

AN EXAMINATION OF THE INFLUENCE OF
INDUSTRIAL PRINTING TECHNOLOGY AND IMAGERY
ON PRINTMAKING

by

JOHN FREDERICK CASPER CLARKE

Submitted in partial fulfilment of the
requirements for the degree of M A Fine Arts
in the Faculty of Arts
of the University of Pretoria,
Pretoria

30 October 1980

ACKNOWLEDGEMENT

I should like to express my appreciation of the support I received from my supervisor, Prof. N.O. Roos. Despite the considerable pressure of his own duties, he always found time to give encouragement and excellent advice. His enthusiasm and energy were a constant source of inspiration to me.

CONTENTS

INTRODUCTION

- (a) Orientation
- (b) Scope of the investigation
- (c) Definitions
 - (i) Industrial printing
 - (ii) Original printmaking
 - (iii) Reproduction printing
- (d) References

CHAPTER 1

Page 1

- (a) The origin of printing as a pictorial medium in Europe
- (b) Original printmaking and reproduction printing prior to the invention of photography
- (c) References

CHAPTER 2

Page 22

- (a) A definition of photography and an examination of its impact on 19th century printing
 - (i) Photography, visual perception and communication through the medium of print
 - (ii) The influence of photography on painting and through painting on printmaking
 - (iii) The influence of photography on industrial printing technology
- (b) The development of the concept of print originality in the second half of the 19th century
- (c) References

CHAPTER 3

Page 39

- (a) 20th century industrial printing
- (b) Original printmaking in the first half of the 20th century
- (c) The alternative tradition - Dada
- (d) References

CHAPTER 4

Page 60

- (a) Post-World War II attitudes and developments concerning printmaking
- (b) Abstract Expressionism and printmaking
- (c) The Pop Art movement and printmaking
- (d) References

CHAPTER 5

Page 73

- (a) The controversy over the concept of print originality
- (b) Printmaking criteria: Photo-mechanical printing techniques and the artist.
- (c) References

CONCLUSIONS

Page 90

APPENDIX

Page 92

GENERAL BIBLIOGRAPHY

Page 94

SUMMARIES

Afrikaans

Page 97

English

Page 98

"Sounds like art", the instructor says.
"Well, it is art", I say. "This divorce
of art from technology is completely un-
natural. It's just that it's gone on so
long you have to be an archaeologist to
find out where the two separated." '

Robert M. Pirsig

INTRODUCTION

- (a) Orientation
- (b) Scope of the investigation
- (c) Definitions:
 - (i) Industrial printing
 - (ii) Original printmaking
 - (iii) Reproduction printing
- (d) References

(a) Orientation

A relationship between art and technology has existed since man first used his hands to make objects and images both functional and aesthetic. Generally speaking, before the Industrial Revolution that relationship was accepted as natural and fundamental to progress. But since the explosion of scientific information and related technology it appears to have gone awry. The resultant discord and imbalance is clearly reflected in the history of printmaking. Printing first made its appearance in 15th century Europe at the beginning of a new era in Western culture. From humble beginnings it developed and flourished as an industry to meet the demand for exactly repeatable images both typographical and pictorial. From the first century of its existence printing was also used by artists who realised that, in addition to its economic and informative value and potential, the medium could be used for creative visual expression.

As a machine-aided image-making medium, printmaking by artists occupies a unique position in the arts. It is not different from other media such as painting or drawing, inasmuch as the same stylistic and aesthetic ends can be achieved. Its uniqueness lies in the fact that artists and industry have for centuries shared the medium of print. Because of the bond of a common medium, artists and industry have been able to share technology and imagery. Artists have exploited new printing methods developed for industrial purposes and industrial printers have utilised either original art works in other media, or have employed artists to create images for commercial printing.

But the approach adopted by artists towards printing when using it for personal visual expression differs considerably from the approach of industrial printers. In the case of industrial printing quality is linked to craft skills and technology which aid the basic function of industrial printing; which is, to transmit information accurately, clearly and efficiently. In the case of original printmaking quality is linked primarily to artistic vision. The most sophisticated or the most primitive of print techniques have potential in artistic terms. New technology and new materials merely offer new ways through which ✓ artists can express themselves. What is of far greater importance and interest is how various print methods and techniques are used by artists. Because the two basic ways in which the medium of print is used cannot

be separated, there has always existed a mutual interaction - a 'relationship' between original and industrial printing. This relationship has been, on the whole, mutually beneficial. But it has also been the cause of a great deal of misunderstanding about the fundamental nature of original printmaking.

