Company has got the privilege of a close and friendly contact with this important industry as also for the opportunity given to us to contribute in many ways to its rapid growth. As a token of goodwill we offered some time ago to present a modern automatic printing machine, an "Original Heidelberg," to the new institution, the inauguration of which we are gathered here today to witness. This gift was readily accepted by the Joint Director of Industries and an opportunity was afforded us today to hand over the machine.

I would now request the Hon'ble Minister to receive the gift on behalf of the new institution and the Joint Director of Industries, and I also request the Hon'ble Minister to kindly switch on the machine.

Hon'ble Sri M. Bhaktavatsalam, Minister for Industries, Govt. of Madras, inaugurating the Regional School, and switching the Original Heidelberg machine, said that they were obliged to the Government of India for enabling them to start the Institution. He pointed out that "the great invention of printing" had not spared any pain to spread knowledge among the people and added that people have now developed a taste for reading. The reading habit, particularly in this part of the country, had been growing by leaps and bounds and journals and newspapers were read by thousands of people. Therefore, the printing industry has a great future in our country. They had every reason to look forward to the invention of most up-to-date machinery,



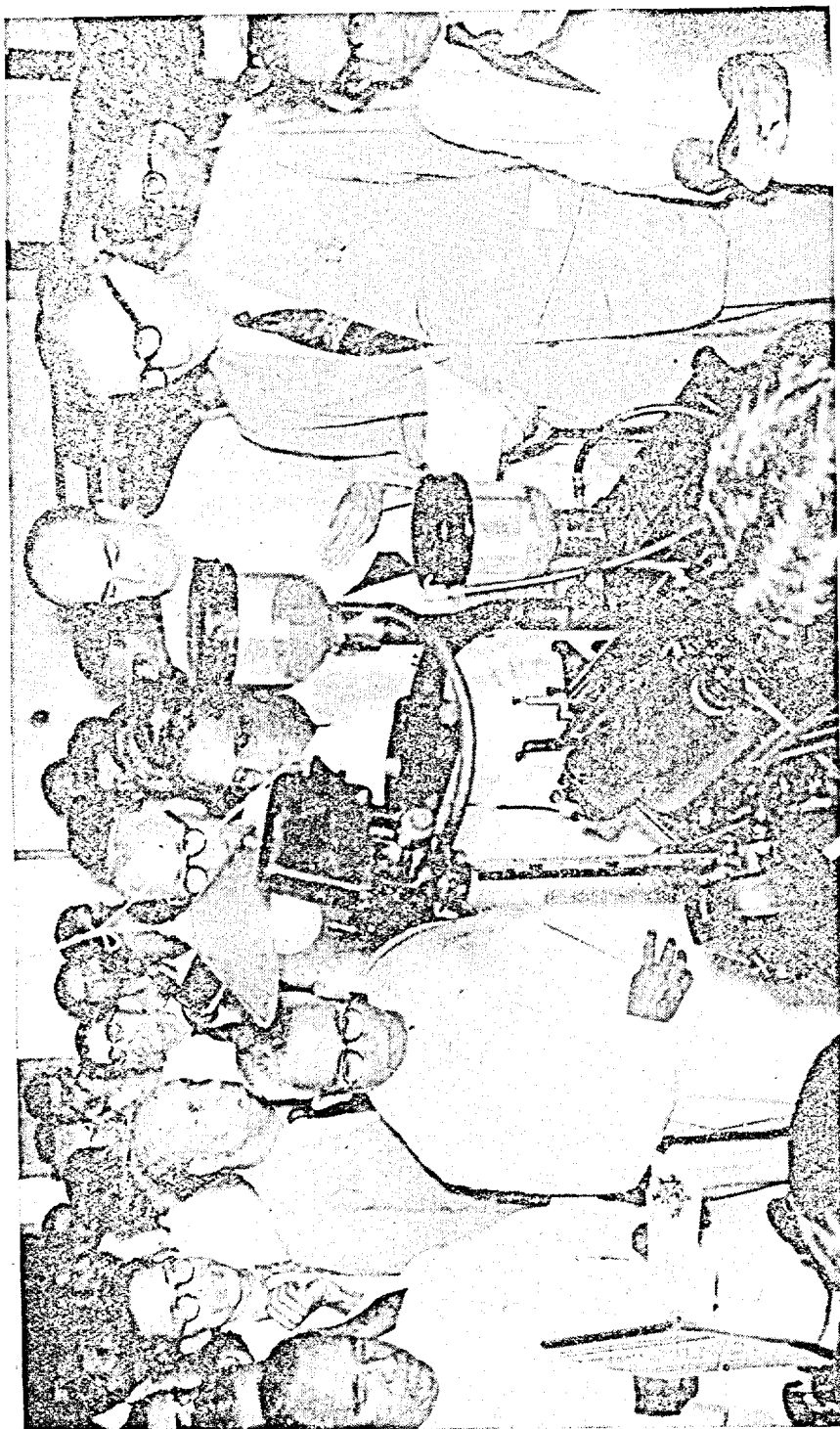
Sri M. Bhaktavatsalam, Minister for Industries & Agriculture, inaugurates the Regional School of Printing.

which would print lakhs of copies, for the day-to-day consumption of the public. An institution like the Regional School of Printing was necessary to give a proper training to those engaged in the printing industry. Therefore it was most appropriate that it had been possible for them to start the School for imparting up-to-date lessons in the art of printing.

While appreciating the fine gesture that the East Asiatic Co. (India) Ltd., had shown by presenting a Original Heidelberg machine to the School, the Minister expressed the hope that this School would develop as premier Institution not only in India but in South-East Asia. He said that the Madras Government were vitally interested in the enterprise for making printing machines, and expressed the hope that be-

fore the end of the Second Five-Year Plan or even in the course of it, they would be able to establish this industry in the Madras State. He said that he had no doubt that sufficient endeavour would be forthcoming for the same. He complimented on the uneducated people grasping easily the printing technique, and added that if such men were given the training which the Regional School would offer, he had no doubts that they could stand foremost in the matter of printing. Offering his "warmest felicitations" to the first batch of students of the Regional School, Sri Bhaktavatsalam hoped that the institution would grow from strength to strength.

Sri A. R. Doraswamy Iyer, Principal, Central Polytechnic proposed a vote of thanks.



On the Historic Day of 8th August, 1955, when the R. S. P. was inaugurated and the Heidelberg Platen was presented. Photo shows the important personalities around the machine. From left to right: Sri S. Aruldoss, Additional Director of Industries & Commerce, Hon. Sri M. Bhaktavatsalam, Minister for Industries & Agriculture, Sri C. G. Reddi (behind the light), Jt. Secretary, Dept. of Industries & Commerce, Sri T. K. Palaniappan, Director of Industries & Commerce, Mr. Stookes, Controller of Printing & Stationery, Mr. O. Christensen, Manager, The East Asiatic Co. (India) Ltd., Madras and Sri S. Viswanathan, President, All-India Federation of Master Printers.

HEIDELBERG MAKES HISTORY IN INDIA

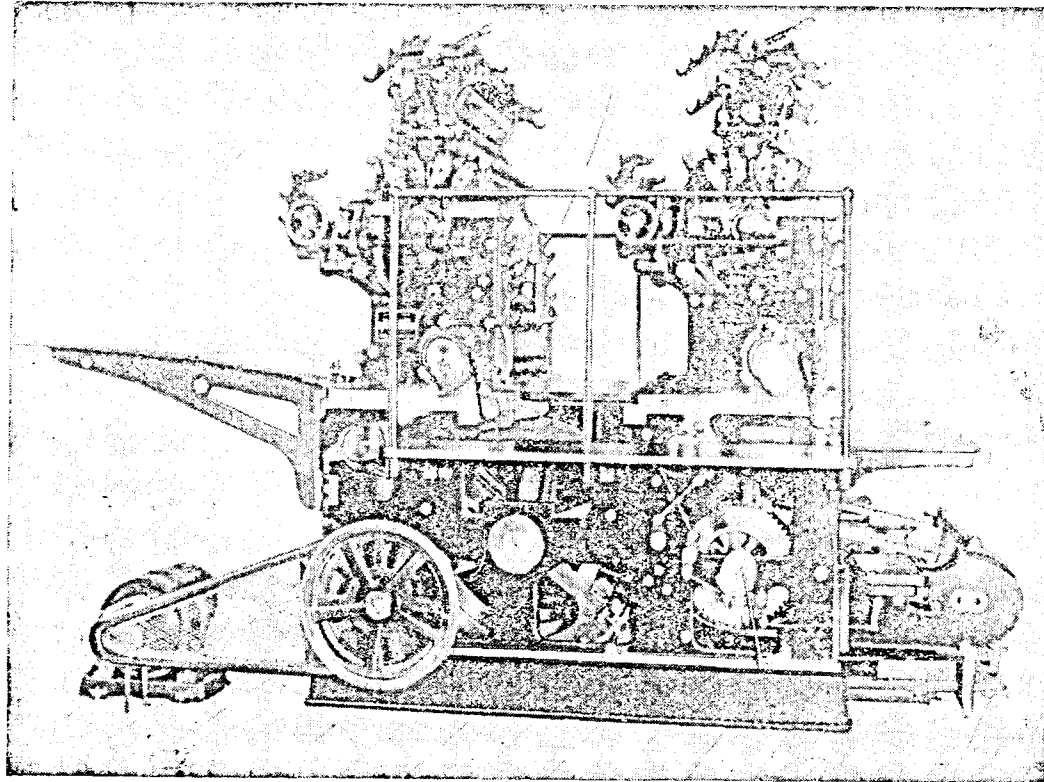


WHILE the inauguration of the Regional School of Printing marked a milestone in the history of Printing Education, it made history in another direction too. For the first time in the printing history of India, a valuable new machine was given away as gift to be dedicated to the cause of training the future generation of printers. It is a good augury indeed that such a world-famous printing machine has come into the possession of the Regional School of Printing as a gift, in the beginning itself.

The machine donated is the Original Heidelberg Platen 10" × 15" and the donors are M/s. East Asiatic Co. (India) Ltd., Madras.

The picture reproduced above shows the Heidelberg Platen that was presented and Minister Hon'ble Sri M. Bhaktavatsalam (extreme right) looking at the first copy of the tricolour picture that was printed on this machine and distributed to the visitors after it was switched on by the Minister.

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PRODUCTION & PRE-MAKE-READY

By R. G. RADFORD

What is pre-make-ready? During the last decade or so the Trade Press has published a lot of windy verbiage under this general heading. Make-ready consists of certain operations which can only be done when a particular forme has been put on the particular machine on which it is to be run. As such "to talk of pre-make-ready is just nonsense." The writer of this article who has years of experience in machine-department behind him and who is the author of two highly valuable volumes on Letterpress Machine Work, throws new light on this much-discussed subject which should help to clear the confusion surrounding this subject.

It is fairly safe to say that the two main objectives of every progressive printing firm are (a) to improve the quality of its product, (b) to increase its rate of production or to reduce production cost. Both of these objectives can best be attained by a combination of three factors: efficient equipment maintained in good condition; competent management, planning for and directing the labour force; skilled and efficient craftsmen.

Printing was once included very definitely amongst 'The Arts.' It later blossomed into the state when it was included amongst 'The Crafts.' It can now be most assuredly numbered amongst 'The Industries,' and a very important one at that because it is acknowledged to be the essential servant of all other industries.

Industry above all needs precision machinery and other equipment. Precision machinery calls for precision methods of operation, hence the need for properly trained, highly skilled craftsmen. It is not my purpose, however, to dwell or even

to comment on the training of craftsmen but rather to discuss a few points which are more associated with the other two factors: equipment and management.

Equipment

There is no denying the fact that many printing offices are very ill-equipped, and try to struggle on with ancient plant and incidental equipment. There is an old saying that neither wise men nor fools can work without tools and it's only fools who try. Many master printers try to struggle on with old and worn-out machines because they say they cannot afford to buy new ones. The wiser and more progressive ones don't wait until they are in a position to buy a new machine, they get the machine and let it earn its cost, paying for it out of its earnings.

Management

The function of management is to so plan the work passing through the establishment that the jobs go through smoothly and without any unnecessary delays. They don't wait for snags to crop up and then find means of overcoming them; they anticipate them and take steps to avoid them. They should know the capacity and limitations of their staff and plant and not undertake work that is beyond their ability to produce profitably, always being on the alert for new techniques and better ways of doing certain types of job.

Planning

"We need a plan for everything, even for enjoying life." A printed job starts

with the author and finishes with the warehouseman or binder. The author usually just writes the copy and may be, reads a proof at some stage in the progress of the job, making deletions and additions where he deems it necessary in order to get over the ideas he originally had in mind. The artist, designer or typographer plans the job. So far printing is still an art that remains with the designer. It is now more than ever necessary that a typographical designer should have a good working knowledge of the process he is designing for. There are now in training many artist designers in Art Colleges and Schools with a printing department and from such institutions have come many very able men who have done much to improve the standard of present day printing.

A printed job can never be a good job unless it is well designed. It has not only got to be pleasing to the eye but it must also be functional, that is, it should achieve the object for which it was designed. The designer should have a working knowledge of the process he is designing for so that he can avoid difficulties in production; for example, when the job is to be produced by the letterpress process he should avoid the overuse of rules, particularly rule borders; these are always better omitted unless the corners join properly. Lines running at an angle should also be avoided, these not only cause difficulties and waste time in composition but they frequently cause delays when the job is on the machine owing to spaces rising. Then the typefaces should be carefully chosen to suit the particular grade of paper to be used for the job.

House-Style

Although there are certain items that all printers accept as standard practice

most reputable establishments have a house-style of their own which includes one of alternative spellings; the use of capitals; punctuation; quotes, whether single or double and whether or not there is a space before and after the quote. With bookwork such things as chapter headings; chapter initials; running headings, whether or not they are letterspaced or with uniform letterspacing and wide word spacing; whether the folios are at the bottom of the page or form part of the running heading.

Preparation of the copy

The author will not often concern himself with house-style; he is too much concerned with what he is writing. He leaves the details of style to the printer.

One of the first injunctions given to an apprentice compositor is "follow the copy, even though it gets blown through the window." It is no more trouble to do a job right the first time if proper instructions are given than to have to correct it afterwards; therefore the copy should be marked up for style by the most responsible person before being passed on to the composing department. This will often avoid expensive house corrections. When a job of many pages has to be produced the better type of house will have a plan, of say four pages, set for style and submit it to the author or customer for approval before the whole of the matter is set.

When a book or booklet with chapter headings and main and secondary sub-headings is being produced the space above and below each of these should be equal to a line or lines of the text; this enables the page to be made up to the correct depth easily and uniform line spacing is therefore maintained.

If the job is an illustrated magazine the screen ruling of the illustrations should be suitable for the job paper. The blocks should be tested for correct height-to-paper and overlays prepared ready before the job goes to press. In planning the position of the illustrations and captions, the number of lines of run-round matter, if any, should be calculated so that these can be set accordingly.

When all the body matter has been set and corrected an accurate paste-up of each page should be made. If necessary the copy can be edited to make or lose a line in order to avoid undesirable line spacing or turnover. This paste-up should contain clear and concise instruction to the compositor who has the pages to make-up. Nothing should be left to his imagination, neither should it be necessary for him to have to waste time making enquiries. Just "follow the copy." When the page is made-up a page proof under lock-up conditions should be taken. Further alterations or corrections marked are attended to before the appropriate pages are imposed in a forme. A sheet proof for final revise and imposition can then be taken and ruled up for squareness and accuracy of margins. If found correct the forme then "goes to press" with overlays and specific instructions to the machineman.

Pre-make-ready

During the last decade or so the Trade Press has published a lot of windy verbiage under this general heading. The burden of most of the authors has been to cut out the machine time wasted between the job going to press and commencing to run-on. Many of them have insinuated that some minders deliberately waste time on what they call make-

ready and which should not be necessary. No machineman worthy of being called a craftsman would deliberately waste time, and if he does then the remedy is with the management. Neither would he make unnecessary work for himself, for the sooner the job is on the run the better he is pleased.

There are four operations which must be performed for every fresh job that is put on a letterpress printing machine: (1) Dress the tympan, cylinder or platen; (2) set the gauges or lays; (3) position the forme; and (4) set the ink duct to give the necessary flow of ink.

Unfortunately what many writers without practical experience fail to appreciate is that as letterpress printing is produced from a relief surface which offers varying resistances when the impression is being taken, another operation which often takes up a great amount of time is therefore generally necessary, viz., *local adjustment of impression*. In the intaglio and planographic processes the whole of the plate area goes under the impression so no local adjustments are necessary. This local adjustment of impression can only be eliminated if the mechanical construction of the machine is such that the impression surfaces of the printing area are not putting additional stresses on the mechanism. If you agree that the four items I have mentioned are necessary for every job you will also agree that no pre-make-ready is possible on either of those counts.

The first impression taken from any forme will not only show all the unevenness due to varying resistances of the forme but also inaccuracies and weaknesses in the mechanical construction of the machine. A letterpress printing machine is usually constructed to print from a relief surface 0.918" in height,

which is called height-to-paper. In most formes sent to press we find items of varying heights. There may be founders type which has already been used many times before and is in consequence showing signs of wear. There will possibly be illustrations mounted on wood which will not be correct height. There may also be mechanically composed new type, either Mono or slug. All these inaccuracies add up, they do not cancel one another out and until a pull is taken they cannot be assessed. It is only when a particular forme is put on a particular machine that the machineman can get to work to correct them. This then is make-ready and as it can only be done at this stage, to talk of pre-make-ready is just nonsense.

Of course much of the necessity for this time-wasting operation can be, and in the better managed offices is, avoided by the provision of suitable equipment and the exercise of proper supervision during the previous stages of the preparation of the forme.

Initial Supervision

Just to take a few examples: all blocks should be tested for height with a micrometer gauge which operates under printing pressure and made correct before being placed in the forme. Overlays, whether hand cut or mechanical, can be made beforehand. Careful watch should be kept on all mechanically composed matter to ensure that it is correct height when cast. It is just as necessary to give attention to the mathematical accuracy of a slug as it is to ensure its literary correctness. Operating a slug-casting machine requires something more than lightly tapping the correct keys. The

metal must be of the proper alloy and cast at the correct temperature. The back trimming knife should be correctly set so that the slug is 0.918" throughout its entire length. As a machine minder I have often wondered how many line casting machine minders ever use a micrometer to test their lines, even sometimes how many of them could even use one properly if placed in their hands. Of course a line casting machine will cast a slug that is solid and to correct measurements but only if everything about the machine is functioning as it was intended by the manufacturers. To ensure this both the metal and the matrix and the mechanism must be maintained as they were intended to be by the makers of the machine. How many hours have I seen wasted when a job is on machine removing hairlines between letters in display lines because the operator had been using a damaged matrix or working with dirty matrix? This kind of delay can always be avoided by careful examination of the proofs at an earlier stage. Then weak chases which are out-of-square and furniture which is not correct to size is often much in evidence. This means that when a job has to be perfected the pages do not back-up correctly and the machine is kept standing while the fault is made good, hence the need for sheet proofs which should be accurately ruled up for squareness and correct alignment of pages beforehand.

Therefore it is not pre-make-ready that the management should devote time and thought to but the avoidance of the necessity for many of the operations that a machineman has to do before he can get on the run with the job in hand.

"How's Business?"

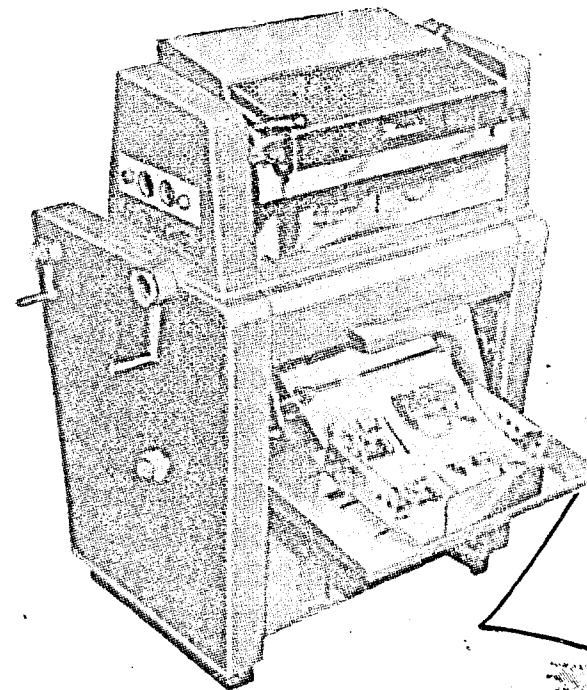
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Photo-Mechanical Reproduction of Colour

By V. JOHN, M.A.

