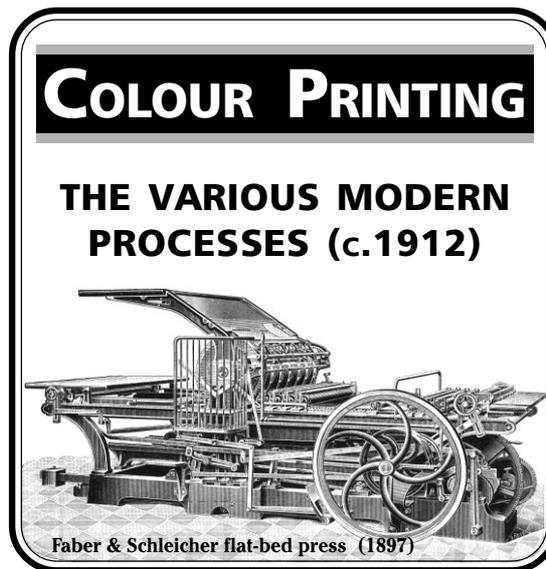


INTRODUCTORY ARTICLE.

The difference between printing in colour and printing in black is the difference between the realistic and the symbolic. If we turn over the pages of an illuminated manuscript produced in the ages commonly called dark we see how bright they were – colours everywhere. At any rate, with the invention of printing in Europe the craftsmen who had raised the illustrated manuscript to such high estate received a blow from which they never recovered. The well-known case of the Brothers of the Common Life illustrates the disintegrating influence of the new invention. This peculiar band of craftsman-missionaries found their economic basis suddenly removed from beneath them by the fact that the printed book made their beautiful work no longer necessary. It would be interesting to know how many, if any, of the writers and illuminators of those days were turned into the new industry; suffice it to say, however, that the new book world was a black world, here and there decorated with an initial or a rubric; the engraved page was barbaric compared to the manuscript, for when the man who had acquired the art of cutting blackletter turned his hand to the picture – what a falling off was there! However, doing his best under new conditions, he gave a crude engraved symbol in place of the vivid realism of the craftsman he was displacing.

It is scarcely too much to say that in printing, and indeed by its aid, we are attaining to a renaissance of the age of colour. Life may be dull enough, so dull, indeed, that the “monotone” illustration has long been appropriate to its monotony; but Nature is always colour. The perfectionment of technical methods during the grey epoch has now made possible a realistic revelation of Nature as she is.

A word is needed to delimit from our present subject others that are likely to become confused with it. Colour printing is not “colour photography” — but what is that? We doubt if any one can say, for the simple reason that, despite the many cries heard of late, colour photography, in the strict sense, has not arrived. And yet it is right to say that the search for colour photography has resulted in the discovery of many wonderful things that have made modern colour printing possible. We therefore rule out of our present review all



Quite a number of readers have asked for technical details on printing processes and terms mentioned in TPA over the past years; I always hesitated a bit to answer these requests within the pages of this magazine, as my command of English is too limited for detailed (technical) explanations.

Now I think I have found a good solution for this “problem”. An old article which not only explains all “modern printing processes” used before 1912, but which gives also some interesting historical information and, of course the personal/current opinions of the (British) writers of that time.

Harry Potterton kindly supplied a copy of “THE TIMES” (No. 40,000 - Printing Number) from Tuesday, Sept. 10, 1912.

I plan to reprint most of this comprehensive article. Unfortunately the names of the authors are not mentioned. Guess I need several issues for the complete article. Some (company/artist/publication) names the writers refer to are unknown to me. But I strongly believe that this article will answer many questions, puts some light on the economic/technical situation in the (art) printing business of that time and has also some entertaining aspects (from today’s view).

For illustration I have chosen some cards from my printing trade collection.

the beautiful and interesting work that has been done by Lippmann, Lumière, and Sanger Shepherd in the direction of colour transparencies and superimposed coloured transfers, not because they are negligible, but because they do not come into the categories we designate as colour printing.