Industrial reproduction printing has at certain times in the history of printing been confused with original printmaking and artists have found themselves at a disadvantage ^{benadeel} both economically and aesthetically. Artists have had to compete with industrial reproductions of popular art work in the market place while the reasons why they prefer to make original prints as opposed to having reproductions made of their work in other media are not sufficiently recognised. Since the 18th century there has been controversy over this issue, aggravated by the drastic changes which have occurred in industrial printing technology during and since the Industrial Revolution. While the technology associated with printing and even sculpture remained little changed by the Industrial Revolution, printing methods made available to artists through the printing industry were greatly altered. The advent of photography eliminated the one element common to all pictorial printing since its emergence in Europe: the autographic mark. In industrial printing professional craftsmen were rendered obsolete and replaced by technicians. What were initially auto-mechanical processes became photo-mechanical and subsequently electro/photo-mechanical. The new photo-mechanical processes achieved the ideal striven for by professional engravers for centuries - to communicate clearly and accurately pictorial information or to reproduce as accurately as possible original images in other media.

The elimination of the hand-made plate or block was not readily accepted by artists, and photo-mechanical printing methods were by and large rejected despite their enormous visual potential.

Original and industrial printing took separate technological paths into the 20th century. The traditional processes remained valid for artists but became commercially obsolete ^{oud}. A new visual innovator, the commercial artist, or graphic designer, came into being to work with technicians operating the new photo-mechanical processes.

Although not artists in the traditional sense, they were called upon to produce visually innovative and aesthetically pleasing designs for visual communication purposes in a variety of fields and especially for advertising.

In the field of fine art, critics, dealers, artists and collectors increasingly emphasised the technical 'originality' of prints; equating print originality with the use of autographic printing processes. In the first half of the 20th century artists began to experiment with photo-mechanical technology, but this was more a reaction by a minority group to existing norms and traditions than a generally accepted trend.

The mixed reaction of artists and others in the 20th century towards new printing technology has been indicative of a general inability of those concerned to come to terms with new technology which made the acquisition of craft skills unnecessary and gave the artist access to 'ready-made' images.

Print originality is not an easy concept to define because such a definition depends upon the relationship between the artist, the nature of his creative vision and the print method and materials he might choose to use. It is not dependent on techniques the artist may use, but rather on the way in which technique is used.

The controversy over the nature of the concept of originality reached a climax in the 1960's when artists associated with the Pop movement broke through the barriers built up by traditionalists to protect the concept of print originality. Attempts were made to define originality and rules were drawn up concerning procedures that artists were expected to follow when making prints. But by the end of the decade it was apparent that photo-mechanical technology had become an integral part of modern printmaking. The clear-cut demarcations between autographic and photographic imagery and technology and between an original and a reproduction print became blurred. The established view, that an original print is one which the artist had conceived and executed himself, no longer applied¹ and had to be replaced by other criteria by which prints could be judged as works of art, rather than as merely technically original or not. The dispute over the differences between original and reproduction prints may appear to be a hair-splitting exercise, but it reflected the much deeper and broader dispute concerning the relationship between art and technology.

(b) Scope of the investigation

An attempt to investigate, in its entirety, the interaction between industrial printing and printmaking since the 15th century would be a formidable and impracticable undertaking. However, this investigation, chronologically, does cover a lot of ground, with the specific aim of examining the ways in which artists have reacted to, and adopted, new technology developed for industrial printing and associated imagery. For the purposes of this investigation the development and interrelationships of industrial printing and printmaking are divided into four periods which are dealt with in chronological order in four chapters.

In the final chapter the technical, economic and aesthetic aspects of the controversy over print originality are dealt with. An attempt is made to establish what the fundamental criteria are concerning printmaking which could possibly be applied to prints of any era, but more especially to the present and future, as increasingly sophisticated industrial printing technology becomes accessible to artists.

(c) Definitions

The medium of print is used in two basic ways:

- (i) As a visual medium capable of making pictorial and typographical images.
- (ii) As a medium for non-visual functions. This aspect of printing has developed largely in the 20th century and includes, for example, the manufacture of printed circuits in the field of electronics. Non-visual printing falls outside the scope of this thesis.

Printing at its most basic is a process whereby a substance, usually ink, is transferred from one material to another, generally with the aid of mechanical apparatus: 'a way of mechanising an image'.² The life-blood of printing was described by Claude Roger-Marx as 'the ink which joins the incised lines of the plate or raised surfaces of the woodblock via a mysterious marriage with the paper'.³ The 'union of ink and paper' is basic to all traditional printing processes except that of pure photography, which depends on light and chemicals which replace ink and the pressure exerted by a press.

The fundamental property of printing is that, from one source, a large number of identical images can be produced economically and

efficiently. William Ivins defined a print as an 'exactly repeatable pictorial statement'.⁴ This is obviously the reason for its enormous communicative and commercial value. If all printing was limited to the monoprint technique, by which only one print of an image can be made, printing would have little value outside the realm of fine art. To be able to repeat, exactly, pictorial statements is more important to science, technology and general transfer of information than it is to art.

Bound up inextricably with repeatability in printing is the mechanical principle. The technology involved in making a printed image was, from the beginning of the history of printing in Europe, an important — part of the printing process and allowed for a division of labour therein. Most printing has been the result of team work by specialist technicians or craftsmen, designers or artists. As a visual medium, printing can be divided into three basic categories:

(i) Industrial Printing

The greater part of all printing can be termed 'industrial'. It is mostly typographical, and when pictorial, it is generally of an informative nature, either illustrative or instructive.