Proprietor, Klein & Peyerl, Madras

A master technician in the process-engraving field explains the making of colour half-tones as non-technically as possible for the benefit of printers, young and old.

THE word "colour" brings into our mind the vivid and the colourful Nature, the inimitable work of God. Man has tried to reproduce many things in nature, find out the components, and their laws of combining, and then reproduce them. The process-engraver has tried to reproduce colours in nature and great works of art, in their true colours, by first synthesising, and then combining, colours in their proper proportions, in colour-blocks.

Colour-blockmaking and printing have been made possible by the co-operative efforts and progress of photography, ink manufacture and printing.

It is a well known physical law that white light consists of all the colours in the spectrum. In the middle of the last century, photographic scientists put forward the "additive colour theory" that any colour can be split up into three basic component colours, red, green and blue. To illustrate this theory, three photographic negatives were taken through red, green and blue filters. Thereby the negatives of the corresponding colour components of the original were obtained, and their corresponding positive transparencies were made. These three positive black and white transparencies were projected through their respective filters from three different projectors, so

that the images coincided and were superimposed exactly. The original subject was found projected in the original colours. This process is called the "additive process" because it added the three basic colours to make the original colours. But this process was not suitable for getting results on opaque bases by pigments or inks. The natural consequence was the "subtractive process."

THE SUBTRACTIVE PROCESS

To understand the subtractive process in a simple way, let us assume that three pigments are made available, each of them absorbing one-third of the visible spectrum, and reflect back to our eyes the other two-third of the spectrum. If we are able to make three "pigment-separations" each representing two-third of the visible spectrum, and if we superimpose one on the top of the other, then, the result will be the original colours. But, here it was found that these three subtractive primaries were not the three primaries of the additive process, but *the complimentary of the primaries* of the additive process. This meant that the new primaries of the subtractive process should be such that it should reflect two of the primaries of the additive process of the portion of the white light by subtracting one of the additive primaries. Thus when the additive primaries are red, green and blue, the subtractive primaries are:

White minus Red = Blue-green (or Cyan)

White minus Green = Blue-red (or Magenta)

White minus Blue = Red-green (or Yellow)

i.e., cyan, magenta and yellow (popularly known to the blockmakers as blue, red and yellow). These primaries, since they are obtained by subtracting the additive primaries from white, are called "subtractive primaries" and the process is called the "subtractive process."

Having just touched lightly on the basic theory of colour blockmaking, we shall now proceed on to the practical method and the pitfalls that we come across and how we try to overcome them.

THE HALF-TONE DOTS

Let us assume that we are familiar with ordinary black and white half-tone blocks. These are photo-mechanical reproductions as "dot-drawings" of any "tone-original." The term "dot-drawing" is purposely used to make it clear that every half-tone block is only a mechanical drawing consisting of dots. These dots have the following characteristics:

1. The centres of any two neighbouring dots are equidistant.
2. The dots, even though they are of different sizes, are of the same formation.
3. The dots follow normally a line of 45 degrees to the horizontal.
4. The number of dots in each square inch is exactly equal to the number in any other square inch and is equal to the square of the number of lines of the screen, used in making the particular block.

The understanding of the first three points is essential to understand colour blockmaking.

Let us now assume that we have three different subtractive primary pigments or

inks. Let us take the inks to an ink-stone and do the following experiments. Take one unit of yellow ink and one unit of blue ink and mix them well with an ink-knife on the stone. The resultant is an ink of green colour. So also, if we mix red and blue, we get violet and if yellow, red and blue are mixed equally, we get black and so on. By different proportions of mixing the three basic subtractive colour pigments, we can reproduce all the different colours in the visible spectrum.

Let us now spread these different colour mixtures lightly on a microscopic slide and put the slide under a microscope. We will see, under the magnification of the microscope, particles of the basic subtractive pigments separately in their original colours. If we sit back and think, we will realise that our eyes are only being deceived by these primary pigment-particles. When we see green, it is only yellow and blue pigmentary particles lying close to each other to deceive our eyes to appear as a green pigment. This capacity of our eyes for accepting deceptions is the basis of colour-blockmaking and photo-mechanical colour reproductions.

JUXTAPOSITION OF DOTS

If we are able to print microscopic points or dots of the three basic subtractive primaries at every point, (the size of the dot in each primary colour in exact proportion of the primary colour, in the total colour, at that point), then we have succeeded in reproducing the original in exact colours.

Analysing the requirements, we find that we have got to satisfy the following:

1. At every point of the reproduction there must be all the three primary colours reproduced, i.e., there must be three dots, one of each primary colour.

2. The size of the dot of each primary colour should be in exact proportion to the component of the primary that goes to make up the total of the colour at the point.

3. Since the inks that are available at present are not transparent, but only translucent, these dots *should not lie just exactly on the top of each other*, with a common centre, *but must lie only side by side*. It is found that it is best to make them lie in such a way that the centres of the three primary dots at a point form an equilateral triangle when they are joined. This achieves *not exact superimposition but partial superimposition*, leaving each colour side by side with the other colour.

Below is explained the methods adopted to achieve these three requirements in colour-blockmaking.

A general knowledge of the functions of filters is necessary for understanding colour blockmaking. The physical property of the filter is, that a filter of any colour will absorb the rays of light of that particular colour and allow the other colours to pass through. Thus, red filter allows white minus red = cyan to pass through; green filter allows white minus green = magenta to pass through; blue filter allows white minus blue = yellow to pass through.

When we therefore interpose these three filters red, green and blue in the light path, while making three half-tone-separation-negatives on panchromatic (sensitive to all colours) photographic plates, from a colour original, we get three complimentary - separation - half-tone-negatives or three "dot-drawings." Each of these "dot-drawings" is a dot-representation of the subtractive primary colour at each particular point,

and the size of each dot is proportionate to the intensity of the particular subtractive primary colour at that point. We have now achieved the first two requirements.

SCREEN ANGLES

To achieve the third requirement, we have to make the line of the dots to lie at 60 degrees angles to each other so that their centres will form equilateral triangles, when joined. This is achieved by taking the blue-separation negative with the screen at the original position of 45 degrees to horizontal, then turning the screen by 30 degrees anti-clockwise for the red colour separation and 60 degrees anti-clockwise for the yellow colour separation. These rotations of the screen achieve the desired positions of the centres to form equilateral triangles.

These three separation-negatives are now transferred on the metal, etched, re-touched, and finished to make the three colour-separation blocks of yellow, red and blue. The respective blocks are printed with the respective inks superimposing them exactly on each other, and then the result is the colour reproduction in the original colours. This is because the size of the dots of the three colour-separation blocks at each particular point, represents the proportion of the particular colour-component at that particular point and when printed each dot transfers each pigment in the required proportion on the paper. At this stage, it should be remembered that a negative dot in this article represents the transparent dot on the negative and the dot on the block is its transfer on the block.

Having given you a general idea of photo-mechanical reproduction in colour, it may be added that the same principles

are adopted in lithography, photogravure, collotype, etc.

The legitimate query comes to everyone's mind as to why the reproductions are not exact to the originals, but give only 70 to 80% results, when at their best. The reason is obvious from the explanations given above. First of all, we have still to perfect the methods and secondly the whole process is deception—a deception of our eyes. You know deception is always suspicious and our eyes suspect that they are being deceived, and tell the mind not to believe fully.

I have tried to give you a general idea of the method, theory and practice of colour reproduction as non-technically as possible, and will be very happy to be of use to those who are interested to know more about the subject.

POLYGRAPH MACHINES AT THE INDIAN INDUSTRIES FAIR

THE Indian Industries Fair is organised by the Federation of Indian Chamber of Commerce and Industry with the active support of the Government of India, and is spread over 75 acres which will be the largest show ever held in Asia. The Fair will be held at New Delhi from 29th October to 15th December, this year.

Messrs. DWV, Polygraph-Export, Berlin will take part in the above exhibition and will demonstrate the famous range of Printing and Book Binding Machinery from Saxony. This would include Original Brehmer machines from Leipzig, Mercedes in demy folio and demy size and a range of Perfecta Paper Cutting machines and Three-Knife Trimmers.

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A Quick Survey of the Period
from Gutenberg to the Tenth IPEX

THE CHANGING WORLD OF PRINT

By LEONARD RULE

It is just over 500 years since Gutenberg, of Germany, first began printing with movable type. Gutenberg's work quickly spread to other countries—Caxton introduced it to Britain in 1476—but for almost 200 years there was little progress in the art for which he did so much. Caxton has one particular claim to fame: he was the first man to print in any language but Latin. He printed in English, in London. Thus he has a double claim to be called the first English printer.

Another anniversary in the printing field is being celebrated in Britain this year: it is 100 years since the tax of 500 per cent was removed from newspapers. Thus, overnight it became possible for hundreds of thousands of people in Britain to buy newspapers and learn what was happening in the world of the day, where previously only the wealthy had been able to afford such luxuries. A Londoner, Edward Cowper, invented the curved plate for rotary printing in the early 19th century, and that idea helped to pave the way for the mass circulation newspapers of today.

Printing in many countries has developed astonishingly during the last hundred years, and that development is going on at an increasing pace. The most remarkable developments have taken place during the period since the end of the war. This was shown at the Interna-

tional Printing Machinery Exhibition held recently in London. That exhibition was the tenth of its kind to be held in Britain. The first was held in 1904.

Just as the printed word was once reserved for the wealthy few, so the craft of printing is changing from being the preserve of skilled men who have served a long apprenticeship to something which can also be done by office staff competent to use typewriters and duplicating machinery. In the field of type-setting—in Britain a strictly male preserve—machines have been developed by which a good typist can set "type" to the most exacting standards. Truly, the world of print is a changing one. It is changing not only in Britain, but throughout the world, and all those changes were reflected at the Exhibition.

NEW ROTARY PRESS

The visitor to a newspaper printery is always impressed by the giant machinery which takes hold of a huge reel of virgin paper, hurls it along at eye-cheating speed to be printed on both sides, folded, trimmed, and delivered as a complete newspaper down a convenient chute at the side—"hot from the press." One of the latest of these presses is called the "Supercolour," and perhaps the most impressive feature of it is the method by which a fresh reel of paper is joined to the one already being printed as this

one nears its end. This is called a "flying paster," and the whole operation is controlled by two push buttons—but then almost the whole of this machinery is controlled by push buttons. The machine is so designed that it will print in several colours, if that is required, by adding further units. It starts off as a black and white printing machine, and one extra colour can be added by fitting one more printing cylinder.

It is a jump from the great machine mentioned above to an office printing machine taking up just about one metre of floor space, which will print anything from a typewritten document up to a booklet in several colours, and the "type-setting" can be done very largely on the office typewriter, although photographs and drawings can be added to any extent required. Obviously, it will not print matter as large as a newspaper press, but it offers a printing area of about 17 inches by 13 and some machines are even larger. Such machines will produce up to 5,000 impressions per hour.

PHOTOGRAPHIC METHODS

But the greatest impact on printing has been made by what is called "photo-setting," by means of which a photographic image of letters is made, instead of separate letters (or lines of type) being put together. This revolution had its birth in the United States, and met with many difficulties at first. These have now, to a great extent, been overcome, and the process is used in many countries.

A British system, called the "Mono-photo" photo-composing method, is believed to be in advance of anything else yet produced in this field. This system is unique in that it makes use of existing Monotype setting machines, and much of the well-known supercaster. This means

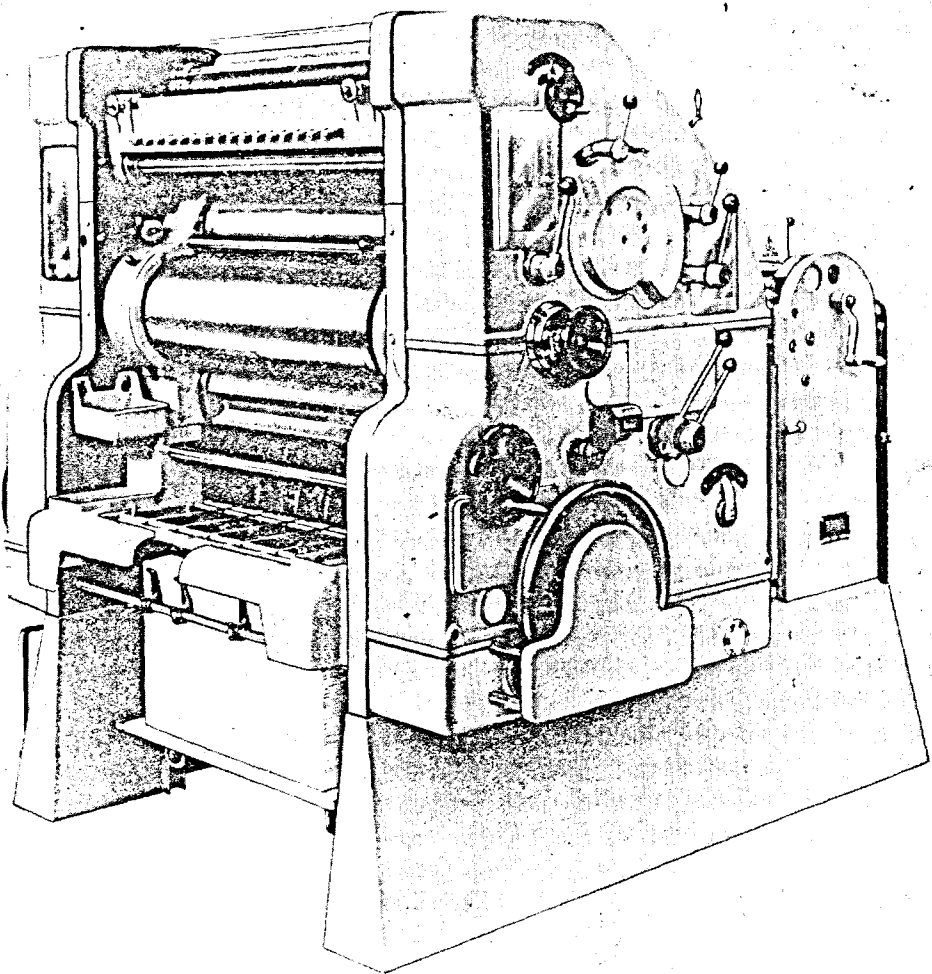
that the printer already equipped with "Mono" machines need only buy the components offered to transform his machines for photo-setting. In this form the machinery is operated by normal composing and printing machinery staffs.

Many printing traditions will die hard, and there is no doubt that for sometime to come the methods now regarded as old-fashioned will continue in use. In fact, many developments of those methods were shown at the Printing Machinery Exhibition, ranging from new styles of type, and new equipment for hand and machine setting of type, up to the latest electronic methods of controlling automatic printing. Because so many printerries are wedded to established methods they will continue to need the newest forms of machinery and equipment for a long time to come.

More than 300 firms showed their wares at the Exhibition, and the extent to which printing is an international affair can be gauged from the number of Continental and American firms who found it worth while to be represented there. But the most impressive feature of the show was the fact that so many of the machines there were in operation. It was claimed that that made the Exhibition the world's largest printing works for the time that it lasted.—*By courtesy of British Information Services, Madras.*

AGENCY APPOINTMENT

The appointment of Messrs. Indo-European Machinery Co. Ltd., Bombay, Calcutta, Delhi and Madras as Sole Agents for India to handle Brehmer and Perfecta range is also announced.



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9, Mangoe Lane
Off Bentinck Street
CALCUTTA-1

IPEX

Window to the Modern World of Print

PRINTERS from nearly every part of the world were in London for the impressive International Printing Machinery and Allied Trades Exhibition (IPEX) at Olympia, July 5-16. A heavy stream of overseas buyers-printers from India, Pakistan, Australia, New Zealand and elsewhere—saw machinery and equipment displayed by 338 exhibitors. From Canada parties of printers came in specially chartered planes.

About 40 exhibitors were from eight overseas countries, among them the U.S., Italy, Germany (East and West), and Czechoslovakia.

Long before the opening, 20,000 enquiries had been received from prospective overseas visitors. Preliminary reports on this year's exhibition indicate that more visitors came than in 1936, when 60,000 passed through the turnstiles in one day.

An outstanding feature was 'Training for Tomorrow,' a display devised by a joint committee of the British Federation of Master Printers, the Ministry of Education, the Trade Unions, and teachers of printing. It presented a variety of posters and work from many overseas countries. (See page 51)

Rotary press design for all processes has increased speed as its main objective, together with the reduction of manual control, and studies are being made with a view to achieving speed through lighter printing elements—reinforced plastic for cylinders and side frames being a possibility. Electronic controls are being widely applied.

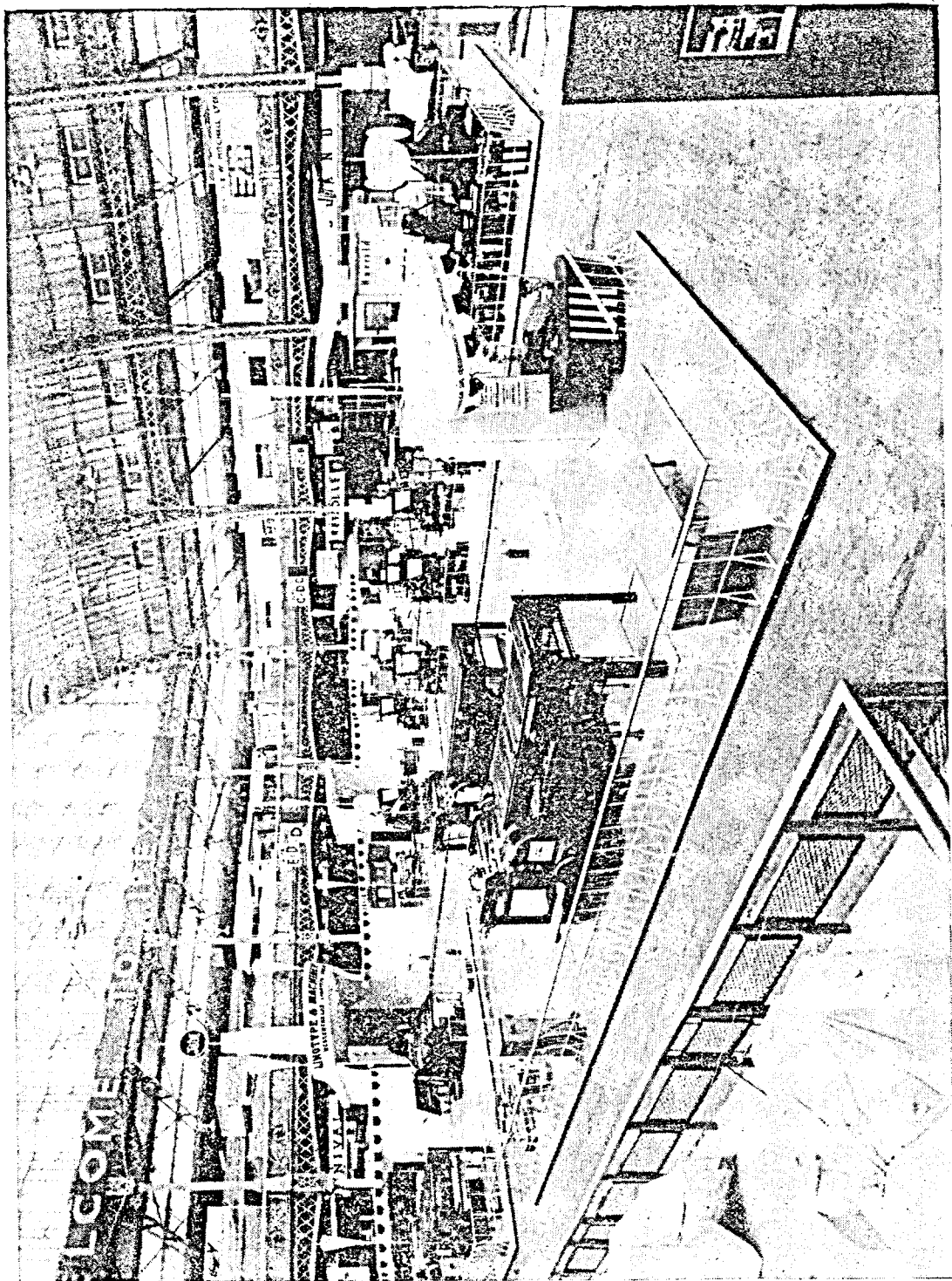
There were a number of exhibitors demonstrating the electronic engraving of blocks for printing. Plates for printing were produced in seven or eight minutes.