METHODS OF COLOUR PRINTING

Readers will naturally demand a definition of what is left after some has been set aside. There are four methods which, commercially, or according to the whim of the specialists, have received a variety of different names. It is well to mention them in the historical order of appearance in their monotone phase, for all the methods were, in the beginning confined to black printing. The order in which they are transformed into their colour phase is not always the same.

I. — “**Letterpress**” printing with ink from raised surfaces by pressing paper thereupon includes printing from ancient and modern wood engravings and process blocks in black or in colour, from *Baxter* (with reservations) to the three-colour process.

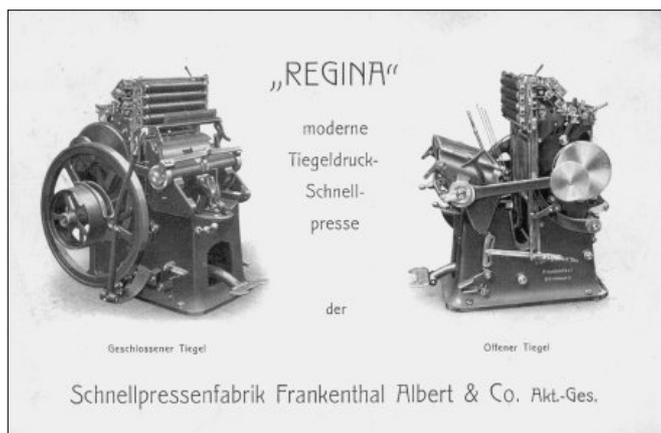
II. — “**Intaglio**” printing refers to all methods of obtaining a print by pressure of paper on to a surface the deepened parts of which contain the ink. This includes all etching, aquatint, and modern photogravure. It has been applied to colour printing in its later phases.

III. — “**Lithographic**” printing refers to all methods in which the ink adheres to, and is given off from, a drawing on a flat absorbent surface – originally stone, but now sometimes aluminium, zinc, or, in the case of “offset” printing, rubber. Chromo-lithography was the first generally diffused method of colour printing by machinery.

IV. — “**Collotype**” printing is probably the least known of all processes, though it has been in the field for a generation. Here the ink is pressed from a film of sensitized gelatine, which, like stone is absorbent of water.

(continued next page)

(below) two advertising cards of “Frankenthal Albert & Co.” printing press works, Germany. Both show presses mainly used for letterpress. P/u in 1912. The company name “Albert” still appears today. “KBA” printing press works group = König, Bauer & Albert.



FROM BLACK TO COLOUR.

Definitions disposed of, we now turn to the nature, history, and development of the many processes that fall within our four classes. (...) In the middle of last century pictorial wood engraving had reached its zenith and, given the psychological demand for colour – if we may so put it – there was no reason why it should not be met with a favourable response. Machinery had become sufficiently delicate to give the necessary register, paper was of smoother surface, inks were good – many of them more permanent than the modern makes. Engravers began to add tints to enliven their blocks, just as the lithographers were doing to their beautiful chalk drawings. If one colour could be added, so could two, three, or more. *Baxter* was the first, we believe, in this country to see the possibility of a completely coloured picture printed on a press. He, however, has the credit of having made a synthesis of two of our categories. He added coloured engraved tints by letterpress to an intaglio printed “key”, and for a time astonished the world with productions that are now prized by collectors. He called his plates “oil coloured pictures”. Wood engravers followed in his steps by substituting a wood-block key printed by letterpress, and many of the popular children’s books, such as those by *Caldecott*, were produced this way. There was, if we may say so, more art than science in those days. The colour tints were much lighter than those now used, and many more of them. In fact, *Baxter*, the wood engravers, and the early chromolithographers all adopted the same artistic principle of building up the picture, tint by tint, in a manner not unlike the stages of a water-colour painting. From ten to 15 and even 20 separate printings was not unusual.

CHROMO-LITHOGRAPHY.