Efficiency, versatility, speed and quality are the prerequisites of industrial printing. When pictorial work is printed, clarity and accurate reproduction of original source material is required in order to impart the maximum amount of information. Since its inception to the present day, industrial printing technology has evolved with a specific aim in mind: to achieve maximum image definition and detail while working at maximum efficiency:- in other words, to communicate the maximum amount of information at minimum cost. Every advance in industrial technology has been made with this in mind. These include aquatint, mezzotint, wood-engraving, lithography and the photo-mechanical processes. The development of photo-printing in the late 19th century was of enormous significance for industry as it made possible the printing of fine detail accurately and cheaply. Professional craftsmen were rendered obsolete, replaced by technicians, the camera and the half-tone screen.

The use of photo-mechanical printing methods resulted in a vast improvement in print quality, that is, the ability of printed

images to communicate particular information pictorially. In the 20th century industrial printing has been able to benefit from new developments in electronics, engineering, chemistry and photo-technology. Image quality has improved to a point where it would be difficult to improve it further. However, research continues to increase speed and improve efficiency. One of the results of electronic/computer technology in the last twenty years has been the development of 'instant' electrostatic printing. Initially it was of poor quality and could print black and white only; the process is now capable of printing full colour images of excellent quality although costs are still high.

(ii) Original Printmaking

The nature of original printmaking is the major concern of this thesis and cannot be defined with ease. The word 'original' is used to distinguish this form of printing from industrial printing and, more especially, from reproduction printing. In the case of the original print there is no original from which the image is copied. In its purest form the artist will work directly on the plate, stone or block without referring to drawings or any other preparatory work. But there are degrees of originality. A print by an artist who has 'reproduced' one of his drawings or paintings must also be termed original because the print is made by the artist and not a professional craftsman.

The concept of originality did not exist in the early years of printmaking although in retrospect the term can be applied to the work of many early printmakers. It evolved over the centuries and finally emerged in a tangible form in the 19th century. In the 20th century original printmaking has become a major artistic creative medium used for its own sake in a way previously almost unknown. Artists using new industrial printing technology have found it possible to create powerful visual effects which could not be achieved by other means. But the utilization of new technology clashed with traditional views as to what processes were acceptable in the making of original prints. In the period 1960 to 1965, several committees attempted to define the 'original' print in order to protect it against the increasing popularity of prints made by what were termed 'reproduction' methods. As the

decade progressed it became evident that artists were challenging traditional conventions on a broad front and not only in the field of printmaking. Traditional boundaries between various art forms were being broken down. Photo-mechanical processes previously considered taboo were found to have great creative potential not only in printmaking, but in painting. The limited 19th century definition of print originality has outlasted its usefulness. In its place has appeared a broader definition of originality based on a better understanding of new industrial printing technology and its dual role in visual communication and visual expression.

(iii) Reproduction Printing

This has been classified separately, as it includes aspects of both industrial and original printing. It falls within the field of industrial printing in that it is commercially orientated and is the work of craftsmen or technicians, using industrial print technology. However, the content of such prints is reproduced from works of art executed by artists in other media, usually painting or drawing. Depending on the involvement of the artist in the reproduction of his work and the sensitivity of the craftsman involved, it is possible that reproductions could be an expressive print form.

Reproduction printing as a facet of industrial printing has had a profound influence on the development of original printmaking. This is due to the employment, on the one hand, of the latest technology available within industrial printing, and on the other hand, to the fact that the work of artists is involved. The proximity of reproduction printing to original printmaking has resulted in a mixture of friction and mutual admiration between craftsmen and artists, an attitude dating back to the 16th century. But generally artist/engravers have been on the defensive in the face of the viewing public's preference for reproductions of popular art works.

The reaction of artists/engravers was the initially slow but sure development of the concept of originality in printmaking beginning in the 17th century and culminating in the first half of the 20th century.

In the 20th century the character of reproduction printing has changed radically as print technology has changed. But even so, technicians operating sophisticated industrial printing apparatus still have to have some of the sensitivity towards materials and skills normally associated with reproduction craftsmen of the past in order to reproduce original images successfully.

The development of colour photo-mechanical processes has vastly improved the quality of reproduction printing. Instead of being considered graphic equivalents of paintings or other art works, reproductions have come to be considered acceptable substitutes for originals. The physical uniqueness of original paintings, prints or sculpture has been supplanted by good quality reproductions which have become, to the greater part of the viewing public, the only means of viewing the work of great artists.