What may be the setting machines of the future—machines which, instead of typesetting by casting in metal, use of photographic methods—were demonstrated by Linotype, Monotype, and Gordon & Gotch.

Probably the largest printing press was exhibited by R. Hoe and Crabtree. This incorporates many radical developments, eliminating the human factor wherever possible. Reels of newsprint are automatically changed, the register is automatically controlled, the ink feed is automatic, and so on. To control the changing of the reels and other parts, there are cubicles full of intricate wiring that can only be described as an electronic 'brain.'

This firm also demonstrated a metal colour-printing machine (The Marquess) which prints on steel, aluminium and other metals at high speed. Electronic controls give new speeds and accuracy. Alongside it was an entirely new commercial offset machine (The Monarch) that prints six-colour one side and four-colour on the other. Here again electronic controls make almost every action automatic.

An interesting machine for rotogravure printing and re-reeling of wrapping paper was presented by James Halley & Sons. A new model for counting used bank notes was displayed by Vacuumatic Ltd. Electronic control for joining



Five of the six Linotype & Machinery Ltd., stands at IPEX showing the new L & M Presses, British and American Linotypes and a part of The Times Mobile Printing Unit.

reels of paper while feeding a newspaper machine was shown by Witton-James Ltd.

Special arrangements to assist the thousands of overseas printers included announcements in four languages at Earls Court Station, where interpreters were available. The front of the exhibition hall was draped with the flags of many countries.

We give below details of some of the exhibitors familiarly known to the Indian printers.

LINOTYPE & MACHINERY LTD.

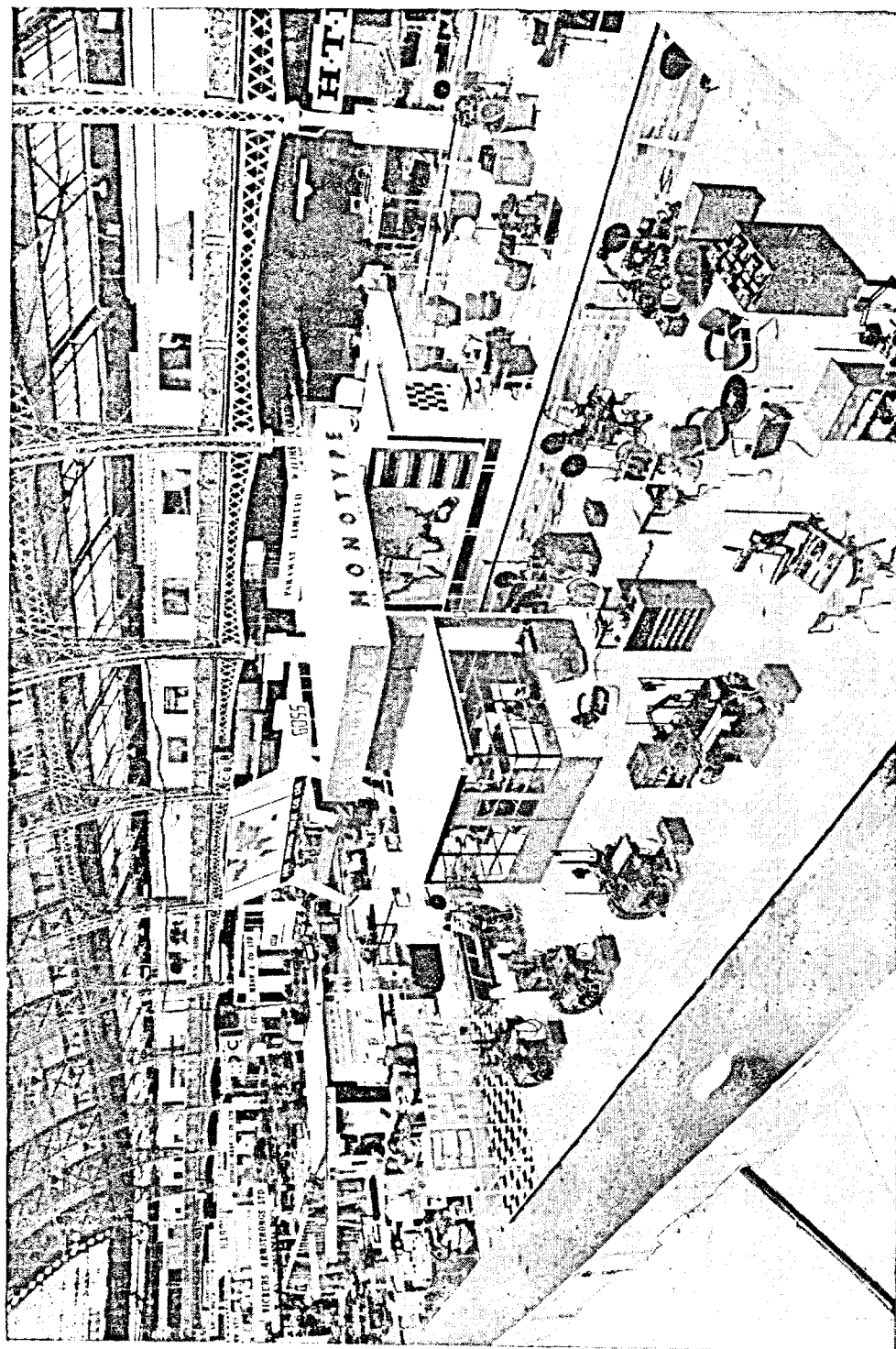
"LINOTYPE LEADERSHIP" was never so much in evidence as during July when, on their six Grand Hall stands at the 1955 Printing Machinery Exhibition at Olympia, London, some remarkable developments were demonstrated on the many and varied machines and appliances exhibited by the Linotype organisation.

The pilot model of the Linofilm, the latest photo-typesetting machine, was shown for the first time in Europe; new Linotypes, some of them equipped with Teletypesetters and running at the amazing speed of 12 lines a minute, were fascinating to watch and new L & M Press features included the roll-back automatic feeder and chain delivery, swinging grippers, and new devices enabling continuous running, which were shown on three L & M Presses—two No. 4 High-Speed Miehles and a No. 3 Cutter and Creaser. Other L & M Presses in operation included a No. 3 (Quad Crown) Two-Colour, a Centurette and a Centurion—all fully automatic. A streamlined model of the precision-built Pony Autoplate was on view, making perfect semi-cylindrical stereo plates for newspaper production on rotary presses, as

well as an Autosaver, which accurately bores and trims curved plates cast on other L & M stereo machines—the Junior Autoplate and the Automatic Autoplate.

Eleven Linotypes of various models were in constant operation, eight of British manufacture and three American. Among the latter the "Comet" claimed a lot of attention. Fitted with Teletypesetter equipment, and a "hydraquadder" (the Mergenthaler Linotype Company's latest development in three-way automatic quadding appliances), this truly fabulous machine fully justified the reputation it has earned for itself throughout the world of being the fastest-selling and fastest-operating composing machine. The Model 36 Rangemaster Linotype demonstrated the extraordinary range, capacity and versatility of this fine mixer text-and-display model. The British-built Linotypes on show included a single-magazine Model 53, specially designed for the fast setting of straight matter; the popular Model 48; a Fleet Fifty Four with Teletypesetter attachment; a Model 48 SM setting one of Linotype's fine range of oriental languages as well as English; a Model 50 double-distributor-equipped Linotype specially designed for mixed composition such as encyclopaedias, dictionaries and directories and a Super Range model for the setting of a great variety of display matter at keyboard speed.

A portion of one of the L & M stands was made available to *The Times*, the great British Newspaper, for the demonstration of a part of its famous Mobile Printing Unit, which has previously been exhibited at the British Industries Fair. The typesetting unit, now equipped with the latest Teletypesetter-equipped high speed Linotype, the Fleet Fifty Four, and a similarly equipped Model 50, was



The Monotype Corporation stand at IPEX, displaying keyboards, casters, Boston stitchers and the star attraction Monophoto

most efficiently handled by *The Times* personnel throughout the period of the Exhibition. The transmitter, two perforator keyboards, the monitor printing unit and the two remote controlled tape-operated Linotypes amazed the many thousands of interested visitors to this rather breath-taking exhibit.

Davidson Dual Litho Presses (manufactured by a Linotype subsidiary), were successfully demonstrated on a separate stand in the National Hall, attracting a lot of attention.

MONOTYPE CORPORATION LTD.

NEVER in its history has the Monotype Corporation put on so varied and interesting a show as that which brought thousands of visitors on to its two big stands at the main entrance to IPEX at Olympia. Throughout that broiling fortnight in July, it seemed as if the whole printing world—or at least representative members of every section of the industry throughout the globe—were pouring through that main gate and stopping to see, first of all, what new things the Monotype Corporation had to demonstrate.

There were enough different "star attractions" to ensure that each of the long stands would have its clusters of eager onlookers. The 'Monophoto' had, for the visitors, the dramatic advantage over any parallel invention shown under that roof, of being "actually at work": the whole process, including the now-perfected correction method, could be clearly demonstrated. The exhibit of book page film-composition in different famous faces proved so interesting that by popular demand it is being brought out in book form.

Nearby was the 'Rotomaton,' that simplified offset machine which lends itself

particularly well to demonstration because of its remarkable simplicity and ease of operation. One piece that it was printing—a guide to what was being shown on the two stands—had been set as a tabular job by Monophoto and scribed on that new 'Monotype' Huebner U.P.M. with which the Corporation has entered the field of photo-mechanical equipment.

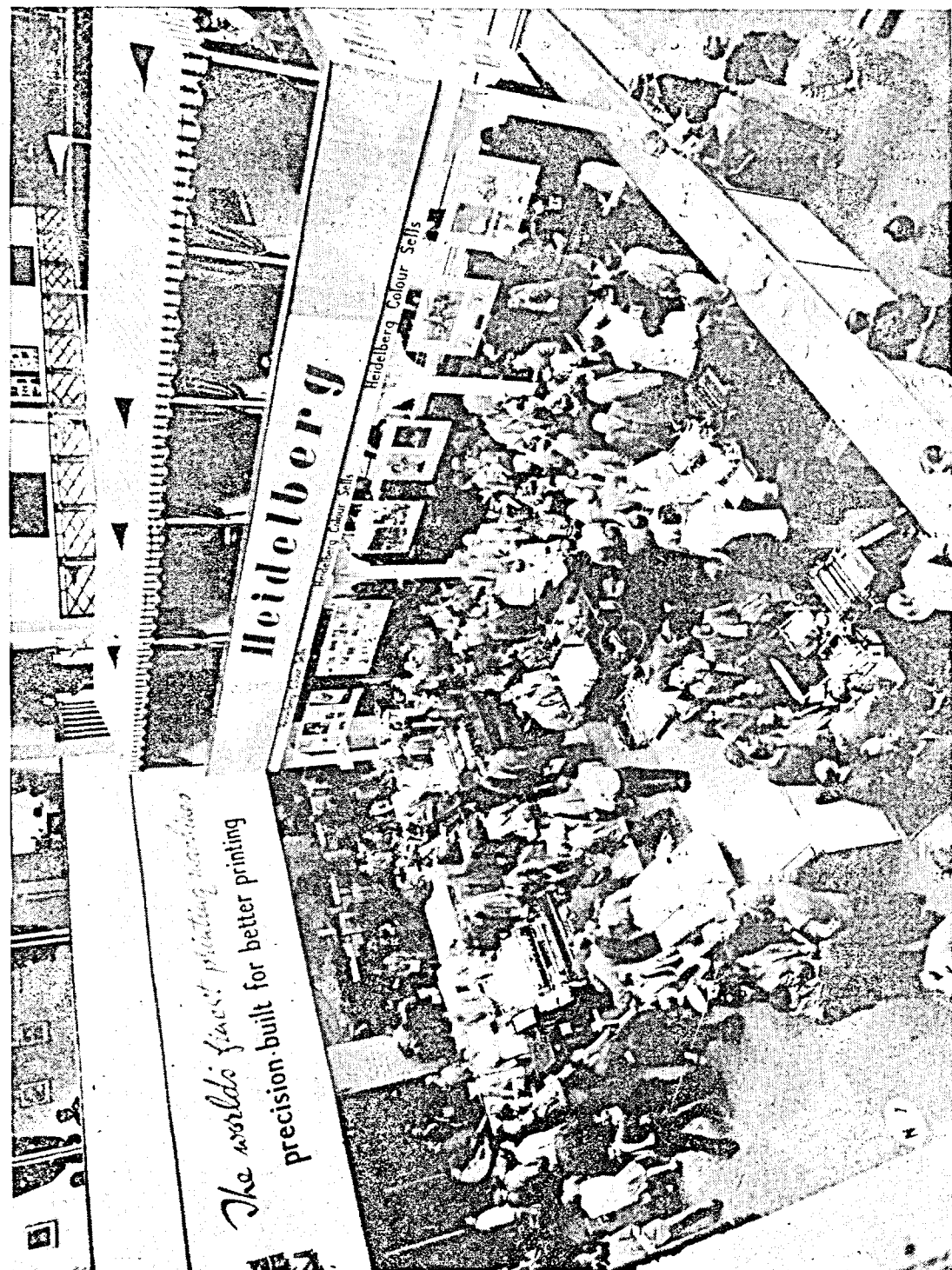
The prototype multihead 'Boston Stitcher' had an encouraging reception. The keyboarding and casting of *exotic faces* came in for a good deal of enquiry and in this connection the ease with which the native operator was keyboarding Thai (Siamese) aroused special comment. Arabic, with its reverse delivery, and the special Time-Table Casting, were also items of popularity.

In contrast to the mechanical "new ideas" was one glass-walled room in which a number of small-scale printers discovered, as a new and exciting idea, what a relatively small investment would be required for a "minimum" or starting-point installation of a 'Monotype' Keyboard and Caster.

Nearly all the technically-minded visitors made their way at length to the Literature Stand, where they rubbed shoulders with those publishers, designers and artists who had made a bee-line for it—to collect the gay new leaflet specimens and to purchase the new polyglot broadsheet, which were on show there.

ORIGINAL HEIDELBERGS

FROM the moment the Exhibition was formally opened in the large halls of Olympia at London the Heidelberg stand was bustling with activity in so far as 10 Original Heidelberg were continuously at work on the stand, which appeared



The crowded stand of Original Heidelberg machines at IPEX where ten machines were continuously at work

to be one of the most crowded at the entire exhibition.

The fact that the Heidelberg stand was working practically as an ordinary printing press—except with heavy handicap of having large crowds of visitors all around the machines—made this part of the exhibition a centre of great interest to printers of all nationalities.

The variety of the work turned out, ranging from large colour prints on the cylinder machines as well as full sheets of the British edition of "Heidelberg News" right down to small reproductions of colour work printed on a 10" × 15" Platen could not avoid to impress even the most critical printer.

As an added attraction one 10" × 15" Platen was working continuously at a speed of 5,000 i.p.h. This machine was placed on a turntable inside a glass cubicle, in which it was advertised that the Original Heidelberg in question was the 7,500th of these machines imported into U.K. As a jubilee present the machine in question would be handed over to a Printing School for young trainees as a gift after the IPEX was over.

The fact that printing experts were available at each machine to give first-hand information about all technical queries brought up by the visitors and also answering readily all enquiries regarding the jobs being printed was a great help to the sales executives, who had a very busy time negotiating about orders for machines sold all over Britain as well as the Continent and overseas.

From the balcony of the restaurant as also from the small conference rooms on the first floor an excellent view was had over the entire hall; seen from here the impression was again confirmed that the Heidelberg stand was drawing exceptionally large crowds of the printing experts

who had come to London to broaden their knowledge at this unique gathering of all the latest machinery in the graphic field. Many of the leading printers from India were seen at the stand and attended to by a special representative who provided them with the latest information about the Original Heidelberg machines and the terms, under which they are sold in India.

An interesting feature was the appearance of many young Indian students, many of them attending courses at the London School of Printing. The enthusiasm shown by these future printing experts of India could be taken as a significant sign of the bright future awaiting the Printing Industry in this vast Continent.

POLAR

THE Polar stand was placed just opposite the Heidelberg stand separated by a gangway. All the three types of Polar cutters were shown in action.

All of the Indian visitors had an opportunity of acquainting themselves with Polar equipment after they had been through the Heidelberg stand. Practical demonstrations of the Polar machines to a deputation from the Indian Trade Commissioner's Office in London, was also arranged.

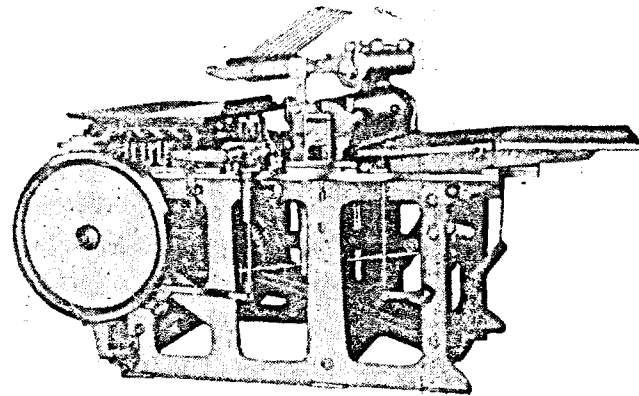
DWV—POLYGRAPH EXPORT

THIS was one of the major exhibitions of the show, and provided an opportunity for the inspection of a really comprehensive range of German printing equipment. Among the machines were: the hydraulic high-speed Square Trimmer for cutting large piles of paper, cardboard, celluloid and other material precisely square for register work. The Multicolour Rotary Printing and Punching Machine, a high-capacity machine of

"Morikawa" STOP CYLINDER PRESS

(Demy-Size—Japan Make)

This machine is simple in construction and easy for operation. For accurate printing and colour work this machine is best suited. The simple mechanism of the machine enables easy dismantling and erection.



SPECIFICATION

Maximum Print area	24 1/2" x 18 1/2"
Floor Space	50" x 34"
Height	45"
Revolutions per min.	160
Impressions per hour	2400
Horse Power required	1 H.P.
Net weight	2465 lb.
Gross weight	3086 lb.

EQUIPMENT

Geared Inkers
Balanced flyers
Double Cog wheels
Fast & Loose Pulley
Roller Mould
Roller Runners
Chases, Oil Can
Spanners.

WE ARE SOLE AGENTS FOR SOUTH INDIA

Our Printing Types, Borders, Blocks etc. are famous for their quality, durability, capacity to serve longer and ability to give satisfaction.

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Every article of utility to the Printing & Allied Trades, such as Rotary Cutting Machines, Perforators, Proof Presses, Lead & Rule Cutters, Hand Presses, Rule Mitreing Machines, Ruling Machines, Brass Rules, Cases, Stands, etc.

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three printing units for the production of blanks of different shapes and sizes for all kinds of cardboard or paper mass packings, folding boxes, folding box linings, slide and shell boxes. Single or multicoloured printing, bronze printing, scoring, creasing, punching and embossing are carried out in one operation.

The printing can be by dry offset, letterpress or copper plate.

The Odin Platen Press is for producing paper goods and cardboard boxes, and for punching work. It is specially adapted to the production of folding boxes, toys, stencils, placards, letters for signboards, pasteboard, and wood. It combines several working processes such as stamping, etching, scratching, and embossing.