We now leave, for the moment, letterpress colour printing at a point when it had reached a degree of considerable excellence, and turn to chromo-lithography – described elsewhere in detail. (*Ed. note: in coming issues*). Here we find no different artistic principle; rather a different method. Indeed, owing to the fact that the early lithographers were themselves capable artists, individuality had then a greater play than in the “commercial” days. Men of ability, well practised in the use of pencil and chalk, found no difficulty in drawing on stone and in building up colour by colour until the picture was complete. *Turner’s* watercolours and many other masterpieces were thus produced. There was in fact an advantage in chromo-lithography over chromo-let-

terpress, in that the individual touch of the artist always remained in the lithography that he himself handled, whereas by letterpress his drawings, even if put on wood by his own hand, had to be interpreted by an engraver. Obviously the engraver had to exercise taste and judgment, but he was liable to give part of his own individuality in place of the original designer’s.

APPLICATION TO HALF-TONE PROCESS.

Reverting to chromo-letterpress, we must now observe a change in method, though not in principle. The “key” in many of the fine plates published by the *Graphic* was still cut on wood, but instead of the colours being similarly produced a “process” crept in. It was found that in the hands of an artistic craftsman the colour plates could be made by borrowing from one of our other classes, as *Baxter* had done for his key. Here, however, the colour plates were etched by aquatint on copper, mounted on to blocks, and printed by letterpress, just like colour wood engravings. The craftsman obtained an offset key on to a copper plate, deposited a granular “resist” solution, protected his plate with varnish successively applied with his brush after each application of the etching fluid, and thus obtained a plate that might have been used for intaglio printing. The difference was that for intaglio the earlier etchings would give the lighter parts of the picture (because holding less ink); now they would give the darker parts because leaving more raised surface to receive and give back the ink. We have thus reached what may be called the artistic stage, but there is a further step before we touch the scientific. It is the abandonment of the wood-engraved key for a half-tone process key. Still, there is no difference in artistic principle, though a difference in method. The half-tone process (to which we make reference in another column) had already shown that it was capable of monotone printing of a soft and realistic character. It was not difficult for colour printers to see that, just as *Baxter’s* intaglio key had been replaced by a wood engraving, so this in its turn might be replaced by a process block. It is not without reason that we have chosen the word “artistic” for a method that as soon as it had been worked by capable craftsmen reached a pitch of excellence that has never been equalled.

We must, however, award the credit to the Parisian engravers for this advance. The famous plates of *Le Figaro Illustré* were devoid of “science” in the sense of our definition. The key was a half-tone block of good quality, photographed by the then isochromatic plates resulting from *Vogel’s* experiments.

Invariably it was hand-engraved in many of its parts, particularly where the pure or bright colours were expected to emerge. But what were the colour plates? While the English colour printer of the eighties and early nineties was using aquatint plates for his added tints, the *Figaro* printers had reverted to a method of hand-drawn plates which were the work of master-craftsmen whose judgment rarely, if ever, erred. These methods have not been equalled in England, and it is melancholy to think that even in their native home they have since suffered decline. But to this aspect we shall return later on.

PROGRESS BEFORE SCIENTIFIC PROCESS.

While scientific experiments were being conducted which culminated in the invention of the three-colour process, one of the earliest houses among the pioneers saw possibilities lying in the development of the French methods of process engraving and printing. Retaining the half-tone key, they added to it, not hand-drawn plates in the manner of the *Figaro*, but grained zinc plates etched in the manner of the earlier aquatint letterpress plates referred to above. This process, known popularly as “grainotype”, was undoubtedly useful for some years, pending the development of the three-colour process. Some houses, indeed, never abandoned it entirely, but carried it over into their three-colour epoch, producing some of the finest of British colour printing by four, five and six colours. The *Studio* and the *Connoisseur* regularly contained plates made by this method. The discovery of the three-colour process, did not lead to an immediate raising of the level of printed results. On the contrary, science hustled art, and for a few years there was a manifest decline. Possibly the phenomenon, unmistakable to close observers, was due to a somewhat premature launching of a process that had not been mastered. Printers were so proud of their achievement that their journals and their advertisements were filled with “scientific” representations of tropical parrots, ripe fruit, and pickle-jars, all in the colours of nature. The period of crudity was soon surmounted (though with beginners it is constantly repeated), and, in a word, the three-colour process has now perfected. By this we mean that it has reached the high state, in Europe, which its auxiliaries – photography, paper, ink, and machinery – have made possible. As we learn from other contributors, the retention of a fourth printing – though theoretically declared unnecessary – is found to be a practical advantage, and much of the best art work is now done in four colour printings. (con’t)