(d) References

1. Zigrosser, C., 1965, p.14
2. Gilmour, P., 1978, p.8
3. Roger-Marx, C., 1962, p.13
4. Gilmour, P., 1978, p.16

CHAPTER ONE

- (a) The origin of printing as a pictorial medium in Europe
- (b) Original printmaking and reproduction printing prior to the invention of photography
- (c) References

(a) The origin of printing as a pictorial medium in Europe

The appearance of printing in 15th century Europe coincided with the socio-economic changes brought about by the Renaissance. Demands were made by a new middle class for access to books and other informative written and pictorial material, which had before been the exclusive property of an educated and privileged section of medieval society. The establishment of paper mills in the 14th century resulted in the production of a cheap paper for the first time in European history. This together with the demand for information and technical skills available to craftsmen and artisans in guilds and workshops resulted in the rapid development of printing in the 15th century. Within 50 years of its appearance in Europe, printing had arrived at a state of maturity as a visual medium in terms of the communication of ideas and information as well as a means of creative visual expression.¹

The first prints were woodcuts printed without the aid of a press in the manner of the Chinese. Once the economic value of the medium was realised it became expedient for printers to try to improve the quality of printed material and the efficiency and speed at which it could be produced. In industrial printing this motivation has remained to the present day. The competitive nature of the printing industry has led to a continually changing technology as innovations and inventions have been exploited.

By the middle of the 15th century, German printers had developed presses, one for relief printing and the other for the newly invented intaglio process. In 1460 Gutenberg first used the combination of movable type with a press and printing as the first mechanised mass production industry was launched. To quote John Lewis:

'The invention of the printing press and movable type marks the dividing point between the arts and crafts of the Middle Ages and modern technology.'²

From the beginning craftsmen and artists were involved in the new technology. Book illustrations and pictorial designs for utilitarian and decorative printing were required. Utilitarianism tended to dictate both the iconographic content and forms produced by print-makers. Prints were valued for their clarity and uniformity rather than for their uniqueness or imaginativeness. In the late 15th

century and early 16th century artists did begin to produce prints, often independently of typography, which were works of art in their own right. The first moves towards using print as an expressive medium coincided with changes in attitude towards printmaking during the Renaissance period. The break with utilitarianism and the increased sophistication of content encouraged printmakers to investigate the properties of various printmaking processes. Experimentation and variation as opposed to uniformity began to be considered aesthetically valuable. The artists who were to become successful printmakers were initially craftsmen such as goldsmiths, but later painters found in printing a new creative medium which had among other characteristics the advantage of repeatability. Printmaking as an independent art form did not truly come into its own until the early 17th century (see Chapter 1(b) page 10). It was not generally recognised as such until the concept of print originality began to develop in the late 18th and 19th centuries.

As printing evolved into an important medium of visual communication, in addition to the advantages of distributing general information, it became a profound and widespread influence on the history of style in painting, sculpture and the decorative arts. Prints came to be sold cheaply all over Europe. Images for the first time in European history could be easily communicated from one place to another. The refined engravings of goldsmiths-turned-engravers such as Martin Schongauer (1465-1491) were collected and copied by craftsmen and artisans working in a variety of media. Prints were also collected by painters and sculptors as reference material and had by the end of the 15th century become one of the artists' basic sources of motifs and compositional ideas.³ This influential role of printed images has remained relevant to the present day. Through the reproduction of art works, initially by craftsmen, and in modern times through photo-mechanical technology, stylistic influences have transcended cultural, political and geographic barriers.

The concept of originality as it has come to be understood in the 20th century did not exist in the 15th century. The personality and style of the individual artist or craftsman remained to a very large degree subordinate to traditional themes and modes of depiction. Prints were not signed. Monograms, often inscribed on plates, were an extension of the practice of goldsmiths to ratify work as being of honest and

masterly workmanship rather than visually original. Craftsmen and lesser artists copied and recopied each other's work, but because of their anonymity and the limitations of tradition this did not often involve the usurping of original ideas.

Gradually as Renaissance thought overtook medieval tradition, anonymity was replaced by the emphasis on and exploitation of the individual personality of the artist. Prints became less utilitarian and popular in character, subject matter was broadened to embrace the interests of a more enlightened audience and to proclaim the achievements of the Italian Renaissance to a growing European public. In addition prints and easel paintings, being portable and saleable property, became a form of merchandise and the artist's name became a valuable asset.⁴ Inevitably, with the emphasis on the economic value of such work, the problem of forgery and plagiarism gradually became an issue.

The controversy in the late 19th and 20th centuries over the nature of print originality had much to do with the economic value of prints which, when bought and sold as art work, had to be genuine, that is to say, a graphic work as opposed to an industrial print.

Within the 15th century there were artists such as Martin Schongauer and Albrecht Dürer (1471-1528) in the North and Mantegna (1431-1506) in Italy who reflected the emergence of the Renaissance artist as printer. It was they who first developed the woodcut and engraving into a high art form and it was they, in turn, as creative artists, who were exploited by copyists.