The S4B four-colour Aniline Machine; especially suited to the printing

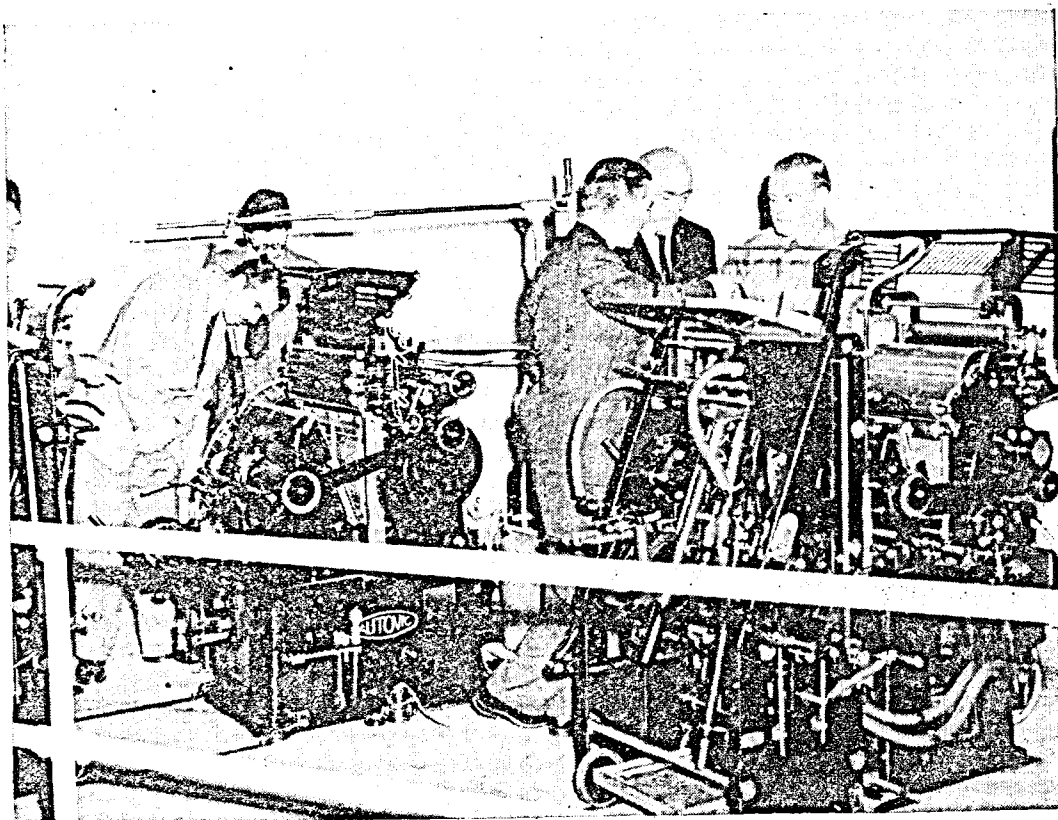
of wrapping paper, paper for lining and decorating, advertising prints, blanks, as well as for the economic mass production of note-books and exercise books. The machine prints all colours on one side or two on each side.

High-efficiency Automatic Cylinder Presses. The 'Polygraph M 1' automatic press. The small Reel-fed Offset Press RZO of from two or four printing units, rotary cross cutting apparatus pile delivery.

In the type A 50 A automatic Three-knife Guillotine, all working processes from feeding to removing trimmed work are completely automatic. Each pile runs successively through the continuously operating machine. Feeding and removing the trimmed work are the only manual operations necessary to keep the machine going.



A general view of the DWV Polygraph Export stand at IPEX showing a wide range of machines
PRINTECH August 1955



Pershke Platen Presses at IPEX. The Autovic A2 on the left has its automatic feeding unit wheeled back and on the right has the unit closed up for automatic working.

FRANK F. PERSHKE LTD.

FRANK F. PERSHKE, LTD., the old-established British firm of machinery manufacturers, were showing the Glockner Automatic Cylinder Press (a fast, compact machine for paper or board up to 15" x 22"), the Autovic A2 Automatic Platen Press (sheet size 13 $\frac{3}{8}$ " x 18 $\frac{1}{8}$ "), the Autovicobold Automatic Platen Press (10 $\frac{1}{4}$ " x 14") and the Vicobold C Hand-Fed Platen (10 $\frac{1}{4}$ " x 14").

On their stand Pershkes were able to show visitors very large solids as well as beautiful, delicate four-colour half-tones which Glockner-owners had been printing.

ROTAPRINT LTD.

THREE 'Rotaprint' models: R 70, R 40/30 R 30/90—which have been current for nearly two years, and showed for the first time, the new large R 20 model, an Offset-Litho Printing Machine of exceptionally sturdy construction, embodies all the latest technical improvements to be found in this type of machine, including fully automatic suction stream feed from built-in feeder; fully automatic inking and the patented 'Rotafount' damping; micrometer pressure adjusters; chain delivery; simplified handle operation; and the use of two paper feed trays, enabling reloading of stack whilst the machine is in operation.

PRINTECH August 1955

World-Famous Original German Polygraph PRINTING MACHINES

AT MOST COMPETITIVE PRICES

MERCEDES HIGH SPEED AUTOMATIC CYLINDER MACHINES

Sold Since
20 Years Throughout India

Model	Size	Speed
M-O	13 $\frac{3}{8}$ " x 17 $\frac{1}{4}$ "	5000
M-I	15 $\frac{3}{8}$ " x 22"	4500
M-II	18 $\frac{3}{8}$ " x 25 $\frac{1}{8}$ "	3500

VICTORIA PLATEN PRINTING PRESSES

Available for
Hand Feeding, or
Automatic with removable Feeder

Model	Size	Speed
A-2	13 $\frac{3}{8}$ " x 18 $\frac{1}{8}$ "	2500
C	16 $\frac{1}{8}$ " x 22"	1300

Best Machines for all kinds of Jobs

Type, Halftone or Three-Colour work with Perfect Register

Please ask for full Particulars and prices from

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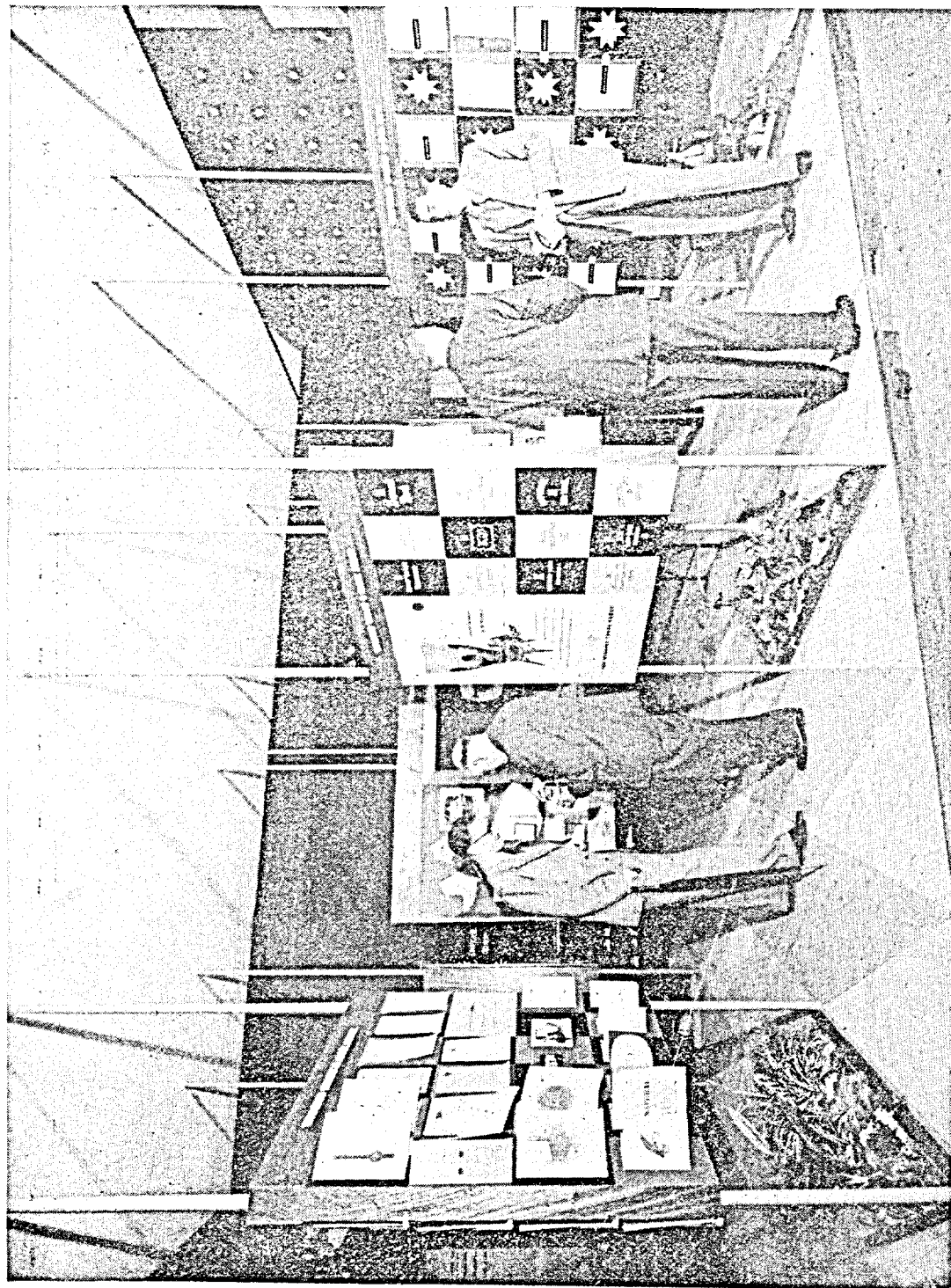
INDO-EUROPA TRADING COMPANY

Agakhan Building, 9 Dalal Street, FORT, BOMBAY-1

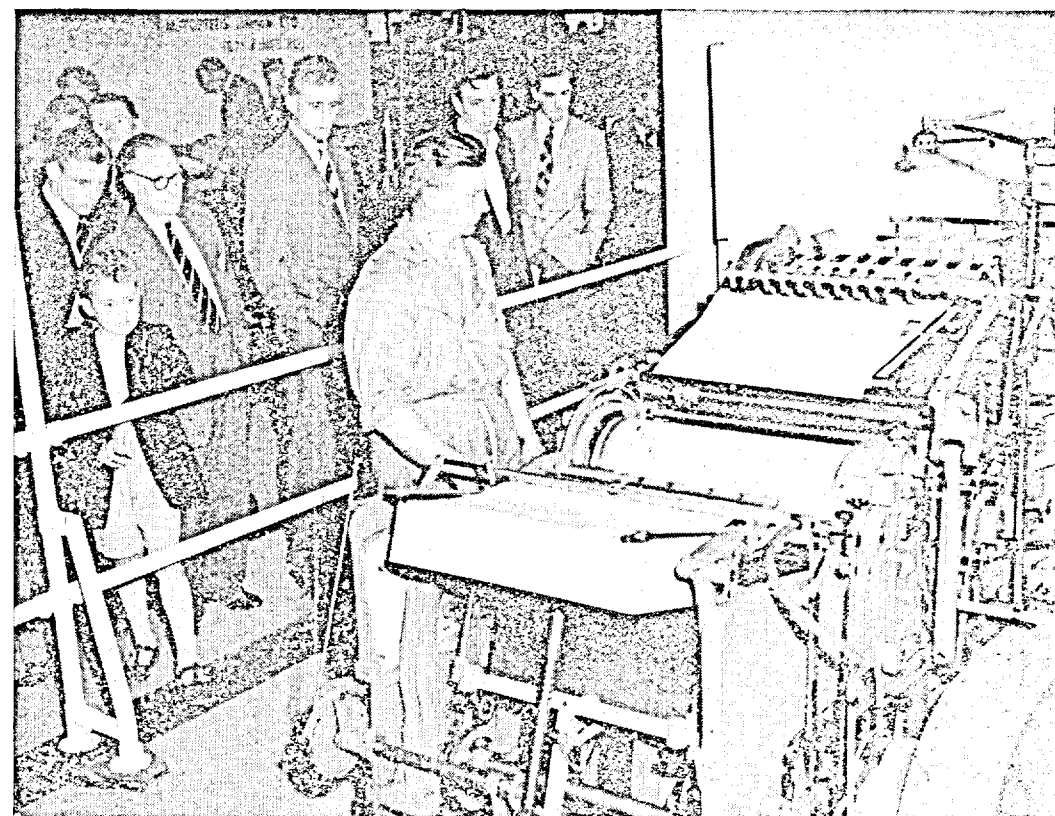
Offices also at:

DELHI CALCUTTA MADRAS COLOMBO LONDON

PRINTECH August 1955



The Wiggins Teape stand at IPEX which exhibited a range of the famous "Gateway" Papers



Frank F. Pershke's Glockner Automatic Cylinder Press at IPEX. The model shown here is fitted with a high pile delivery and a spray equipment.

WIGGINS TEAPE & ALEX PIRIE (SALES) LTD.

WIGGINS TEAPE showed the activities of their whole group which now includes fourteen main producing mills, three factories and a world-wide sales organization. In addition to features covering paper production, technical control and testing methods, a composite dandy roll had been made covered with many of the well-known watermarks, both in the Gateway range and the papers of their associated companies.

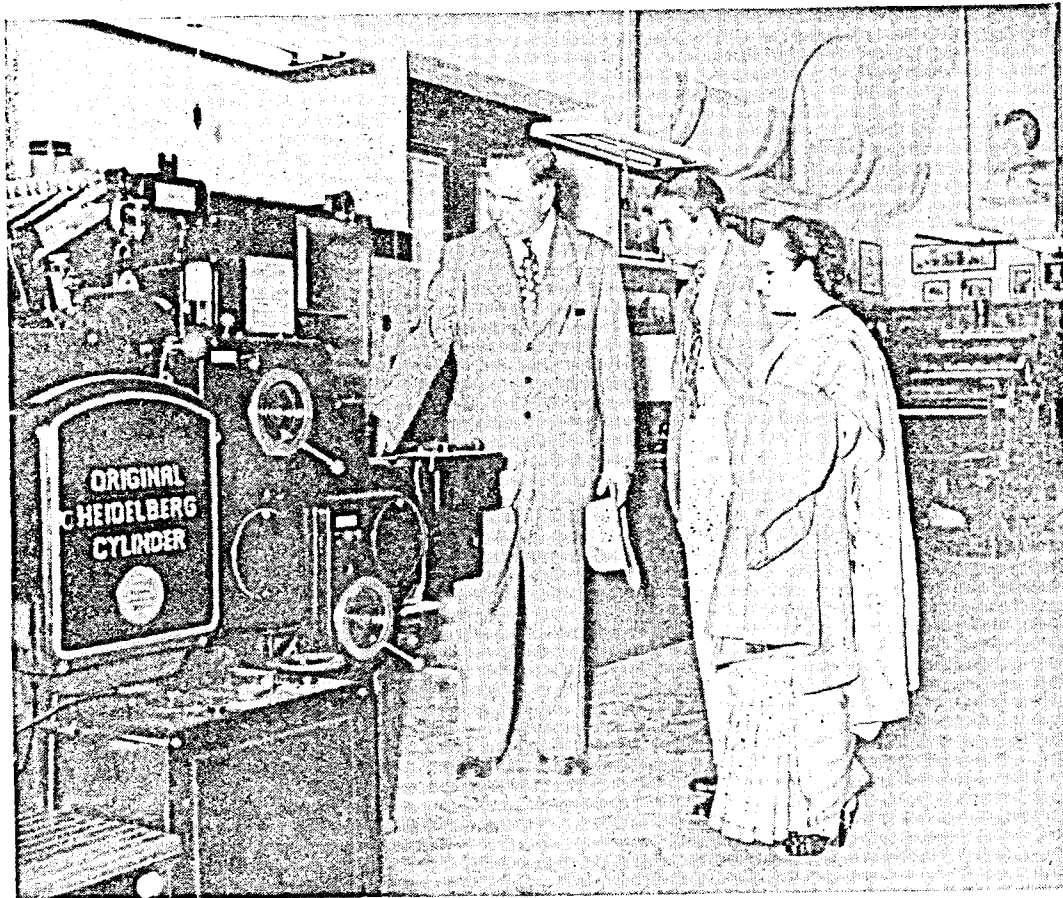
Each producing unit in the Group was covered by a separate section within the stand and those included were the Wig-

gins Teape Gateway Mills, Dartford Paper Mills Ltd., Greaseproof Paper Mills Ltd., Bridgend Paper Mills Ltd., Thomas Owen & Co., Basted Paper Mills Co. Ltd. Wm. Joynson & Sons (Sales) Ltd., Annandale & Son Ltd., Wm. Howard & Son Ltd., and F. Keay & Co. Ltd. A full family tree showed the home and overseas interests of the Group.

The whole stand designed by Misha Black and Ronald Ingles was a study in colour, shape and simplicity.

The "Gateway" Proven Art Paper is donated for PRINTECH cover regularly by Messrs. Charles Morgan & Co. Ltd.

Our President's Visit to Heidelberg Factory



Mr. Hubert H. A. Sternberg, Managing Director, showing the Original Heidelberg Cylinder to Mr. R. Siddique, President of our Federation, when he visited the Factory in West Germany. Next to him is Mrs. Siddique.

Mr. R. Siddique, D.I.P. (Lond), M.I.Ptg.M. (Eng), President of our Federation who had been on a four-month world tour as reported in the April issue of *PRINTECH*, visited many factories of world-renowned printing machines. Among them was naturally the factory of the famous Heidelberg Presses, situated in the city of Heidelberg/Baden, West Germany.

Mr. Siddique, who was accompanied by his wife, was received by the Mana-

ging Director, Mr. Hubert H. A. Sternberg on his arrival at the Factory, who took him round all the departments of the huge Factory and also the School of Printing run by them. Mr. Siddique was very much impressed by the up-to-date methods of instruction.

There are two separate factories, one for the platens and one for the cylinder machine, which incorporate every latest idea and method. Special and single-

purpose tools are used to machine parts to accuracies formerly thought impossible. Gear-cutting machinery for machine racks and gears to .0003937 in. accuracy with an involute accuracy of .0001181 in., limits which really mean precision of the highest order.

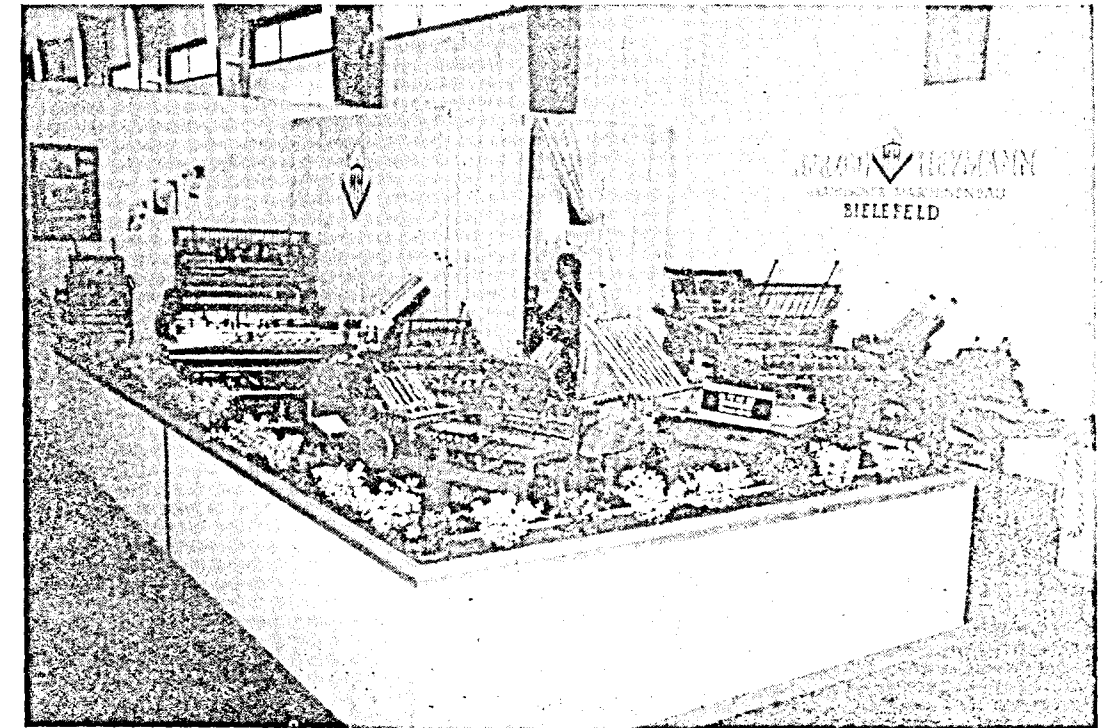
The Heidelberg manufacturers have always been quick to absorb every innovation in the field of machine tools, processing of metals and metallurgy into their works. To obtain interchangeability, a highly prized attribute, processing was done in jigs, a method not previously known. With the introduction of Henry Ford's conveyor belt system, manufacture reached the highest peak of perfection, and the Heidelberg printing works

became the only printing machinery factory to use the automatic conveyor belt system. Such a system was possible only when the demand for a production machine made this installation an economic proposition.