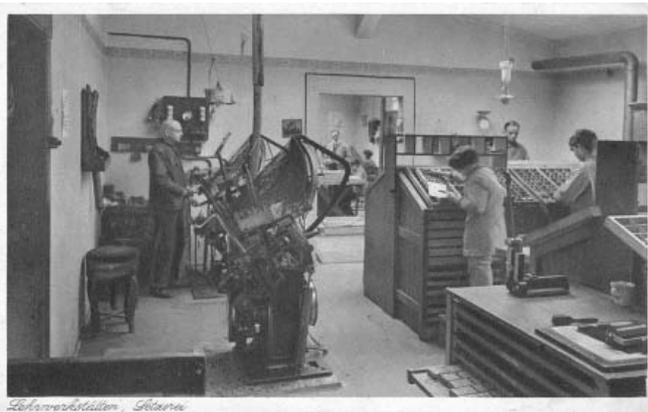


PHOTO-LITHOGRAPHY.

We must not fail to glance back at chromolithography, which we left at the point of its highest development, long before three-colour process was thought of. What has “science” done for lithography? Obviously it made photo-lithography and photo-chromo-lithography possible. It is strange, however, that lithographers, instead of uniformly improving their methods, often degraded them in the interest of merely pretty and the commercial. When artists could no longer be persuaded to draw on chalk stones, mechanics were trained to “stipple” on polished ones. Stippling was valid for technical and commercial illustrations, but it was hard to see all the vigour and freedom of an oil or water colour reduced to the smoothness of porcelain. It was a triumph of endurance – for the stippler – but was it art? Was it science? On the other hand, some houses accepted all the proffered help from photography, and much progress was made in an art which is by no means ousted from the field. Here we mention the fact that in America the half-tone process was applied to photo-lithography in a manner that for the day – about 10 to 12 years ago – must be called super-excellent. Our own printers seem to have been so preoccupied that they never equalled the efforts of the New York *Puck*, and yet there could have been no very profound in the method adopted. Now that the offset press has come to their relief it is not too late to make up for lost time. But of these peculiar lapses we hope to offer some explanation towards the end of the article.

INTAGLIO COLOUR PRINTING.

A word must suffice about intaglio colour printing. In France and Germany plates made by photogravure have been for some years successfully handled by artistic workers in the following manner. The plate has been etched in the ordinary manner, and is capable of giving a good monochrome print. It is then filled in with a variety of coloured inks – strictly speaking, painted – until, in the judgment of the operator, it will give an impression like the original. He takes the plunge, pulls the proof, and views the result. After this only hand retouching is possible. Very pleasing work is done in this way, but we doubt whether it ought to be included in the categories of colour “printing”. A legitimate extension of the intaglio process has been tried. Several colour plates, just as in three-colour process, are made and mounted into a rotary photogravure press. The difficulties can scarcely be said to have been

overcome. The paper from the reel cannot yet be kept under control, and good register is next to impossible. For the time then, this experiment hangs fire; at least we have not seen anything that can be said to be a practical success.

COLLOTYPE PROCESS.

We now turn to colotype in colours. The principles of this beautiful process may be explained briefly. It had been found that a gela-

negative, while the other part goes away in the water. Happily all the part so retained is found to be broken into fine reticulation, the depths of which receive and retain ink from the roller, while the minute swollen mounds are absorbent of water and consequently resistant of ink.

To some extent the principle thus resembles that of lithography. Readers will anticipate that, given such a printing surface, it is only necessary to apply the results obtained in a