Albrecht Dürer initiated a new direction in printmaking in the late 15th century. He achieved a technical standard never before attempted and was able to control wood and metal with outstanding craftsmanship. He became famous throughout Europe for his prints which were both universal in appeal and personal visual statements. The 'Apocalypse' series printed in 1498 was a revolutionary work in layout technique and execution of the theme. Peter and Linda Murray state 'The Apocalypse ranks with Leonardo's Last Supper and Michelangelo's Sistine Ceiling as a supreme work of art, the fruit of spontaneous genius, using all the resources of tradition, yet treating the subject in a totally new way, immediately imposing itself by sheer beauty and power of imagination'.⁵

Dürer was perhaps the greatest of those first artists who chose print

as a medium for original visual expression and so began the tradition of the painter/engraver, a tradition of technical innovations, originality of content and an awareness of the creative potential of print, which has been nurtured since then by great artists of every era.

There existed in Europe in the late 15th and early 16th centuries two distinct styles of creative printmaking in Germany and Italy. These differences in style reflected the broader differences in painting and sculpture between north and south Europe. The influence of the northern engravers and Dürer in particular was significant in the early 16th century. As S.W. Hayter notes: Dürer's intentions were different to those of the Italian engravers. His vision and conception of the plate was pictorial rather than sculptural. The Italian engravers such as Mantegna were preoccupied with the sculptural qualities of the Renaissance style. Mantegna was able to describe through his particular use of the burin on the plate a feeling of weight and solidity of form. It would appear that attempts to absorb the qualities of the northern style by Italian engravers led to a disorientation.

'The northern style, in which the free cut of the burin, that is the line obtained by swinging the plate against the cut of the tool was deformed to render the calligraphic line - which ... was beginning to find many imitators in Italy. As soon as the inherent quality of the work on metal was neglected in favour of pictorial representation, the way was open for the conversion of an original medium of expression into a means of translation from originals into another medium.'⁶

From the early 16th century onwards the role of engraving gradually changed. Zoan Andrea used engraving to reproduce Mantegna's drawings without consulting the artist first.⁷ Dürer went to Venice in 1505 to protest against Raimondi's wholesale plagiarism of his 'Life of the Virgin' series, but was unable to stop the publication.⁸

It is not surprising that Italy produced the first examples of collaboration between a great artist and an engraver with the specific aim of making reproductions of the artist's work which was originally created in another medium. Raphael (1483-1520) obtained the services of Raimondi (1475-1534) to reproduce drawings such as the 'Judgement of Paris' (c.1514).

Although Raimondi worked under the supervision of Raphael it must be emphasised that such a team of artist and craftsman was a shift away from the 15th century use of a craftsman as an extension of the artist. Dürer, for example, drew on blocks or plates which were then cut by craftsmen trained and supervised by Dürer to produce images in his style. Such prints must be termed originals as no other original existed. This was not the case with Raimondi's reproductions. In his hands line engraving had little other function than to produce copies of existing originals. The inherent qualities of the technique and material were to a very large degree subordinated to achieve this aim.

Because of the commercial potential of this division of labour, and the popularity of the prints, reproduction engraving rapidly became a dominant print form and was to remain so for the next four centuries. The technical virtuosity of craftsmen such as Raimondi '... so convinced the public of that epoch that young engravers found no incentive to revive a mode already abandoned and re-invent original expression in a medium already dedicated to the fame of the painter'.⁹

(b) Original printmaking and reproduction printing prior to the invention of photography

In the 16th century craftsmen first started working apart from artists and achieved status by virtue of their craftsmanship and the way in which they were able, through virtuosity, to copy the work of an artist. The main function of the reproduction engraver was to copy, through the medium of print, the work of artists in other media so that copies could be sold and distributed as widely as possible. In making these reproductions engravers attempted to achieve the same quality of image as the original. Through the use of line mezzotint, aquatint and lithography, tonal subtleties previously found only in original paintings could be achieved. Thus there existed in commercial and reproduction printing a continually evolving technology with the express aim of achieving as close a likeness to the original as possible.

In the eyes of the general viewing public there was little or no distinction between reproductions of paintings or drawings by independent engravers, prints by engravers working under the artist's supervision, and prints engraved or etched by the artist himself. This lack of

distinction, as far as the uninformed public was concerned, was understandable, as all prints were hand-engraved and all depicted the work of artists.

To a very large degree reproduction engravers depended on the aristocracy of Europe in the 17th and 18th centuries for support. This patronage did encourage a high technical standard and the reproduction of good quality work. The popularity of printmaking in general reached a high point in the 18th century. There was an upsurge in amateur printmaking among the upper classes and aristocracy though it was seldom that work of any significance emerged from this quarter. However, this state of affairs was not to last. The late 18th century saw the beginning of social and economic changes which were to rock Europe to its foundations. As a result of the French Revolution of 1789, the fall of the aristocracy and the subsequent social upheaval, a decline occurred in the market for both reproductions and original prints.