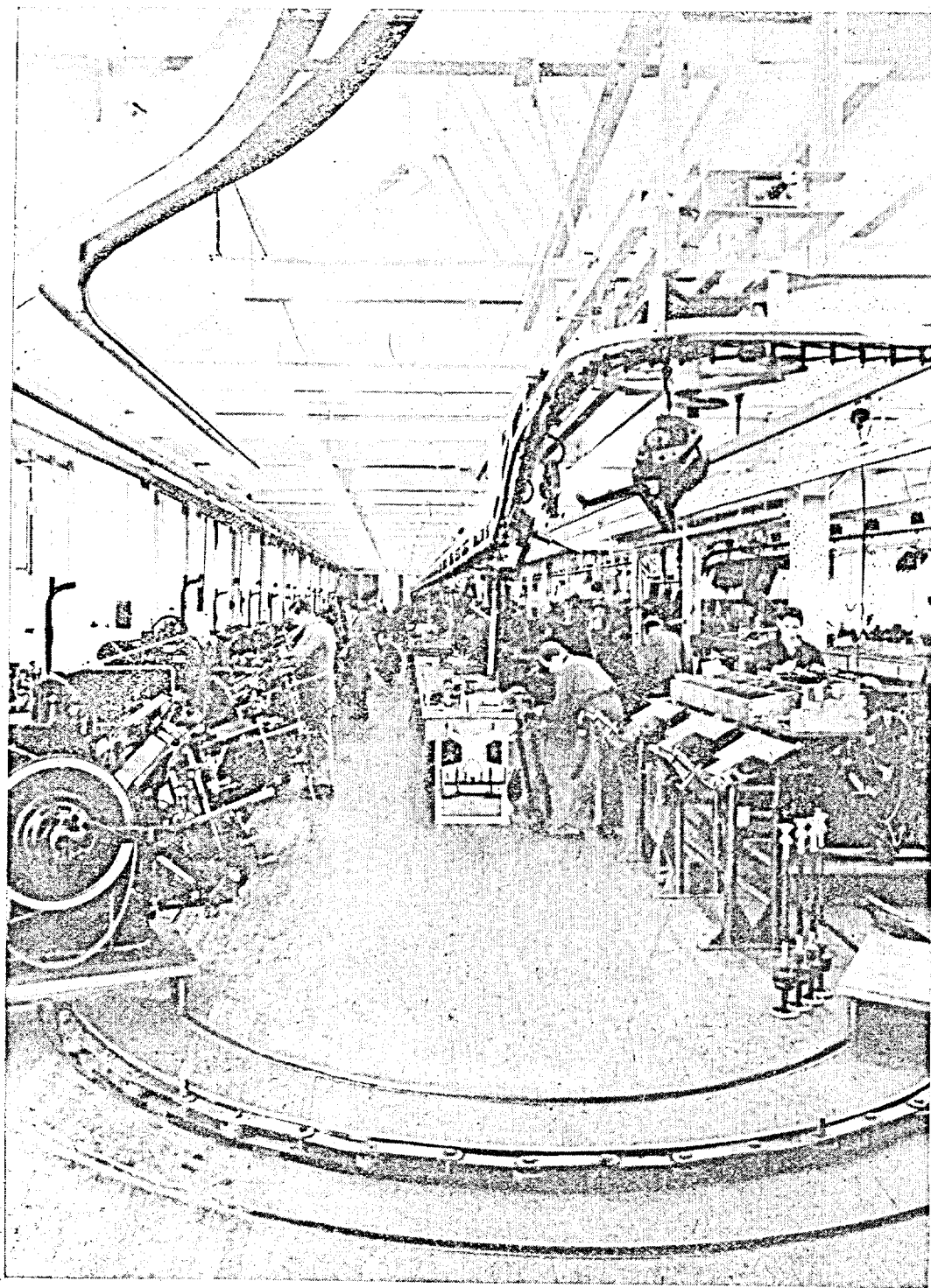
It is amazing to hear that more than 65,000 Heidelbergs have been sold throughout the world. And when it is claimed that five out of ten printers throughout the world own Heidelbergs, it is justifiable to say "if you don't own a Heidelberg, you are competing against one."

We are printing on the following pages two interesting photographs taken in the Heidelberg Factory.

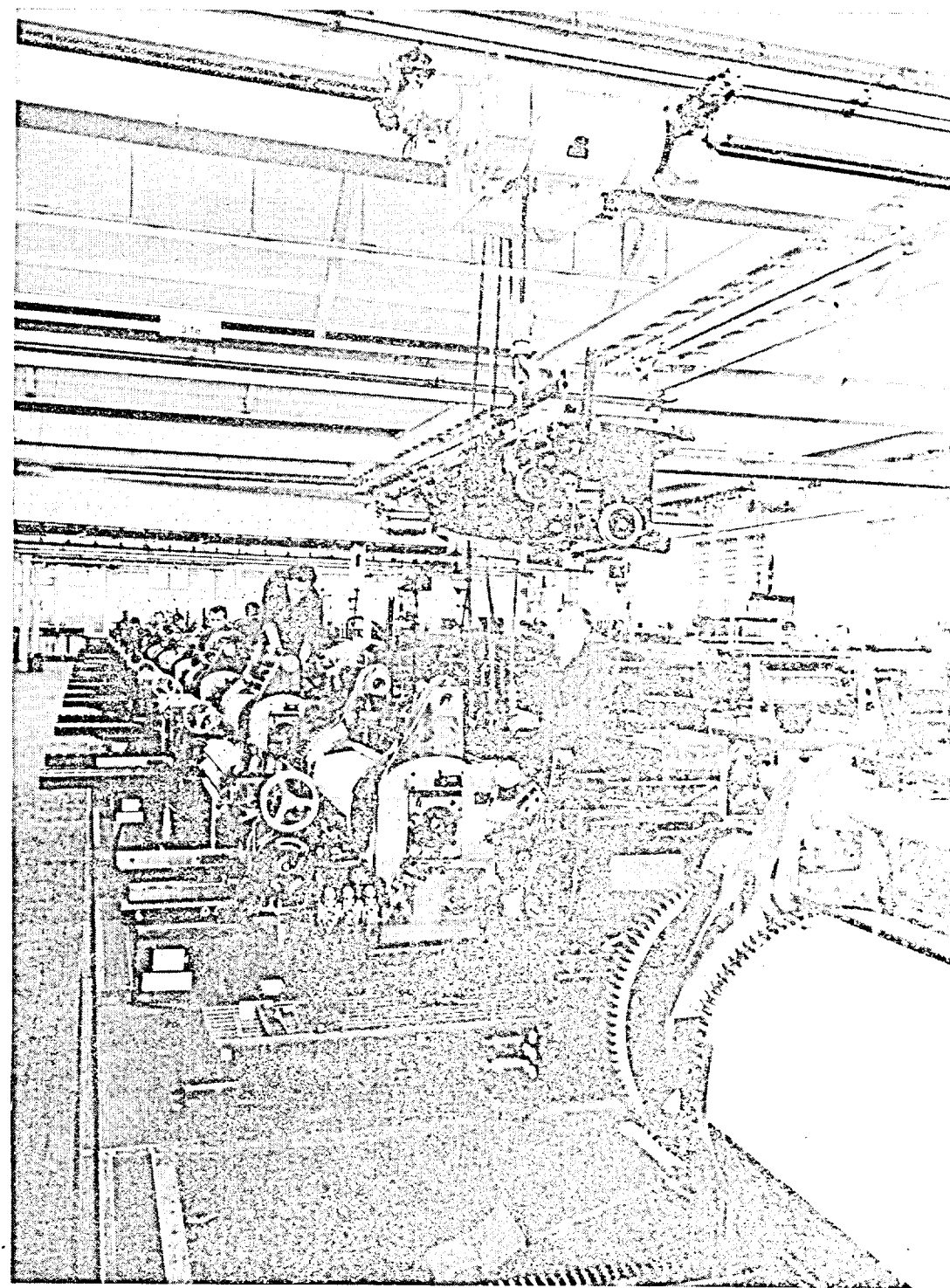
The stand of Herzog Heyman (Germany) at IPEX who exhibited a range of Automatic folding machines.



PRINTECH August 1955



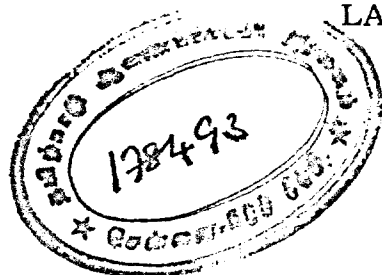
The Heidelberg Platen Press Assembly line using the conveyor belt system



The Heidelberg Cylinder Assembly Line



THE BEST, FASTEST AND CHEAPEST
MACHINE FOR COMPOSING ENGLISH,
TAMIL, HINDI, MARATHI, URDU,
BENGALI, ASSAMESE, SINHALESE,
BURMESE AND MANY OTHER
LANGUAGES



LINOTYPE AND MACHINERY LTD.
14, MADAN STREET, CALCUTTA 13

10/29, MOUNT ROAD
MADRAS

11/13, ELPHINSTONE CIRCLE
BOMBAY

India has just launched on a large-scale programme of printing education by the decision to establish four Regional Schools of Printing. Attempts had been made in different parts of our country at different times to start some sort of printing school but only two or three have survived. We hope one day some one will be able to narrate the whole story. A similar effort to tell the story in another great country which is far advanced in this field than ours, has been made.

We present here the story of Printing Educa-

tion in Great Britain, a story which is long and colourful, swift-moving and packed with incidents. The story has many morals for us also and if we have the vision we can learn lessons from this story and chalk out a course which will truly lay the road to real progress and prosperity.

We reproduce the following with the kind permission of Mrs. Beatrice Warde, the Hon. Secretary of the Educational Feature Organising Committee of the IPEX, in which connection this was compiled.

TRAINING FOR TOMORROW

IPEX (the Tenth International Printing, Machinery and Allied Trades Exhibition in London) was planned as a great industrial fair at which printers and their associates—and the innumerable consumers of printing—could inspect the latest machines and methods for the complex tasks of graphic multiplication. The British "suppliers", particularly of machinery, accordingly became the chief sponsors and, with manufacturers from other countries, the predominant exhibitors.

But the most important of all "suppliers" to the Trade is that profession which supplies it with nothing less than its life blood, namely, Technical Education. The panoply of modern mechanical equipment would be doomed to rust if there were lack of adequately-trained young recruits to labour and management. In shop or school, whoever is helping to fortify young blood with the regime of sound training is supplying something beyond price; hence the organizers of IPEX determined that no price be put upon the representation, at their Exhibition, of that great endeavour. Setting aside a whole floor of the Empire Hall at Olympia, they invited the Joint Industrial Council of the Printing and Allied Trades and the Association of Teachers of Printing and Allied Subjects to present there an exhibit explaining the background, new developments and aims of education for the Printing and Allied

Trades in Britain, with such reference as could be made to similar efforts in other countries.

The story to be told was in fact longer, and to the researcher more colourful, than any historical novel. Its latter-day events, in which training for crafts merges into education for industry, constitute almost a separate short story: one so swift-moving and packed with incident as to seem fantastic to men still living who remember when it all began. Where so many facts and statistics had to be presented succinctly, it was felt that an accompanying booklet would provide that aid to mental digestion which only the printed word can supply.

The Craft Background

The whole story mounts back exactly half a thousand years, for Johann Gutenberg and his fellow pioneers were as aware as any mediaeval Guildsmen that Johnny Greenhorn's ten thumbs must be disciplined into the adroit fingers of the craftsman. The apprentice printer, then as forever, began as a grubby lad who got in the way of hurrying adepts and would botch their tools if he were not watched. As the humblest member of the master's household he would creep to his bed in the attic, tired with menial tasks, to dream of the day when his actual lessons-in-skill would begin. His older colleagues saw to it that these should not



Mrs. Beatrice Warde, the distinguished Hon. Secretary of the IPEX Educational Feature Committee and a notable personality in the typographic world.

begin until the boy had learned (in the course of sweeping the floor, or being victimized by traditional hoaxes) the primary lesson of manual craftsmanship, namely, that ignorance is not simply pitiable but contemptible, that clumsiness is matter for ridicule, and that humility marks the beginning of receptivity.

In Caxton's workshop, as in Michelangelo's, the 'prentice might think himself lucky to be permitted—as other lads were not—to make himself useful in rooms where there would be a chance to watch skilled men busy at their "art and mystery"; and in time to try to imitate them, with the promise of a friendly cuff for every blunder. So long as printing remains a closed trade, and so long as it still demands from many of its artisans a high degree of manual skill, so long will "the shop" keep alive the basic assumption that what the trainee purchases

with his years of servitude under indenture is primarily the privilege of watching and imitating the skilled man at his job. No wages were paid to the apprentice in the centuries before the industrial revolution and his period of apprenticeship, usually about seven years, was sometimes longer.

The old indentures which promised that the apprentice would be taught "the art and mystery of a Printer" held out training in all the work that went on under the printer's roof, from that of the Compositor (whose primacy amongst all artisans was assured in times when skilled workmen were illiterate) to that of the Pressman, whose task called for great physical strength and sensitivity of hand and arm. Johnny Greenhorn's knowledge of the lay of the type-case was ground into him, for the first four centuries and after, by hour upon hour of "dissing" the letters of metal types from broken-up formes—wet formes from which cut fingers might absorb lead-poison. In the press-room he thumped the evil-smelling ink-brayers (before the days of rollers) between inking-table and type-forme and helped lay-on and take-off the successive sheets of damp hand-made paper from the wooden hand-press. His working hours, those of daylight, might be eked-out by candles in winter time. Less than a century ago, boys of nine and ten were working from six in the morning to seven or eight at night in London and provincial printing offices.

After seven years came the great day of his "banging-out": mallets and shooting sticks beat a pandemonium as the master handed back to the new initiate the other half of the cross-cut indenture form. John Journeyman was thereafter free to seek employment where he would, or free (granted such details as capital and licence) to set up his own shop. Whether he practised or controlled, or combined both offices, he would be part of a pattern of handicrafts, and all the materials of his trade—paper, type, the press itself, would be things made one by one by hand.

From Craft to Industry

In the year in which Watt patented his steam engine—1769—the printing press was essentially the same hand-operated mechanism that Caxton had brought to England. But that primitive wooden press, together with the hand-mould in which types were cast, had introduced to Europe the basic principle of mass production—the production by mechanical means of a series of identical objects. In that respect Caxton's trade had been a good three centuries ahead of its times. The product of the creaking hand-press gradually created a literate public large enough, and alert enough, to demand periodical intelligence and quick-fire controversy through the printed word. The periodical, a new development in human history, necessitated bringing out an entire edition on a pre-announced day of the week or hour of the day. In the eighteenth century that need was being met by the costly expedient of setting up the same matter in duplicate or triplicate so as to employ more presses simultaneously. The demand for news, opinion and instruction was outgrowing the wooden cradle that Gutenberg had built for it. The *illuminati* of the Age of Reason were thinking forward to the possibility of universal literacy, as the only safe groundwork on which could be established the universal adult franchise. The fulfilment of that seemingly fantastic wish waited upon inventors—and upon the coming of mechanical power—for a constant, copious supply of cheap printed matter.

At the beginning of the nineteenth century, that noble necessity was mothering a series of literally epoch-making inventions. The Fourdrinier paper-making machine replaced the hand-made sheet. Koenig's machine, in 1814, was printing *The Times* at 1,600 sheets an hour against the 600 of Stanhope's improved hand-press. Stereotyping and lithography were coming into use. The printing trade had entered its century of transition, from which it would emerge a fully-mechanized industry. But it could never in its nature be a *localized*

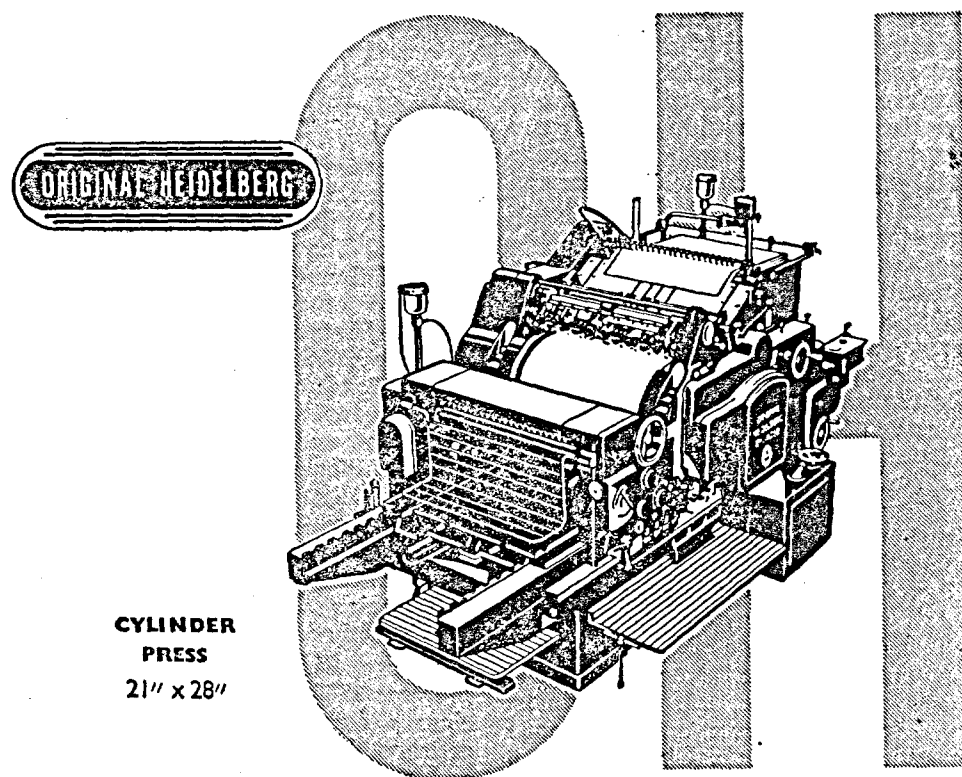
industry such as that of the potters or textile manufacturers; nor could it ever abandon, as the others did, the ancient craftworker's system of making specific goods "to order". Though printers were the first mass-manufacturers, printing itself was and is a service. Only one of its servants, the proof-reader, remained wholly unaffected by the Industrial Revolution; but not one of the rest could ever be relegated to the status of a button-pushing "hand" on a production line.

Beginning of Organizations

The artisans of the printing trade had been moving toward organization from the last decades of the nineteenth century. The rights of the apprentice were of first concern to all journeymen, who too often saw cheap child labour imported into their ranks. In 1848, previous attempts to create a nation-wide compositors' union resulted in the formation of the three great craft societies, which pressed for better educational opportunities for apprentices and journeymen. The notion of schooling as distinct from—though supplementary to—shop training had at least come into men's minds in those fiery decades 1800-1840 which the ideas of Bentham and Birkbeck had helped to set alight.