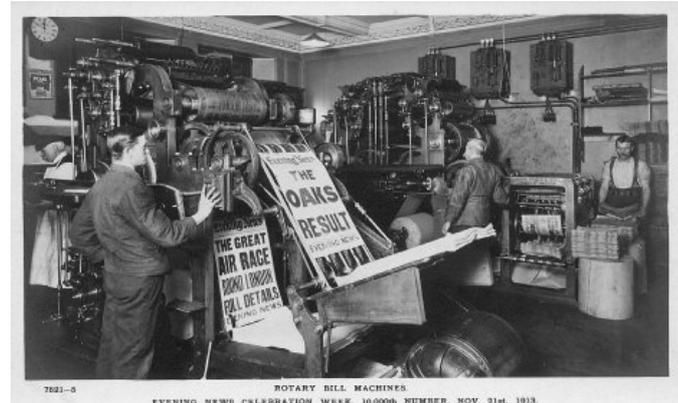
photography of coloured objects or pictures – in a word, the three or four colour process – and the method has been described. Although this may seem simple, colotype in colours is the most difficult of all means now adopted. Few have the courage to endure the years of costly experiment involved. Germany and Italy must be allowed to be the pioneers in this beautiful process, so far as practical commercial use on a large scale is concerned, but we are glad to recognize that English colotype printers have during the last five years made such headway that in some respects they have outstripped their competitors. If English methods are tasteful and sincere, German ways are thorough; and we believe technical excellence is rapidly being added to our British productions. To the truth of this the beautiful plates published by the *Medici Society* abundantly testify. Nothing can approach a good coloured colotype plate in accuracy of form, balance, and colour. It defies analysis of its mystery, and is the last word, so far, in artistic colour printing.

MULTI-COLOUR PRINTING.

We must not omit to mention the importance of the attempts that have been made in multi-colour printing, confined, so far as we are aware, to letterpress. One of our contributors has referred to the *Hayes-Reynolds* machine for producing wallpapers and fabrics in several colours simultaneously. Obviously such an ideal still lies before the pictorial printer, but as yet no striking success has been reached. The *Marinoni* (Ed. note: *Hippolyte Marinoni 1823 - 1904, French -printing press- engineer/inventor and publ. of “Petit Journal Illustré with full colour cover pages from 1883 on)* was the first to attempt it seriously in this country; a paper called *The Million* issued weekly coloured pages made from half-tone, grained, and line-blocks. It was neither a great technical nor financial success, the chief difficulty being one of register. Here, however, as in other cases, we feel that the promoters did not confine their efforts to the immediately practicable; they aimed beyond it, with the usual result. (con’t next page)



Greetings from Hoffmann's Stärkefabriken (starch works) in Salzuflen, Germany. This beautiful chromolitho card (card no. 5 in a series of?) of pre 1900 make shows a view of the own print works and board mill. Many bigger companies back then tended to have every production process inclusive their own (packaging/advertising) print shop within their walls. "Hoffmann" brand is still in business today.



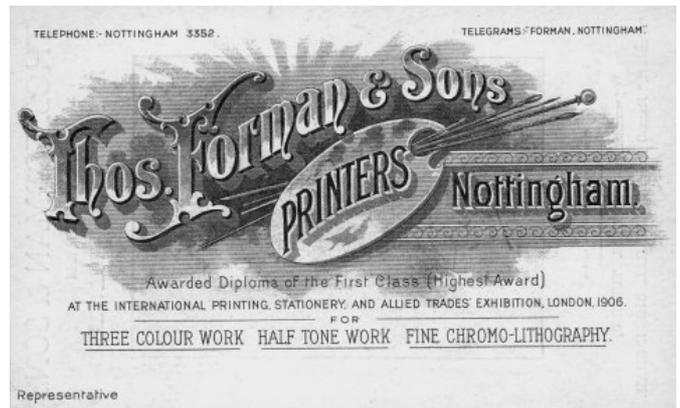
Rotary bill machines – Evening News Celebration week, 10,000th number, Nov. 21, 1913. Fine detailed “real photo” card. No. 7521-5. Not p/u. Printed in Britain. I have a second card with four views (card no. 7521-7. Besides this view it shows “A section of the Linotypes”, “Autoplate machines” and “One of the printing presses”

Ills. on previous page: “Printing” was widely used for “educational” purposes. I have many examples of print shops in missionaries, orphanages, educational establishments and other institutes of all types. Here two views (typesetting / printing dept.) of the apprentice shop of the “*Pfeiffersche Anstalt*”, Magdeburg-Cracau, Germany. Gravure printing by “*Kettling & Krüger*”. Card. 19924 + 19925; Not p/u, c. 1920's.