Professional engravers found themselves hard pressed financially. This was remedied to a great degree in the 19th century by the rise of a new middle class in Europe which was prepared to buy prints, but lacked the taste or connoisseurship of the vanished aristocracy. Engravers found it highly profitable to reproduce the paintings of popular academic artists of the era, catering for the taste of the middle class and inadvertently having a detrimental effect on the market for prints by painters/engravers. Artists, in the early 19th century, had their prints lumped together with reproductions of high technical virtuosity (aided by the invention of mezzotint and aquatint) but low in artistic value. To the average viewer, how a print was made was of little importance, as all prints were made by hand, regardless of the process used, or whether the prints were made by craftsmen or artists. What did exist were varying degrees of virtuosity in the making of prints. Sophisticated reproductions became the criteria by which all prints were judged - by the public and many critics and connoisseurs. The Academies and Salons of the time supported reproduction engravers, as paintings to be reproduced usually originated from such institutions. Prints with qualities of originality, innovation and vitality by artists lacking technical sophistication or popular subject matter could not compete. What the artist may have lacked in sheer technical virtuosity he made up for in sensitivity towards the medium and the ability to coerce the

process and materials to work for him in a unique personal way. The artist who is a serious printmaker does not use print primarily as a means of making exactly repeatable images, but rather as a means of expressing himself through the medium of print which has visual characteristics unique to the processes and materials used. If the value of such personal involvement by the artist is not recognised by the viewing public there is little motivation for the artist to continue making prints. Two alternatives exist: either the artist must cease thinking in terms of print or he must succumb to the sophistication of reproduction print technology and allow his work to be printed by craftsmen.

It must be noted, however, that there were professional craftsmen highly sensitive to the qualities and subtleties of paintings by artists of stature. For example, David Lucas (1802-1881) and Timothy Cole (1852-1931) made poetic reproductions of Constable's paintings.¹⁰ The erosion of support for original prints could possibly have continued to a point where no serious artists would consider print as a serious creative medium. Yet despite, or because of, this loss of ground to reproductions, there emerged in Europe and in France in particular, a new awareness of the role of the medium as used by artists. A concept of originality began to emerge.

Adam Bartsch, writing in the early 19th century, made clear that in his opinion a distinction existed between 'prints by painters... which are always sought after by true connoisseurs and by artists themselves and prints by "engravers" or copyists.'¹¹ Alternatives to the existing criteria concerning quality in printmaking began to emerge: a print need not be judged only on its technical virtuosity and visual content, but also on how the artist (as opposed to the craftsman) made use of the printing process.

French etching and lithography had faltered frequently during the 19th century and although the greatest artists experimented in print techniques backed by publishers like Cadart, critics and collectors alike preferred works by rather feeble engravers interpreting paintings. In England the position was the same. A whole school of reproductive steel engravers, copying oils by Royal Academicians now forgotten, satisfied the pictorial demands of the new Victorian middle class.*

*Publishers paid enormous sums for engraving rights. Frith's 'Railway Station' - £4 500 in 1860, earned Holl the engraver £2 000 for two years work, and sold for £15,15 a signed proof.¹²

Above is an outline of the historical development of reproduction printing and its relationship to original printmaking. It is necessary at this stage to examine in greater depth the way in which reproduction printers made their prints, and the attitude of the industrial craftsmen towards the medium. William Ivins in his book 'Prints and Visual Communication'¹³ examined the use of visual syntax and grammar in the printing of pictorial images and argued that the way information transfer was achieved through the printed image influenced perception of that information.

In any form of printing, in order to be able to make a print and further identical multiples, the image has first to be made on a block or plate in such a way that, when inked and printed on paper, it would produce an image on paper. In order to achieve this the image has to be codified; that is to say, the image has to be transformed into a grid or pattern of lines or dots which will define form and simulate various textures.

Because reproduction printing was an industrial process and dependent on economic success, craftsmen had to evolve a method of codifying images which afforded maximum information in the minimum of time required to codify the plate. At the same time it had to be taken into consideration that fine engraving weakened the plate. The stronger the plate, the greater the number of high quality prints produced.

As discussed above, reproduction printing came into its own in the 16th century initiated by Raimondi and other Italian engravers. As the economic significance of this form of printing became apparent, the practice spread rapidly. Ivins refers to the influence of three individuals, namely Rubens (1577-1640), Callot (1592-1635) and Bosse (1602-1676) who each in their own way helped to establish the norms of reproduction printing in the early 17th century. This was to lead to what Ivins termed the 'tyranny of the rule'.¹⁴ Those involved in the making of printed pictorial statements developed a tradition, a way of making prints which was of great significance in the way information was perceived until the advent of photography changed the methods used to codify images (see Chapter 2(a) page 26). Ivins refers to the 'net of rationality';¹⁵ a geometrical construction that catches all the so-called rational points and lines in space, but completely misses the infinitely more numerous and interesting irrational points

and lines in space. The effect of these rationalised webs on both vision and visual statement was a tyranny that, before it was broken up, had subjected large parts of the world to the rule of a blinding and methodically blighting visual common sense. What was not according to the book of deportment for the makers of exactly repeatable pictorial statements was not only 'not done', but, worse, it was bad manners.¹⁶

It was with this tyranny of the average informative reproduction that original artist/printmakers had to contend, for in contrast to reproduction craftsmen, they used a chosen printing method in a unique and personal way, often experimentally. This alternative Ivins termed the 'Seghers-Rembrandt tradition'¹⁷ which will be discussed in the next section.