George Birkbeck, m.p., in Glasgow in the year 1800, had founded his mechanics' classes for the instruction of certain artisans. In 1808 a library was formed and a committee appointed. In 1823 the students set up under their own control the Glasgow Mechanics' Institution for the Promotion of the Arts and Sciences. The idea spread rapidly to other cities and by 1863 there were over 1,000 such centres in active operation in the United Kingdom. In some the library was the main feature, in other the lectures. As the middle classes took cognisance of the movement, it developed along two lines: on the one hand toward the public library system, which the Mechanics' Institute did much to foster, and on the other toward the modern technical college, of which Manchester, Birmingham and Leeds were early and particularly

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important instances. Nottingham's Mechanics' Institute was an example of the evolution of the original eleemosynary effort on behalf of workmen into an educational and social centre for the lower middle class.

The Great Exhibition of 1851, in its broad retrospect of industrial progress, focussed attention on the need for better technical education amongst the artisans who would henceforth be required not only to operate, adjust, and repair intricate machinery, but also to adapt themselves to successive technological changes—and to produce from their ranks the managers and specialists that the new age would demand. The Exhibition, a great financial success, provided funds by which vision could be translated into action. A Sub-Committee of the Privy Council was formed to deal with the training of the artisan: this set up the Department of Science and Art in South Kensington, from which in turn developed the Board of Education. The Department established examination schemes in technology and art, aided existing technical institutions, and helped to found many new ones.

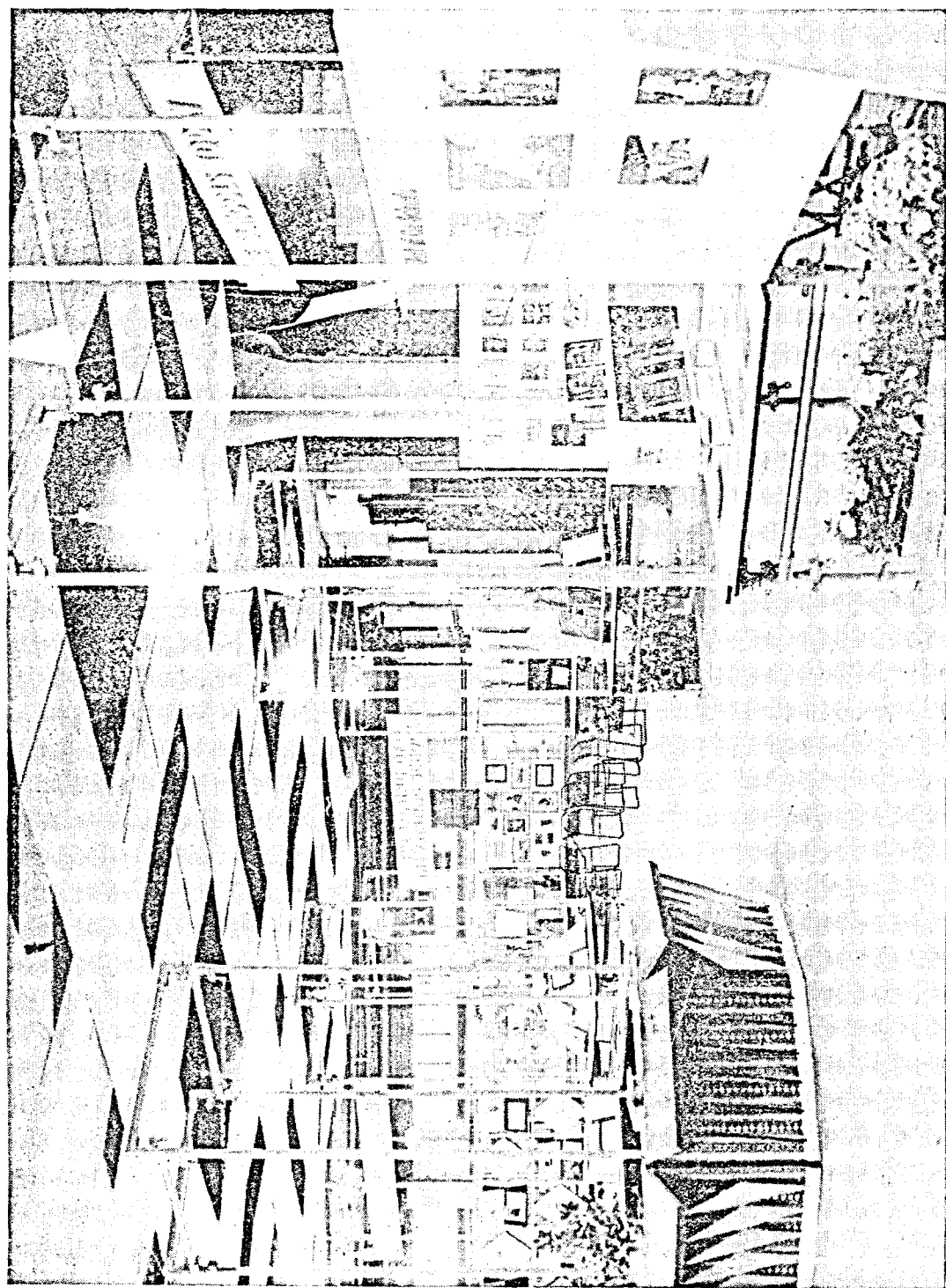
First Printing Classes

London's City Fathers were stirred to emulation. Ancient Guild funds were pooled to finance their new City and Guilds of London Institute (1878). The City of London embraced the famous "printers' mile"—at that time probably the busiest single geographical centre for trade anywhere in the world. In 1880, the Institute began offering examinations in Printing. The first candidates were shop-trained, but the idea of outside schooling was no longer disregarded. There had been sporadic experiments toward classes for printers' apprentices: in 1886 some 300 youths were attending classes in English, Arithmetic, History and Religion, held in Spottiswoode & Co.'s New Street School (for staff). Technological instruction was on the way. Technical schools were founded in Vienna in 1875, in Berlin in 1876, in Antwerp in 1880. In Britain, the year 1883 saw

the beginning of the Manchester Technical School and of the Polytechnic in Regent Street, London.

The Aldenham Institute in North-West London began holding printing classes in 1886 with G. F. Whiles and A. Betts as instructors. In the same year A. Oldfield began teaching at the Carlton Hill Boarding School in Leeds, Moses Prince and Samuel Hall began their classes at Derby, and the Nottingham Technical College opened classes in printing theory and practice. Within the next two years a lecture course for printers had started in Dublin, and instruction was being given at the Farningham (Kent) Home for Little Boys, as well as in Birmingham (under A. Oldfield), in Bradford (at the Technical College), at the People's Palace in London (under E. R. Alexander), and at the Edinburgh Typographia. In 1889, George William Jones, through the Metropolitan Branch of British Typographia, began that career of teaching which had so stimulating an effect upon the trade. He lectured also in Leicester, at the Ellis Technical School, and at the St. Bride Institute, London, where in 1894 that printing school was established which in due course was to develop into the vast and famous "monotechnic" which we know as the London School of Printing and Graphic Arts.

At the Borough Polytechnic, London, in 1892, the scholarly W. H. Slater and his associate W. Davies were improvising ways of teaching overcrowded classes. Lads who had to wait their turn at the type-cases were given paper and pencil so that precious minutes need not be wasted: the new notion of the preliminary pencil-layout was thus introduced to future jobbing comps. whose forebears had been accustomed to think their arrangements straight into the composing-stick. New ideas in design were in the air. The elaborate exercises in bent-rule and colour-tint work which had been the show pieces of manual skill gave way to experiments in massing space in that "free style" to which the efforts of Raithby Lawrence & Co., and their journal the *British Printer* attached the name of Leicester.



A general view of the educational feature "Training for Tomorrow" at IPEX described in the pages

Trade Unions' Efforts

The L.C.C. School of Photoengraving and Lithography at Bolt Court, which was eventually to merge with the London School of Printing, began in 1895 as the spontaneous effort of working craftsmen. By 1897 it was holding daytime classes. Goldsmith's Institute, London, and the Glasgow and West Scotland Technical Institute, opened in the same year. Throughout the country, the trade unions were activating the movement for better apprentice training—by taking part in advisory committees, by attending and encouraging young people to attend, trade and other classes, and by pressing for the formation of classes. Technical schooling, in the narrower sense, had found its feet before the turn of the century. The trade was looking after its own. A pattern of instruction was emerging: night school classes in which the ambitious lad could learn his job better (at his own expense of spare time and fees) than he could by "picking it up" from hurried older men. Ahead lay the possibility of occasional daytime classes as well. It was what we now think of as a "polytechnic" method of approach; a preparation for the technical intricacies and subdivided industrial responsibilities of the twentieth century. It pointed toward the great technological institutes of today, notably those of Manchester and Leeds, and to the mono-technic printing schools (Stow College, Glasgow, and the London School of Printing) which were to become important centres of research and of managerial training. School learnt from school; men who had attended classes volunteered for part-time work as teachers in newly-formed classes. The future of apprentice training seemed to rest between the "shop" and the trade school that was an extension and supplement to the best shop practice. And it might well have rested there wholly—had it not been that the educated world at large suddenly took a new interest in the printer's art during the 1890's, thanks to the glamorous essays in "fine printing" by the socialist poet William Morris and his associates in

the Arts and Crafts Exhibition Society. Their beliefs, and the detachment from the whole course of industrial-technical progress, were to exert a profound influence upon apprentice training. The "Arts and Crafts" tradition in schooling remained distinct from, and parallel to, the "Technical" tradition, throughout the next generation.

Morris's friend and adviser Emery Walker (knighted in 1930) persuaded the London County Council to start printing classes in connection with the Arts and Crafts School which opened in 1906 in temporary premises in Regent Street. The printing instructor was the late J. H. Mason, erstwhile compositor at the Doves Press. Mason was responsible to W. J. Lethaby, prophet and inspirer of the modern movement for better industrial design. Walker, as a Councillor of the L.C.C., headed the Printing Consultative Committee, into which were drawn such design-conscious master printers as Harold Curwen, Fred Phillips, Gerard Meynell, Richard Austen-Leight, Eaton Hart and others. All of them—and not least Walker himself—were sound technicians and realistic men of affairs. They formed the solid bridge by which the humane, idealistic spirit of the Arts and Crafts movement crossed the deep chasm which then separated "fine" from "ordinary commercial" printing—and entered into the field of printing education.

The First Day School

Brenchara Bransford, on Walker's advice, persuaded the L.C.C. to start full-time courses in "book production" for boys from 13 to 16, at the L.C.C. Central School of Arts and Crafts which was opened at Southampton Row in 1908. This was the first daytime technical school in British printing history. Its three-year course was completed by a shortened (five-year) period of apprenticeship. Students were selected by trade scholarship examinations in schools. Mason, instructed by Bransford to "train boys in and by means of a craft" used such historically and technically obsolete equipment as had sufficed to produce the glorious Doves Press Bible. He concentra-

ted on enlivening promising young minds. "Taught to think," some of his students eventually left the trade for much richer rewards in production and design studios; but others made up for such losses by becoming teachers or heads of their own schools and training a new generation of lads to be ready for the growing demand for staff typographers amongst the more alert printing offices.

Mason's first pupil, and Assistant after 1908 was Leonard Jay who in 1925 became head of the newly-established Birmingham School of Printing. While still at the "Central", Jay had taken advantage of the master's absence abroad to supplement the student's training work on exquisite limited-edition projects with some realistic experiments with advertising layout—in a day when typographic beauty and dignity in advertising still had the shock of novelty. In Birmingham, Jay boldly followed that principle on which the Nonesuch Press had been making its strong influence upon commercial book publishers since 1922; that of translating the spirit and design-honesty of the archaistic "private presses" into terms of modern mechanical production of the highest standard. In Camberwell, in Leicester and in many other parts of the country, one could see the "Doves Press sort of thing" being graciously reconciled to the practical demands of industry. Mason's spiritual children and grandchildren are "teaching them to think" in many famous schools today, but they no longer resort to the ancient Albion press to instil their lessons.

The Vision of Cameron Smail

Fortunately for that scholar who will some day explore the history of the training-school movement, there exists a remarkable document covering the pivotal years 1908-1914 in the London area. but with ample reference to parallel printing centres in the provinces and on the Continent. This is the Report to the London County Council Education Officer by J. Cameron Smail, as Organizer of Trade Schools for Boys on *Training and Employment in the Printing Trades*. It

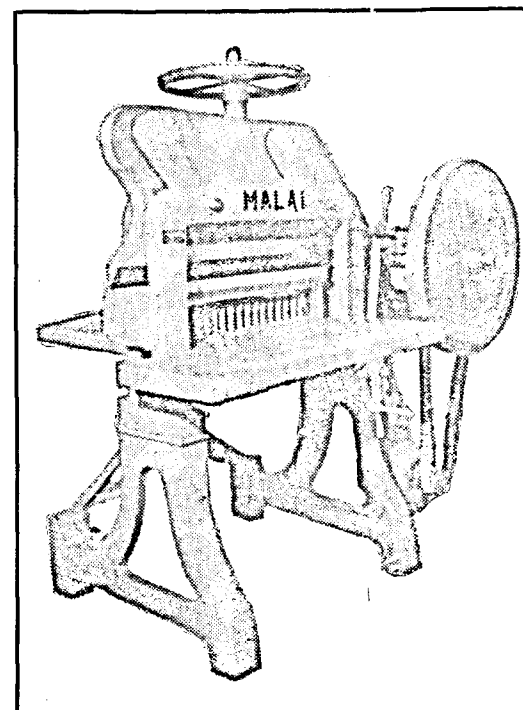
was written in 1914 and published in 1917. On a wide, solid base of factual research (including personal interviews which anticipated the Mass Observation technique), it built far-reaching recommendations, some of which led to the merging of different training centres to form the London School of Printing. It is the work of a man who was well aware of the unusual significance, to industry at large, of what happens to the printing trade. To judge from the directly-quoted comment, the opinion persisted amongst the masters that printing could not be taught; it had to be "picked up" by imitation in the shop. Here and there a journeyman was paid a little extra for the time spent in helping such lads as wanted to get ahead. Now and then "the men" were "too jealous to teach them." By and large the masters regarded technical classes as "useful and helpful." Some firms were allowing occasional afternoon time off for attendance at such classes. One manager is quoted as having "great confidence in the London man, who, he considers, has not long awakened to the fact that his trade has become a highly scientific and technical one, and that he must advance with it.... He has no doubt that if the trade were recruited from a class of boy of higher educational attainments than it is at present, it would vastly benefit.....".

By the time this report was published, and increasingly in the following years that manager's obiter dictum was being echoed in the trade. New ideas and techniques were developing from outside the industry. It was realized that the post-war younger generation would need a basic knowledge of the related principles of science and their applications, as well as thorough craft training, to meet this challenge. Physics, chemistry, mathematics and engineering would all have to beckon Johnny Greenhorn toward a responsible job.

Science to the Aid of Technique

In 1922 the London School of Printing took over the school that had outgrown its premises at St. Bride Institute, and became chiefly supported by the rates.

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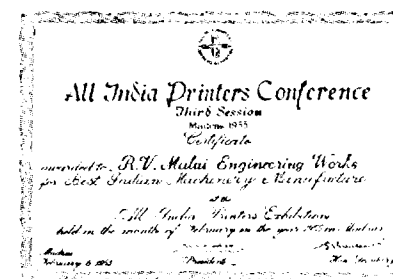
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Though some schools had already been receiving grants, this transference of financial responsibility marks a new era. As Principal of the L.S.P. the late J. R. Riddell performed prodigies in securing help and equipment from the industry. It was on his initiative, too, that the Stationers' Company established their own examining Technical Board and organized a series of craft lectures by eminent authorities. But perhaps the most significant development of all was the inclusion in the L.S.P. curriculum of Applied Science in relation to the printing crafts. Similar Science courses, in reproduction processes, began at Bolt Court and at the Manchester and Leeds Colleges of Technology. In their nature such courses called for costly equipment of a kind never found in the normal printing office. The industry did what it could, but it was a clear case for help from the local educational authorities, and the call did not go unheard. In the decade from 1922, evening classes were held at the L.S.P. in Metallurgy for stereotyping and electrotyping apprentices and in Printing Ink and Paper for printers. Already the Heriot-Watt College, Edinburgh, was teaching Machine Drawing and Mechanics for printers, as was the Manchester College of Technology. In 1932 the L.S.P. appointed its first full-time specialist teachers of Science and of Mechanics.

The following decade saw swift progress in many directions, as curricula branched out like healthy trees. Not only the full-time students at the L.S.P. (in effect, those destined for management) but also all senior part-time apprentices on day-release attended Applied Science classes. The subject found its place in various technical courses at Bolt Court, at the North-Western Polytechnic, at the Camberwell School of Arts and Crafts, at Stoke School of Art and Stow College, Glasgow. Scientific investigation was increasingly undertaken at the L.S.P. and at Bolt Court, often in co-operation with the Printing, Packaging and Allied Trades Research Association (PATRA). That distinguished industrial research centre now has subscribers far and wide

amongst the printing schools of Britain, and is sure to attract many more in time.

If there had been any doubt about the practical value of this laboratory approach to twentieth-century printing problems, the experience of the Second World War resolved it. Between 1946 and 1948 Applied Science found its way into the City and Guilds of London syllabuses, and counted towards its coveted Full Technological Certificate. One by one, the leading provincial centres for printing training secured the funds and staff to introduce Science into full or part-time courses. By 1953 the L.S.P. had five well-equipped laboratories, and the Printing Department of the Watford Technical College had its full-time specialist Science teacher.

The trade naturally viewed with concern the coming of compulsory military service as a profound disturbance to the apprentice's career. But the Joint Industrial Council of the Printing and Allied Trades, which from its formation in 1917 has been an exemplar to the nation's industry in its method of uniting employer and employee on genuinely common causes, rallied to what will always be its greatest constructive task, the defence of the interests of youth. The "Training for Tomorrow" feature of Ipex includes some explanation of ways in which ambitious lads may gain, while in the Forces, not only a better general education but also the help of special courses in their chosen branch of the printing trade. The J.I.C. leaflet on *How you can Continue your Technical Education during National Service* stresses the point that "unless you yourself take the initiative by informing the Education Officer of the Unit of your requirements you may not be able to make use of the widespread facilities available."

Today and Tomorrow

The Education Act of 1944 is a milestone in the history of technical education in Great Britain. For the first time in history it became mandatory upon local educational authorities to provide educational facilities for any industry or

profession in which a provable demand existed. If the number of candidates did not justify holding a course locally, then they must be sent to the nearest suitable centre at the local authority's expense. Legislative action has thus confirmed, for the printing industry as elsewhere, the basic assumption on which the pioneers had been working for half a century: namely, that the future citizen learning a trade or profession has the moral right to specialized training and that mature men of the right calibre must also be assured of opportunities for advanced studies.

It would be unrealistic to suppose that the whole immense, trade-wide effort which has resulted in the establishment of some 140 printing training centres in Britain today was inspired by pure zeal for the rights of the citizen. Commercial self-interest played its healthy part. If Johnny Greenhorn's clumsiness was a trial to the old manual craftsman, it was a positive menace to the costly new machine on which some contract job was being rushed out. The school could be seen as a place where the lad could ask questions and make his beginner's mistakes without exasperating and interrupting his older colleagues. It paid the local printers to contribute equipment and part-time teachers to any newly-formed printing classes at the "Tech" or art college. The suppliers of machinery and equipment, too, had realistic reasons for being generous to the schools. New techniques could conveniently be introduced through such a centre, and operation methods taught in advance of the entrance of the new equipment into the shop. It was also, and it still is, of great importance to the trade to be able to count upon the school as an indoctrination centre for the habit of tidiness and that pride in efficiency which comes with the chance to work amongst up-to-date equipment.