tine film, no less than the wet collodion, could be sensitized by salts of silver; hence the “dry plate” which every amateur uses. The colotype plate is in a sense a dry plate, only that has been sensitized with bichromate instead of the usual elements. The result is that, on development, after exposure under an ordinary negative, the bichromate is found to have hardened and rendered insoluble the parts most affected by the light through the



Shown are here both sides of a advertising/visiting card in postcard size. No info on this Nottingham, England based fine art printer available. Believe both sides were also used for regular postcards. Quality is not overwhelming. The painting is titled "Nature's Mirror" by A. H. Gorter. Printed pre 1910.



A French inventor named *Godchaux* undertook multi-colour printing by wiser methods on a large scale in Paris. His machine gave four rapidly successive impressions on paper from the reel. His work was confined to coloured books for educational purposes, containing designs of quite artistic character. His difficulty was register, his impression being, in its way, excellent. The machine operator might be seen darting under the arched framework, turning screws which either lengthened or shortened the travel of the web. Such a process depends for its success upon obtaining a paper that might be relied upon to maintain an even, as against a variable, elasticity. (...)

THE FUTURE.

The foregoing résumé of colour printing process enables us to offer a few reflections on the present state of the craft and its probable future.

It will be observed that not only have our four classes competed against each other for a common market, but of course in a general way the houses operating the same process have struggled for individual supremacy. Doubtless this latter competition has stimulated invention and advanced the quality of the results attained by it. Three-colour block-making, for instance, is a very large commercial industry, and the printing side is proportionately larger. We can trace in the last decade the rise of small houses to leading positions and the decline of others who have been

A view of the large printing room (hall) of "*Imprimeries Oberthur*" (from Rennes?), France. Unfortunately I have no information on this company available. Think they printed mainly books, almanacs etc. Impressive sized hall, with long rows of flat-bed as well as rotation presses. - This halftone printed pc is only of average quality (flat impression). Plus some stamping ink spots. Postally used in 1925 I believe. Postmark is almost blurred. Interesting view anyway.

slow to adapt themselves to the new conditions. If this has operated among individuals of the same class, it is even more marked in the case of class and class. Here we must, adopting the view of the artist, deplore the decline and virtual extinction of methods once famous and beautiful. This is entirely due to commercial competition. There are scarcely half-a-dozen pictorial wood or steel engravers left in the country. The whole tradition, so worthy of preservation, has collapsed. Men who could handle the graver for higher ends are now engaged on almost menial tasks of retouching and removing imperfections incident to the scientific processes. To some extent a similar decline has depleted the ranks of high-class lithographic craftsmen, who have only maintained themselves by joining the staff of photo-etchers and colotype retouchers, where their abilities have indeed been valued. But their precious tradition has been lost to them and the trade. Had there been a presiding and protecting Deity of the craft the valuable traditions now lost might, we can see, have been preserved and reapplied after a lapse of a necessary experimental period. Commerce knows of no such guardian angel, and blindly and hastily "scraps" the beautiful for the immediately useful. We can foresee that commercial houses, who under the pressure of competition abandoned some of their hardy-won tradition, may have to get back, under the spell of a public demand for high quality, some of the discarded elements.

For letterpress the addition of aquatint or grained plates is still practicable; for offset lithography a great deal of the almost lost art of photo-transfer and colour analysis will have to be regained if this new process, now so promising, is to bring the art of *Senefelder* on to a higher plane. It is easy to "convert" a chromo-lithographer into a three-colour etcher, but after half a generation reconversion is difficult.

Moreover, we see unlimited possibilities for the synthetic application of processes belonging originally to different classes. The reasons why letterpress and lithography, colotype and lithography, and photogravure and colotype have not attained to a synthesis are not technical, but merely emotional. A new technical tradition, free from all shop and departmental prejudice, has for itself a great future.

IMPORTANCE OF PERSONNEL.