It must be noted that lithography, when it was invented by Alois Senefelder (1771-1834) in the late 18th century, had certain properties which set it apart from gravure and its rational codification. Lithography is the most direct of the autographic processes. No technical training was required before an image could be made. Images did not have to be codified as with gravure, but the process was still capable of printing images of fine detail and high quality in large editions. With the advent of lithography the 'tyranny of the rule' began to crumble. Direct, particular, informative images could be printed which anticipated photo-mechanical printing methods.

Original printmaking as a concept emerged in the late 18th and early 19th centuries, as a result of the ever-increasing pressure on artists caused by the sophistication and popularity of reproductions. Its origins, however, date back to the 17th century.

It is necessary at this stage to examine how artists could use print as a creative medium, before examining the 'Seghers-Rembrandt tradition'. Since the first century of printing in Europe certain artists had found the medium suited to their styles and temperaments and were able to exploit its potential to the full. Apart from the obvious advantage of being able to make multiple originals, artists have used print because the various techniques available offer a wide range of unique visual effects and possibilities, not to be achieved by any other means, through technical processes which themselves can become part of the creative act. Artists may use print to varying degrees of originality, but what is fundamental to all original printing is that the artist, to

a greater or lesser degree, as opposed to the reproduction craftsman, exploits the techniques, materials and printmaking processes themselves in an open-minded experimental manner in order to make visual statements which are at one and the same time works of art and the visual manifestations of the involvement of the artist in the technology and materials of the various print processes. Great prints have seldom been made by specialists. The greatest prints of the past have been made, with few exceptions, by artists, usually painters, who have found in print a medium capable of powerful expression.

The act of creating a work of art in any medium requires that the artist, with sensibility and a particular temperament will, with perceptive observation of life, knowledge and experience, achieve a state of mind conducive to creative thinking. Through imaginative powers, the will to form and technique, these thoughts can be converted into visual form and arranged into meaningful shapes and patterns in a chosen medium.

Should the choice of medium be printmaking the artist is required to make further choices concerning materials and a suitable printing process. The artist is likely to choose his tools and materials according to his temperament and the idea or mood which he intends expressing. Practical considerations such as availability of materials and machinery could also influence his choice.

In choosing to produce a particular image through the medium of wood, for example, rather than etched metal plate, the artist has predetermined to some extent the nature of the image. The medium, partly, conditions the message.¹⁸ The characteristics peculiar to the medium chosen by the artist will manifest themselves to a greater or lesser degree depending on the technique of the artist. These characteristics form part of the visual manifestations of an artist's perception which is the arrangement of form and the creation of expression peculiar to the individual artist, and denotes personal style.¹⁹

The process required to produce a print, in other words, the craft of printmaking, offers the creative artist certain benefits unique to printing. The process of making an imprint on paper from a plate or block is an intermediate step between the artist's act of converting his perceptions into visual form and the final visual statement. Processing a particular material with tools and chemicals and applying ink to the resultant plate or block is that part of the printing process which the artist controls (although accidental effects can be

exploited). The second process, whereby an image produced on paper from the crafted block or plate is beyond the immediate control of the artist. The transfer of ink from one surface to another and the automatic reversal of the image (except in the case of screenprinting) is the result of pressure which is usually exerted by a machine - a press. The image appears on the paper in an instant final form. It is an image complete in itself which cannot be altered. Should the artist consider the image incomplete, alterations can be made to the plate or block and further prints or 'states' produced.

It is possible for the artist to pull an edition of prints of a particular state at any stage in the development of an image and continue experimenting with the plate. It is possible for the artist to explore the potential of a particular concept or certain visual effects to the point of spoiling the block or plate thereby establishing by experimentation which state is the most successful as a visual statement. Thus a print process could be used by an artist to make an image which could be almost precisely what the artist anticipated or visualised initially or, through exploration of the process, an artist may achieve an image not as initially visualised. The former approach is generally that of the artist/engraver who may make major statements in paint or sculpture using print as an alternative means of expression. The exploratory process is of use only to the artist. In the realm of industrial and reproduction printing experimentation of this nature would be uneconomical and unnecessary, as a print made by a craftsman or technician is conceived in its final form. It is almost impossible and normally not really desirable that the artist should be able to visualise exactly what form the printed image will take. The intervention of a mechanical process, the reversal of the image and the characteristics of the printing materials made visible as an intrinsic part of the image give the print a certain presence which cannot be completely anticipated in the conception and making of the plate, block or stencil.

The unpredictable nature of creative printing allows for accidental effects which can be exploited by the artist or eliminated. Hayter considered the open-ended approach to printmaking as vitally important.