A similar respect for hard facts lay behind the generosity with which many printers supported the schools' efforts to attract first-rate teachers of typographic design, and to set the students to work upon projects of limited-edition quality

and dignity. Even such business men of the trade as looked with suspicion upon the very work "art" were being forced, after the First World War, to admit that free lance designers and agents were too often taking control of jobs and contracts through their greater willingness to innovate and reform typographic style. To hit back against such middlemen it was imperative to raise up a generation of design-conscious craftsmen. But training in design starts by inciting the students to ask *why* a given thing is done this way and not that way. That question can be highly disconcerting to any foreman-compositor who has inherited from the remote past his sense of the sanctity of the accepted House style. For one modern printer who has ever been asked to suggest something novel and different in the way of a layout, thousands since the sixteenth century have been depended upon to know how a given kind of book, pamphlet or broadsheet ought to look—in effect, how to prevent it from looking "different." The notion of actually encouraging lads to ask irreverent questions about the look of print—if only to lead them into some interest in the reason behind stylistic rules—is alien to the atmosphere of the normal printing office: yet somewhere that encouragement had to be offered if the future craftsmen were at least to understand psychology of the professional designers whose pencil layouts they would have to follow or interpret. The school provided such a centre, and in some cases even allowed trade apprentices to form friendships with future commercial artists and designers. There, the whys and why nots could be discussed safely out of earshot of the shop.

Paradise of Opportunity

There was even a hard-headed reason for encouraging those heads of printing schools who dared to act on the principle that every student of the craft had the right to the experience of helping to create, at least once in his lifetime, a work of splendour and dignity. Limited-edition work has this advantage as a training ground for craftsmanship, that

it tolerates no excuses whatever on the score of time or cost. The schools that put students to work upon projects reminiscent of the work of the Doves Press were able to remind business printers that the appetite for perfection gained in such an adventure would be an asset to future craftsmen and managers, and that there must be one centre in every locality where the apprentice could stop and think about what he was learning to do, without having to see the face of the clock frowning its reminder of the passing minutes. There were enough spectacular successes for this point of view, in terms of small printers set on the road to prosperity by ideas brought in from the school, to ensure that the phrase "technical training" would never be in danger of being taken to mean only what it strictly implies—training in manual skill and mechanical know-how.

In the section of the IPEX Educational Feature that invites us to "look ahead,"

there will be a glimpse of the ever-widening opportunities that are now opening up to any likely lad in the trade, as industrial and educational plans mature. The Johnny Greenhorn of today can win his way to the status of technical expert or designer or manager, in the knowledge that the J.I.C. is vigilant for his education, that the Association of Teachers of Printing and Allied Subjects is intent upon "improving and developing all aspects of education for printing and allied subjects;" that the City and Guilds of London Institute is about to implement new schemes for his advanced education—and that no narrow canalizing will make of him *either* the sort of "techspert" who professes unconcern about the effect of the job on its ultimate reader or the sort of designer who confesses ignorance of the technical facts of life. Johnny will retain his centuries-old title of Printer's Devil; but the prospect before him would seem, to his nineteenth-century fore-runners, a veritable Paradise of opportunity.

SMALL OFFSET MACHINES

By R. G. PHADKE, B.SC.

Diploma in Lithography, City and Guilds (Lond)

MANY and varied have been the views expressed on the subject of small offset machines, often of a controversial nature, both in this country and abroad. The object here is not to add more fuel to the fire, but to state certain basic facts regarding small offset machines. Unfortunately very few in this country have realised the vast potentialities of this type of printing machinery—and the word 'Printing' is used here, not 'Duplicating.'

Two views are generally held by the average printer on the small offset—one is of scorn and the other is of apprehension for a new competitor in the field. To those who hold the former viewpoint, all one can say is that they apparently have not given much thought to the matter; to the latter group these little machines can be extremely useful as auxiliary equipment. Few know that absolutely first class results can be turned out by utilising the good old hand-treadle along with the small offset machine and that too at amazing speed.

Type-set matter can be pulled directly on to the metal or paper plate of the small offset machine, and prints can be run off at 4,000 to 5,000 i.p.h. For a superior result, all one needs is a good impression from the treadle on art paper. A negative of the matter is prepared using a process camera, this is transferred on the small-offset plate which is now ready for printing. Consequently a large amount is saved annually on less wear and tear of types.

Of course, matter can also be typed, written or drawn on the plates directly.

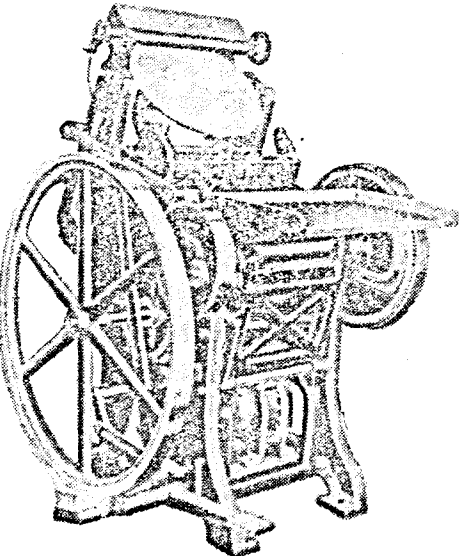
This could be a boon to the small printer whose general class of work is invitation cards, greeting cards, small advertisement pamphlets, hand-bills, etc.

One of the great advantages of these machines is economy. The cost of a job increases with idle machine time and delays in changing over from one job to another. Here are the machines which cut overhead costs to a minimum, with change-over accomplished in a matter of minutes, low power consumption and less floor-space occupied.

Amazing adaptability which enables a wide range and class of work to be taken up is another advantage. Let it be letter-heads, forms, circulars, pamphlets, small posters, superimposed multicolour work, etc., all can be handled by these machines. This is possible because anything from the cheapest newsprint to superior offset paper can be used.

Then there is simplicity of operation to be taken into consideration. A raw-hand can be trained to operate these machines in a matter of days! Ability in reproducing multicolour jobs will come only with experience. Of course, in the hands of an experienced printer consistent high class work can be turned out.

There are the critics of this type of machine who claim restricted paper size as a disadvantage. But they forget that these machines are meant to handle a certain class of work where a larger size of paper is not required. Besides, beyond a particular size, it would get into the large offset machine range, and many of the advantages mentioned above would no longer exist.



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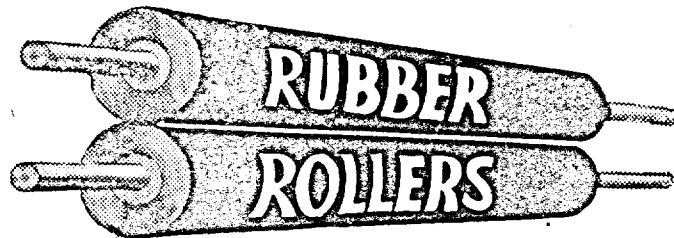
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The Industrialist And The Student

T. S. MARTIN, F.I.I.A.

(Director and General Manager of Staples Press Limited, London)

Here is another article on the theme of printing education. It is the first part of a talk covering a wide field of training problems of the printing industry, many of which are common to all countries.

It is many years since I had direct contact with a printing school, and apart from my brief work with the City and Guilds Examinations, I am not in a strong position to comment on the facilities and the curricula available to present-day students. Although I have looked through the pages of the current prospectuses, I can only expect to get a surface knowledge from such reading, and you will know so much more of the character, the morale, the soul of the establishments within which you teach.

Possibly I may claim to know a little of the human material upon which you work (we have some sixty apprentices at present working at the factories) and we have a good opinion of them, and believe they must represent a fair cross section of the trade. They seem much the same lads I knew about thirty years ago, very willing to dodge work but, with opportunity and incentive they respond wholeheartedly, and with intelligence. We cannot subscribe to the view sometimes taken that youth today lacks that good sense and stamina upon which their fathers and grandfathers were made.

To obtain a reasonable perspective it is helpful to consider the background of the subject, and although the printing trade may claim they are in the forefront of technical school education it is relevant to consider the brief number of years which precede the present position. I believe the first attempt to set up a school for the training of printers was in a small way in London, at the Aldenham Institute, in the year 1890—just over sixty years ago. This was soon followed,

as you know, by St. Bride's Institute at Ludgate Circus, which many of us attended, and we can well remember the year when it closed as a printing school and we moved to Stamford Street.

There are many printers still living, and indeed still working, who recall their early apprenticeship days when the craft was handed down from the master or the journeyman to the apprentice. In fact, I believe it is true to say that outside London it is only in comparatively recent years that printing school education has become available, and then often only by travelling long distances.

Impressive Figures

I understand that the number of full-time printing school instructors throughout the country was thirty in 1938 whereas today it is nearly 200, and far more are needed. In addition there are now 1,000 part-time teachers, and a growing demand for them. The number of student hours in 1954 was ten times greater than in 1928. Over £2 million has been spent on advancing our technical education during the last six to seven years. It was most impressive to read that last year, at the L.S.P. alone, they had 6,500 students with a total of 922,000 student hours, and that they had students from twenty other countries, including men from the U.S.A.

It appears that the printing industry has been conscious for many years of the benefits to be obtained from technical school education. Well over thirty years ago hundreds of boys were voluntarily released one half-day each week to attend school.

I understand that the Education Act 1944 recommends compulsory part-time education beyond the statutory school-leaving age, and that one day each week is mentioned up to the age of eighteen

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years. Also that the Apprentice Training Scheme of the Joint Industrial Council of the printing industry recommends that apprentices be released to attend classes one whole day each week, throughout the period of an apprenticeship.

I do not doubt that industry has similar views to those of the Educational authorities and the J.I.C. providing they are satisfied on two points:—

1. That industry has a reasonable supply of labour, and
2. That the schools are ready and equipped for the wider training.

I have been given to understand that some disagreement does exist over this subject, between employers and the trade unions, and although I am not fully informed I can well appreciate the employers might well be reluctant to agree at this stage, owing to the acute shortage of labour, to national service, and to the severe restriction on the intake of apprentices.

Full Day Classes

On the other hand I suppose it could be justifiably stated that only wider technical education will alleviate the shortage of manpower. But this is a long term view, and I knew from experience it can be quite difficult to see this view when a department is reduced well below its normal strength.

No doubt a full day at school will eventually arrive for all apprentices, and I can readily agree this step now for young men up to the age of eighteen years, but if it comes to releasing people over this age I trust the authorities dealing with this subject have given due consideration to two other factors (1) that evening classes provide the opportunity to use part-time teachers who thereby keep daily contact with industrial conditions, and (2) it is character-building for men of eighteen years and upwards to give of their own time to further their knowledge and efficiency, and it indicates those who are enthusiastic. We are all prone to disregard the bene-

fit of anything freely obtained. There are the exceptions, of course, where apprentices have long travelling times to get to and from school.

Perhaps I am wrong and old-fashioned about all this, and quite out of touch, but I must express my uneasiness even if an evening class is enforced, on to the end of a full day release. I doubt whether a compulsory evening class will achieve the desired results.

During the war years I believe the schools commenced excellent correspondence courses for men in the Services, and I feel these might well be extended, especially for the boys who are serving during their apprenticeship, with a view to keeping them in touch and to the saving of school time, when they return to the industry.

Need For Corporate Body

I must admit I have only recently learnt of the existence of the Regional Advisory Council for Higher Technological Education, but I have read a recent curricula which they have issued as a guide for the training of compositors, machine minders, and binders, and I am sure you agree it is worthy of the closest attention, and application. If I may say so, it indicates a vision and understanding, and if it is possible to adopt the recommendations it will assist to blend the subjects which the young student has been studying up to the school leaving age of fifteen—with those of his new technical subjects—and this might well provide that greater breadth of education. The report has many other excellent recommendations, which I am sure are well worth adoption, if not already in being.

I readily admit, that I may not be aware of the present full structure of the governing influence behind the drive for full and more complete education for the printing industry, but it does seem to me we must, eventually, the sooner the better, have one corporate body.

I suggest the trade needs to commence, with all speed, the formation of a British Institute of Printing, to be

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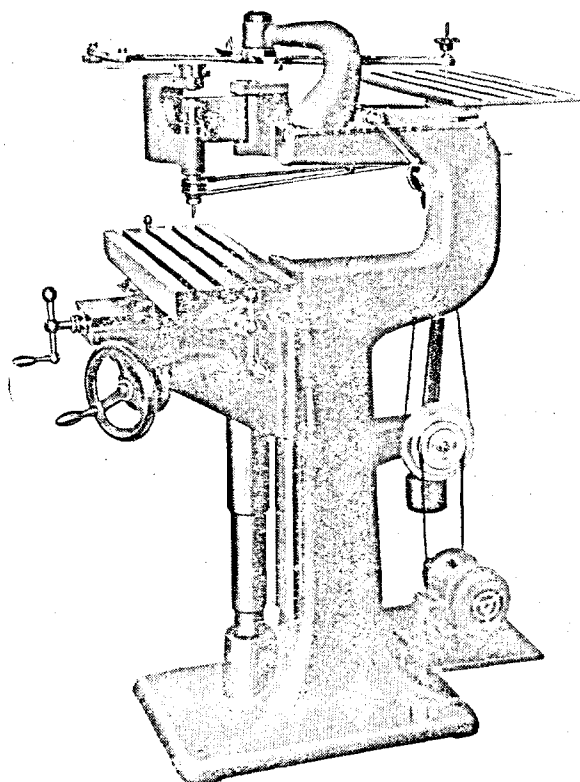
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granted by Royal Charter (I am quite willing to part with the words 'Graphic Arts!').

The Institute will eventually develop a university type of background or environment, and all printing colleges will be attached to it. It should be fully representative of all interests and all links to printing—paper, ink, engineering, design, management, science and research, including PATRA.

This is, no doubt, a long undertaking, but I hope you will agree with me it must eventually be achieved. I trust it will not be long before all sections of the industry meet together to prepare the foundations.

I visualize that the body should include the whole teaching profession, the managerial and executive side of the industry, and all other interests, linked by examination, and by technical, social and other activities. Please do not feel that I am in favour of regimentation for the industry, or anything that may stifle the enthusiasm and freedom of teaching, or anything else. Once all interests are conjoined and represented decentralize as much as possible, of course, but let us be sure we have a corporate body in the fullest meaning of those words. The trade is disintegrated in many ways, perhaps by reason of its rapid growth and development, and various vested interests, and it would appear to me that technical education is no exception.

To The Newcomers

I hope and believe you agree that the examination and pre-selection of potential apprentices by the J.I.C. committees is working well, and that the intelligence and standard of education and aptitude of the boys now entering the industry is therefore of a higher standard. I hope the schools are finding it necessary, even in these early days, to adjust their training courses accordingly.

It would be helpful to schools if the trade enrolled their apprentices during one agreed month of the year, so that newcomers to the trade were more readily accommodated to existing courses. The subject has problems in other direc-

tions, but it may be worthy of exploration by the trade.

When an apprentice enters a technical school for the first year or so, I would stress the deep importance of revealing the heritage of the past, the early days and development not only of printing, but all that is linked to it. The beauty of words, of lettering, of white spacing, of accuracy, and so many other treasures. Perhaps the schools might make an even greater long-term contribution to the standards of the trade by encouraging the boys to make more and more visits to the wealth of interest available in the museums, libraries, and other historic places throughout the country; not only to study the jewels of printing, paper and binding, but to study, to recognize and to make friends with good reading, good design, music, and good anything, whenever it is used. I know the technical schools have comparatively little time to tackle this project in the way it deserves, and that some visits *are* arranged, but I feel we might find ways and means to encourage still further, so that once started the boys will want to continue themselves, either in groups or, better still, alone.

I sometimes wonder whether opportunities exist in the schools for evening discussion groups. I have in mind an occasional get-together of compositors and, say, machine minders, with a view to an exchange of thoughts. It may prove time well-spent, especially for the more senior and enthusiastic apprentices.

Study of Words

In my early days at St. Bride's I so well remember Mr. Sayers breaking down or analysing various words into parts or syllables, explaining the origin of the parts of words and how they were eventually conjoined to represent their present meaning. The subject may sound 'dry', and in any case you might feel I should have finished with all that in my earlier days, but the way it was put across, was fascinating, and, I believe, for the first time opened the door for some of the students to the possibilities and existence of that vast Aladdin's Cave

which contains so many gems for those willing to search.

It is good to consider the effect which technical training has had on apprentices and journeymen, over the last twenty to thirty years.

There is no doubt that a vast change has quickly been made towards greater and wider technical skill in the various operations of each particular craft. In the composing department, for instance, it is not unusual for a third or fourth year apprentice to be a most useful member of the department. Gone are the days when a lad spent his first and second years sweeping around the shop, dissing pie for weeks on end, and making tea.

Machine Apprentices

I can well recall a fairly large composing department in London where only one compositor knew the supposed mysteries of imposition, and every scheme was chalked by him on the stone. You may think there was nothing wrong in this because it was a method of labour-saving specialization, as indeed it was, at times; but I do know the other compositors were puzzled by imposition and they regarded it as outside their work. As you know, there were also pica-thumping comps, display comps, tabular comps, make-up comps, and so on. I am quite sure the average conscientious student is a far more useful all-rounder to industry than ever before.

Taking three or four of the main trade departments for comparison, i.e., composing, machines, binding and warehouse, the results of technical training are not so speedily apparent in the machine apprentices. This may be a very broad statement and, possibly, an unfair one, because it is only an impression.

I feel that the students need more time actually working machines, and I realize these conditions are difficult, for many reasons, to provide. Much can be learned, of course, by theoretical training but where machine minders are concerned, whatever the process, I would say that considerably more running hours on machines are needed. Colour matching is

also, I feel a weak spot in the industry and ink manufacturers do not seem much stronger themselves.

Whilst on the subject of machines perhaps we may agree it is a recognized fact that our scientific and engineering progress is in advance of the average knowledge and experience of the trade and, indeed, of management, and I wish to express my doubt as to whether the schools have anything like sufficient up-to-date equipment to bridge the gap. And it must indeed be bridged. The subject of keeping abreast with the facilities our engineers are providing appears to be a serious one. Industry needs to be better acquainted and trained to reap the full benefit from mechanization, and we must look to the schools still more. I realize all this means money, more plant, more buildings and instructors, but it must come, and soon.

The problem of output is not only one of keeping abreast with the engineers. There is also perhaps the necessity for sending the students back to industry more conscious of the need for more speed (with quality), and assurance that the average daily output of, say, a quad crown letterpress machine should be a thousands today—and not the lower figure to which perhaps they and their fathers have become accustomed. The schools can help a great deal in this direction.

I realize this may be a precarious topic to raise, and so much depends on plant and leadership, but I have faith that increased output from machines is largely a matter of habit, morale, goodwill, and knowledge of the capabilities of a machine, and that the official policy of the trade unions is in favour of all reasonable methods which assist to compete with competitive centres abroad, and to reduce costs for the home market, especially in view of the challenge from office machines.

Industry is suffering from the acute shortage of labour. By this word 'suffering' I do not mean managerial headaches which follow such a position. No, by 'suffering' I mean the trade is suffering,

because much additional cost is being carried by the exceptionally heavy overtime from the existing personnel, and the frequent unbalanced flow of production often caused by the scarcity of labour. Just a few more words concerning day students. I feel that industry would wish to stress the importance of journeymen and apprentices being more conscious of the need for accurate completion of the daily docket—the crux of any costing system. I mean, of course, the recording of the correct analysis of how each hour has been used even if it does mean weaknesses in management.

One of our London managers recently mentioned that two compositors came to see him in reply to his advertisement for men, and they kindly offered to commence work if they were guaranteed substantial regular double-time overtime pay. The manager concerned happens to be good at quick replies (even if not always 100 per cent accurate), and he said the hourly rate which his customers agree to pay would not stand a double wages rate. The applicants replied that they knew the hourly rate he was charging in London, and that even after paying them double time there was still 2s. margin for him.

I doubt whether these men had ever attended a printing school; but as a precaution it would be good to know that all students had every opportunity of understanding the cost elements other than wages. I believe this subject is now well covered in, at least, the larger schools, and I am sure it will ultimately help the trade in many ways.

[Reprinted from the Association of Teachers of Printing and Allied Subjects Bulletin with the kind permission of the author.]