Given our hypothetical "Presiding Genius", and a generally diffused higher standard of taste among the workers, we should pronounce the future of colour printing to be very bright indeed. And, although possibilities always transcend probabilities, we still predict great developments, both in the methods themselves and their application to public needs. The PERSONNEL of a colour printing establishment is the channel of technical tradition, and it is useless to deny that the industrial institutions of to-day militate against the normal perfecting and transmission of the tradition itself. (continued)



The status of an artist-craftsman is not what it was even 25 years ago, and below that of several generations gone by. We have seen men in certain workshops develop to a high degree of excellence some contrivance of photography, plate-making, or printing; we have seen them depart to new forms of industry, neither leaving their tradition behind as a contribution towards the raising of the craft nor taking it with them. The occurrence is not rare to-day for men to be at this moment rediscovering what was known 20 years ago. All this is a reflection on technical management in the printing world. The Presiding Genius should see to it that nothing is lost that has once been attained. He should not encourage two groups of craftsmen in the same works to compete where they might co-operate. He should devise means whereby any contribution towards the general stock of knowledge or adaptability becomes advantageous to all, and not to one alone. In fact, he should remember the Guild of old time, and think about the possibility of its re-establishment. In this way the PERSONNEL of a col-

our printing works will be a constant source of progress in the art itself.

We may take it for granted that the auxiliary arts of machinery, photography, and paper making will continue to supply to the colour printer their best and latest results. They will need no such word of exhortation as we have ventured to address to the PERSONNEL. The arrival of the offset press has made possible the use of matt or even rough-surfaced paper for high-class chromo-lithography, and we have lately seen process blocks printed by letterpress on a surface that would have formerly been pronounced impracticable. These results are all to the good.

We conclude our review with a glance at the social aspect of colour printing. Literature is being illuminated by colour in all modern books. The commercial world, for its proper purposes, has recourse to colour. Education is increasingly making demands upon the work of the pictorial artist, and colour is a SINE QUA NON. But perhaps the most promising and legitimate field of all is that of the col-

oured plate, the picture pure and simple, in which the enthusiasm of the creative artist, the imitative craftsman, and the appreciative public unite. Need we add that the business man – who, after all, may well be a co-operator with the other – has his part to play in helping to bring into wide distribution by colour printing the works of ancient and modern genius?

We conclude by saying that we are unable to foresee an end to the possibilities of general enlightenment that, under favourable industrial conditions, are presented to the present generation of colour printers. We hope they will be eagerly embraced. —

(Ed. note: This 1912 article reprint will be continued next issue. Topics coming up are: Photo-Engraving: the half-tone process; procedure, screens, solutions used etc. And The three-colour process: history and description, colour blocks and collotype, light filters, apparatus etc. After you have read this, you will know almost everything on how your favourite post cards were produced back then).

Printing press works **Johannisberg** from Geisenheim/Rhein proudly tells the public that all postage stamps of the Bavarian state are printed on Johannisberg presses. "Handwritten" message on picture and address side imprinted. Incl. address of representative in Nürnberg. P/u Nov. 1912. Fine coloured chromolitho card printed by *Oscar Consée*, München. The name of this printer/engraver (establ. 1879) is found on many quality cards. — Johannes Klein and his friend Johannes Forst (both machine fitters) founded their company together with Johann Bohn in 1846. The Johannisberg works burned down to the ground in 1861. At that time they already employed 50 workers. But business was soon running successfully again. A modern flatbed collotype press was presented in 1888. Other presses followed. — Offset presses became one of their major business fields. In the mid/later 1960's the firm was renamed *Miller-Johannisberg Druckmaschinen GmbH*. Not that much later the complete business was integrated into the *M.A.N.-Roland* printing works group. One of the "Big Three" printing press works in Germany.



ALBUM

The dairy of *Christen Christensen* somewhere in Hamburg. Guess we see here father and son in front of their shop. A good social/regional view. A sign in the window tells the public that *C. M. Christensen* is a member of the "Hamburg Dairy Organization" and that the (milk) products are controlled by the (sworn) food chemist *Dr. P. Behrend*. By the way, collectors would pay quite a sum today for the (porcelain) cow figure standing in the window.

This real photo (sepia) card was mailed on April 10, 1908 to relatives of Christensen living in Parlier, California, U.S.A. - arrived on April 26.

Thanks go to Sally Fall for this nice find.