Another Printing School in India

THE Government of Orissa have started a School of Printing at Cuttack from July this year. Two different standards of courses are offered: (1) An Executive Training Course in Letterpress and Lithography of three years full-time duration for those who have passed the Matriculation Examination. (2) Workers' Training Course of two years full-time duration in eight different subjects for those who have completed at least Class X course of High English School.

The different subjects offered are: Hand Composition, Lino-Composition, Mono-Composition, Press and Machine, Binding, Stereotyping, Process-engraving, Lithography including Photo-litho Offset.

About 50 trainees are to be recruited. Necessary equipment for practical training in all branches of Printing is available. The Superintendent of Government Press, Sri S. H. Khan, M.A. (Cal.), F.R.S.A. (Lond.), A.R.P.S. (Lond.), is Ex-officio Principal of the School.

The Hony. Secretary of the Indian Federation of Printing Technologists extends a warm welcome to the Staff and the Students of the School of Printing at Cuttack and requests them to enrol themselves as members of the Federation. The Membership Forms can be had from the Principal of the School or from the Hony. Secretary of the Federation, 61 Armenian Street, Madras-1.

PRINTECH is sent free to all our members, who are technically trained printers, spread out all over India in several printing establishments of varying sizes. It is also being read by several other Master Printers who subscribe to the journal.

Subscription for Non-members: Rs. 3 per year.

All payments should be sent only by Crossed Postal Order or Cheque, made payable to the Indian Federation of Printing Technologists, Madras. Please do not send Money Orders.

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VARNISHING

By S. BHANDARI

Managing Director, Indo-European Machinery Co., Ltd.

The author who heads one of the reputed firms supplying printing machinery in India, is an ardent well-wisher of our industry. Having widely travelled and seen many international printing exhibitions he has acquired a rich knowledge of various machines and processes. In a concise article he packs a wealth of information on Varnishing.

THE coating of printed paper or board with a film of varnish imparts a high and durable gloss to the surface of the material. It also materially sharpens the printed image and enhances indefinitely its freshness and appeal.

There are several types of varnishes, each having its own characteristics and accordingly being suitable for specific application. Different classes of work derive the greatest benefit from varnishing if they are given the right type of treatment and varnish best suited to the material and most likely to give the required result.

TYPES OF VARNISHES

OIL VARNISH. This has a very good build and provides high gloss. It is specially suited for application to porous surfaces. It can be applied through normal letterpress machines, by over-printing. It, however, dries slowly and may create trouble through its tendency to stick the sheets together when they have been stacked.

SYNTHETIC VARNISH. This is free from the disadvantages of oil varnish. It must be applied by varnishing machines and dried by infra-red driers. This type of varnish produces a very high gloss and

a durable surface. It is grease-resistant and very suitable for packaging of foods, etc.

SPIRIT VARNISH. Because of its low cost, ease of application by a varnishing machine and excellent colour retention, the spirit varnish is the most popular type. It yields an extremely hard surface with a high gloss. It is, however, prone to show the effects of abrasion and folding. Spirit varnishes also include tint varnishes, which lay a transparent tint over the paper at the same time as they impart the gloss, thus producing an extra-colour without additional printing.

CELLULOSE VARNISH. This yields a superb colourless gloss, a skin which has excellent flexibility and a non-rub surface, which is grease-resistant. It is ideal for book-jackets, show cards, etc.

WATER VARNISH. This does not produce a very high gloss as spirit or cellulose varnish, but gives an attractive egg-shell texture. It is odourless and tasteless. It is widely used for treating surfaces of playing cards.

METHODS AND MACHINES

Many types of varnishing machines are available. The general principle is to apply the varnish to the sheet by means of rollers. The method of drying affects the finish considerably and is one of the secrets of success. Many years ago, varnished sheets were dried by hanging, a method both slow and expensive. Modern machines, of course, employ infra-red tunnels with a cold-air blast at the delivery end to cool down the sheets before

stacking. The machines are available in various sizes.

MATERIAL TO BE VARNISHED

The selection of paper and boards for varnishing is very important. The main factor is that their surface must be hard, so that the varnish is held on the surface and not absorbed into the material. The best results are obtained on coated paper.

The ink is also an important factor in achieving good varnishing results. Certain inks may be affected by spirit which is used with the varnish. It is always advisable to consult the ink manufacturers, to obtain correct inks for varnishing.

STRIP VARNISHING

Strip varnishing is often used in connection with varnishing of labels or cartons. This process needs a certain amount of experience to obtain good results.

AIFMP Governing Council Meeting

The Secretary of The Hyderabad State Printers Association writes:

"The Governing Council of the All-India Federation of Master Printers will meet at Hyderabad on 5th and 6th November, 1955. The Hyderabad State Printers Association has arranged for the site-seeing programme in the city for the members after the Governing Council meeting.

"Members of the Governing Council of the Federation are requested to intimate in advance to the H.S.P.A. office address about their attending the meeting, so that the necessary arrangements may be made."

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MONOTYPE USERS OF THE WORLD MEET

Monotype Users from at least 40 different countries of the world attended the luncheon given by the Monotype Corporation Ltd. in honour of the London and District Monotype Users' Association at the Connaught Rooms on July 12.

This annual festivity which normally takes place in the spring had been postponed in order that it might coincide with the International Printing Exhibition. Among the 400 guests were many well-known Master Printers from the Continent and the Commonwealth.

Mr. Eric J. Harrison, Chairman of the London and District Monotype Users' Association proposing the toast of the Monotype Corporation coupled with the name of its Chairman, Brigadier Sir George Harvie-Watt, BART., T.D., A.D.C., Q.C., M.P., said that in view of Sir George's distinguished connection with the Territorial Army, it must be a source of immense gratification to him to see "unit after unit" marching from Monotype casters with perfect precision and alignment—"shining faces looking up and standing on firm feet." He congratulated the Corporation on the technical progress it had made in recent years.

The Chairman, in responding, welcomed the guests who had come from the four corners of the earth. There had been a tremendous advance in techniques since the last International Printing Exhibition. On his arrival at the luncheon he had been shown a snap-shot of the Monotype stand at the 1904 exhibition. To modern eyes the machines shown there had some resemblance to those ancient though honourable motor-cars that annually drive under their own

power to Brighton. The Corporation stand at IPEX gave indications of the advances that have been made in recent years.

Many of the guests had recently visited the Monotype Works and had seen the new machine shop, the large new matrix factory and the new administrative building. Undoubtedly they had also seen the new Monotype House at 43 Fetter Lane, "the traditional and ancient headquarters of the Corporation" that was now rightly looked upon as the centre of its activities.

In recent months, Sir George continued, he had visited Australia, New Zealand and South Africa and he looked forward to visiting other parts of the world in the near future. These opportunities of meeting Users had inspired him with the feeling that in some sense they constituted "a great family," with many ideals and purposes in common. That curious feeling of relationship ran all through the social meetings of Monotype Users.

The vote of thanks was proposed by Herr H. Wyss, President of the Swiss Master Printers Federation and member of the International Bureau of Federations of Master Printers, from both of which bodies he brought official greetings. It was a brilliant idea, he said, to open a social function to Users from over 40 countries.

Output of the British printing machinery industry during the past few years has been roughly £18 million a year, half of which has been exported to all parts of the world.

IFPT Notes

MEMBERS would be happy to note that IFPT has entered into its third year from July and it is time for the renewal of Membership Fee for the year 1955-56. May I request all the members to kindly send in their Membership Fee next month. Members are also requested to furnish their correct designation and address before the end of October 1955 as we intend publishing a members' directory shortly for circulation among the members and to keep an up-to-date record of the qualified technical personnel in our country.

Membership of the Federation comprises the following classes:

FULL MEMBERS

Persons who have undergone a course of instruction in Printing and Allied Subjects and have obtained a Diploma.

(i) Persons who have undergone the full course of four years at the Government School of Technology, Madras, prior to the institution of the Diploma in Printing and hold Certificates shall also be eligible for Full Membership.

(ii) Persons who were or are engaged as teachers in Printing and Allied Subjects in technical institutions shall also be eligible for Full Membership.

(iii) Persons who have obtained the Full Technological Certificate of the City & Guilds of London shall also be eligible for the Membership.

ASSOCIATES

Persons who have undergone training in a technical institution and obtained certificates in any section of the Printing and Allied Subjects.

Students who have completed the Full Diploma Course of Studies in any recognized institution but have failed in the Diploma Examination.

STUDENT MEMBERS

Persons who are undergoing training in a technical institution for any section of the Printing and Allied Subjects.

Note: The right of admission to the Federation shall vest exclusively in the Executive Committee.

The annual Membership Fee are:—
Full Members: Rs. 5; Associates: Rs. 3;
Student Members: Rs. 2.

Note: Every member shall pay an entrance fee of Re. 1 along with the first subscription. The financial year is from August to July.

PRINTECH is sent free to all Members every month.

OUR MEMBER'S SPECIALIST STUDY IN LONDON

MR. M. R. Srinivasan, L.P.T., Senior Deputy Superintendent of the Government Press, Madras and a Full Member of IFPT who is in Britain for eight months' specialist study under the Technical Co-operation Scheme of the Colombo Plan, is at present acquainting himself with the latest printing developments at the Linotype and Machinery Ltd., Altrincham, near Manchester.

Mr. Srinivasan was earlier attached to the printing works division of H. M. Stationery Office at Harrow, near London and will return there after studying Linotype erection and maintenance at Altrincham.

The experience in England has given Mr. Srinivasan a high opinion of the British worker. "He is production conscious and sets a very high standard of efficiency. I consider the employer-employee relationship in England to be excellent—I would even say marvellous," said Mr. Srinivasan in a Press statement.

(Continued on Page 80)

PRINTECH August 1955

NEW PUBLICATIONS

The All-India Federation of Master Printers' Bulletin

We are happy that after all the All-India Federation of Master Printers have launched their first number of their monthly *Bulletin* on the historical day of August 15th, this year. The importance of such a monthly bulletin need not be over emphasised as it is the only link connecting all its members spread throughout the length and breadth of this sub-continent and bringing home the various activities and progress of the various Associations in every nook and corner. We are sure that every printer in this country, whether he be a member of the local Association or not would subscribe to this Bulletin which would give him an opportunity to realise the importance of being associated with an organisation for his own advantage. We are sure that it would grow from strength to strength under the able Editor-in-Chief, Mr. S. Ramu, a notable personality in the field. The annual subscription of rupees three to members and rupees five to non-members is to be sent to the Hony. Secretary, All-India Federation of Master Printers, 32 Upper Circular Road, Calcutta.

Appeal to Publishers

Copies of publications in Printing and Allied Subjects are welcomed by the Editor for reviewing in the pages of PRINTECH for the benefit of the members of the Indian Federation of Printing Technologists.

Printing News

TRADE papers in the world are watching with interest a new experiment in their field—a newspaper-format weekly for the printing, paper and allied trades. Up to the present most trade papers have been orthodox magazine-style.

Called *Printing News*, the new publication will give the latest information on all aspects of printing and allied trades from Britain and all major countries. First issue is scheduled for September 1st, and will appear every Thursday thereafter.

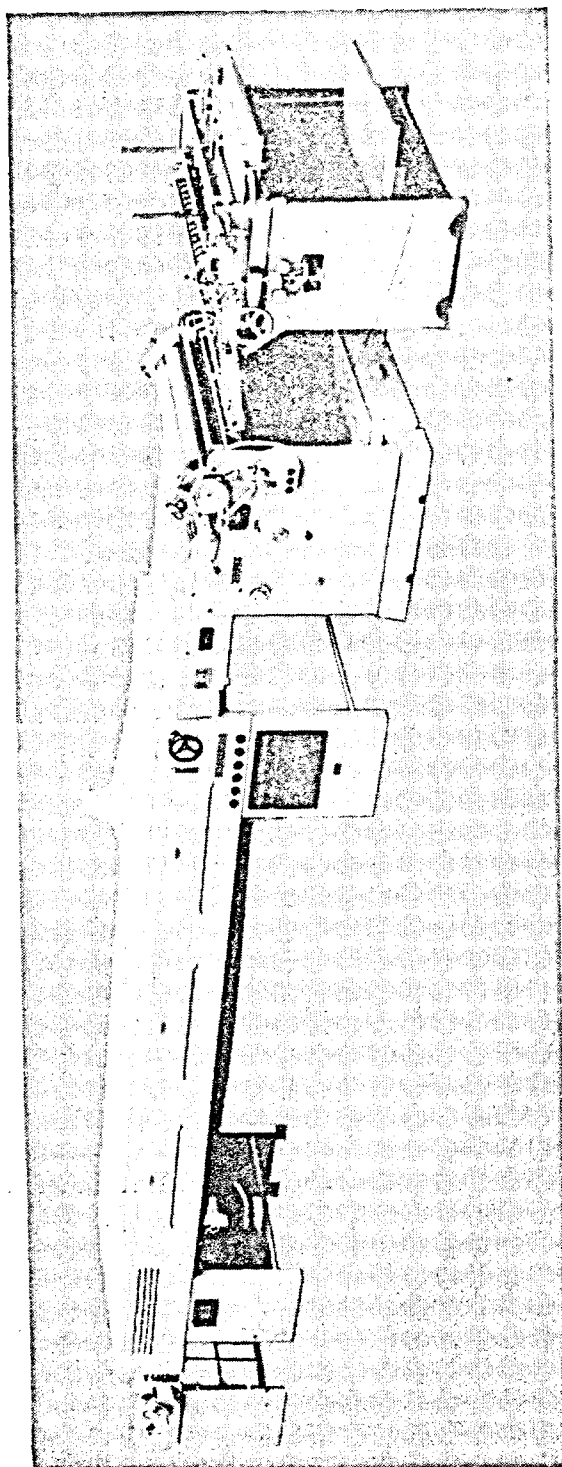
Editor is James Moran, well known internationally as an innovator in the field of graphic arts journalism. He has had a varied career in newspapers, periodicals and trade publications and was formerly chairman of the British Annual Award for Newspaper Design, which he initiated.

Publishers of *Printing News* are Printing News, Ltd., 110 Fleet Street, London, E.C.4, and the price is sixpence weekly. Annual subscription is £1 12s 6d a year.

Appeal to Manufacturers

Manufacturers of printing machinery, equipment and material are invited to contribute news of their new equipment with complete technical specifications, illustrations to be submitted in the form of blocks of 85 to 120 screens to the Hony. Editor for publication.

PRINTECH August 1955



A modern Varnishing machine of high capacity, using three roller system and filled with infinitely variable gearing system to varnish between 600 to 2,200 sheets per hour. The drying chamber contains grouped and non-glowing radiators together with cooling and exhaustor fans. The transport band is designed to permit both sides of the sheet to be cooled. Available in various sizes. Further particulars can be had on request from the sole-agents for India, M/s. INDO EUROPEAN MACHINERY COMPANY LIMITED, Bombay, Delhi, Calcutta, Madras.

OUR LIBRARY

I am sure that the members will appreciate the progress made in our scheme of establishing a Library and we are proud and happy to the ready response we had from the Master Printers, notable personalities in the Printing Industry and the Industrialists. We are quite sure that more and more help from them will enable us to achieve our goal very soon. May I also request all those interested in and connected with this Industry to help us by donating books, periodicals or in cash, ear-marked as for the Library Fund. All payments should be made only in crossed cheques or postal orders in favour of the Federation only. If each one of our members send us a book we would be very soon having sufficient number of volumes for circulation.

FURTHER ADDITIONS

Donated by Mrs. Beatrice Warde of Monotype Corporation Ltd.:

The Printing of Mathematics—by T. W. Chaundy, P. R. Barrett & Charles Batey.

The Times IPEX—Printing supplement by kind courtesy of British Information Services (India).

The following books have been donated by Mr. R. Siddique, President of IFPT:

Modern Printing, Vol. I.—by John Southward. (1924)

Modern Printing, Vol. II.—by John Southward. (1925)

Federation Printers & Lithographers Cost Finding & Accountancy System. (1914)

Estimating for Printers. (1919)

The Care & Adjustment of the Miehle.

The Care & Adjustment of the L & M Two colour.

Machine-room Hints—by G. C. Natarajan.

The Monotype Caster Instruction Book. (1928)

The Monotype Book of Information.

The Monotype Composing machine—brief description for the laymen. (1935)

A Treatise on Account Books. (1929)

The Holite Handbook, 1949.

The Holite Handbook, 1950.

Practical Plastography—by E. S. Hole.

What the Printing Process Demands of Paper—(A paper by Julius Bekk read before the Paper Makers Association Conference in 1935).

The Verbatim Report of the Two Lectures given by St. Brides Instructors at Technical College, Derby.

(1. Letterpress Machine-room Difficulties, 2. The Possibilities of Lithography.)

The Rotofoto Process—by H. O. Smith.

Practical Offset Pressmanship—by Howard J. Watrous.

Type Metal Explained.

The Titaghur Paper Handbook.

The Penrose Annual, 1939.

The Penrose Annual, 1940.

The London School of Printing & Kindred Trades Year Book, 1933-34.

The London School of Printing & Kindred Trades Year Book, 1934-35.

Printing Craft Lectures, 1931-32.

Printing Craft Lectures, 1932-33.

Craft Lectures of Stationers Company, 1930-31.

The Hony. Secretary also wishes to place on record his deep appreciations to the Editors of the following journals for sending him a copy for the Federation's Library:

The Far East Trade.
Printing World.
Electrotypers and Stereotypers Journal.
L & M News.
Monotype Recorder.
Indian Print & Paper.
Printindia.
Printing News.
All India Federation of Master Printers' Bulletin.

(Continued from Page 76).

THE REGIONAL SCHOOL OF PRINTING & ALLIED SUBJECTS, MADRAS

We extend a warm welcome to all the staff and students of the R. S. P. and request them to enrol as members of the Federation and strengthen the same. Please write for Membership Forms to the Hony. Secretary of the Federation, 61 Armenian Street, Madras.

Hony. Secretary

MONOTYPE PORTRAITS OF GANDHI & NEHRU

THE accompanying picture is that of Sri C. Somasunder, operator in the Monotype Department of the Government Press, Hyderabad, Dn., who has set the portraits of Mahatma Gandhi and Pandit Jawaharlal Nehru, which we are proud to publish as frontispiece in this Annual Number.

Such Monotype portraits have been keyboarded in other countries. One of the notable being the portrait of Her Majesty Queen Elizabeth in colour reproduced in the *British Printer* sometime back. But *this is the first time an Indian has set the portraits of Indian leaders on the Monotype*. It is quite evident that this is an extremely difficult piece of composition requiring lot of planning, patience and skill. We congratulate Sri Somasunder on his achievement in this field.

These pictures are reproduced with the kind permission of the Director of the Government Press, Hyderabad.



They have been specially printed on the Rotaprint for us by the kind courtesy of Messrs. The Typewriter & Office Appliances (India) Co. Ltd., Madras.



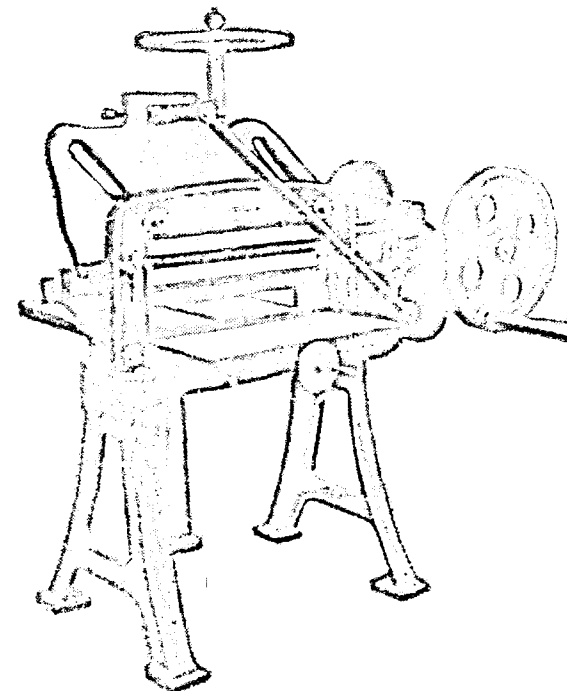
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