'It is in the exposure of his idea and his plate to the accidents of a method, to the imminent risk of destruction, that the greatest result may occur in the work and the most valuable experience in the artist. I would suggest that the courage needed to adventure in this manner, as much as the oft-quoted

infinite capacity for taking pains, may be a component of genius, and may distinguish the valid artist from the hack.²⁰

An artist with stylistic strength and maturity will by his choice of materials, tools and their use, and by experimentation and the exploitation of accidental effects be able, through direct participation in the making of his image as a print, to produce work stylistically consistent, but often evolved beyond the initial vision or concept.

The process involved in creating an original print prompted Samuel Richardson, writing in the 18th century, to distinguish between the various ways in which an artist may approach printmaking. Prints '... may again be subdivided into three kinds. First, those they have done after a painting of their own. Second, those done after a drawing also done by themselves. Finally, those designed upon the plate which has been sometimes done especially in etching ... if it be designed on the plate it is a kind of drawing (as the others are) though in a manner different from the rest, but is purely, and properly, original'²¹

His recognition of the special relationship between originality and the method used to produce the print which involves direct participation by the artist and produces a print different from other 'fine prints' was not generally accepted in his time. It was only in the late 19th century that prints by artists themselves began to be generally accepted as being 'original' and therefore special.

After the establishment and popularization of reproductions, the tradition of making original visual statements in print was left to those artists who found affinity with the medium. And there were always artists who found in print a means of achieving certain ends. S.W. Hayter devotes a chapter in 'New Ways of Gravure' to those artists who, since the 17th century, made original prints and laid the foundation of the concept of originality in printmaking and nurtured it through four centuries in the face of lack of interest, ignorance and the popularity of reproduction printing. They include Jacques Callot (1592-1635), Hercules Seghers (1590-1640), Rembrandt (1606-1699), Piranesi (1720-1778) and William Blake (1757-1827). To this list could be added Goya (1746-1828) and Eugene Delacroix (1798-1863). Ivins concentrates on Seghers and especially Rembrandt as initiators of the tradition of original printmaking.²²

Early in the 17th century Jacques Callot, working mainly in Lorraine, produced a great number of etchings. He did important experimental work and was a great influence on later printers. But as indicated by Ivins, Callot was a professional etcher rather than an artist who made etchings and is more important as one of the initiators of the alternative tradition.²³ Claude Lorraine (1600-1682) also produced important experimental work. But it was Holland that became the centre of creative printing. The gravitation from Germany to Holland of creative printing corresponded to the golden age of Dutch painting. The Dutch landscape and genre painters found in etching a technique free, relatively quick, and versatile. It was capable of fine line and detail and a variety of textures could be built up as equivalents to the effects produced in their paintings. It was also open to experimentation which was very important as it enabled them to produce prints expressing very strongly their individual styles.

Hercules Seghers was one of the most important Dutch painter/engravers. His etchings were mainly landscapes as were his paintings and he developed a distinctive etching style. His experimental work was important and included experimental work in textures and colour. Rembrandt owned a number of his works. Anthony van Dyck (1599-1641) and Adriaan van Ostade (1610-1684) amongst others used etching in an individualistic and creative manner. Prints of portrait heads in pure etched line by Van Dyck are among the finest ever made. They were unfortunately handed over to professional engravers for completion.

Rembrandt van Rijn was the greatest etcher of the era if not of all time. He was the first truly great painter/engraver after Dürer, but developed a different approach to print. He appears to have had the minimum of instruction in etching, but quickly mastered the technique and proceeded to break rules in order to achieve effects he wanted. Printing was to him a means, as valid as painting, of self-expression. His output was prolific and became a visual diary of his life as well as a medium for Biblical themes, genre landscape, portraits and nudes. He developed his technique, combining etching with some drypoint and engraving, to a degree that allowed him to achieve remarkable chiaroscuro effects, spontaneous masterful line work and fine controlled detail. It appears that to Rembrandt the making of a plate was an intimate creative process. The image was to a degree conceived on the plate. Technical rules were often ignored as he experimented and

and reworked his plates in order to achieve effects he wanted. His influence on future creative printing was enormous. He showed more than anyone else (except perhaps Picasso in the 20th century) what an artist with vision can achieve in print.

By the beginning of the 18th century fine printing had increased enormously in popularity. Reproductive printing reached its height during the course of the century and national schools began to appear. But of the enormous body of printing produced, the work of only a handful of artists was really significant. They appeared in different countries at different times, in groups or as individuals.

Etchings remained the technique of creative artist/engravers and as a result of Rembrandt's influence, found increasing favour among amateurs and professionals. In France a small group of painter/engravers, of whom Watteau (1684-1721) was the most famous, produced original etchings early in the century. The period from 1760 to 1780 saw another revival in French painter/engravers including Fragonard (1732-1806). However, the most significant group of etchers of the century were the Italians, Canaletto (1697-1768), Tiepolo (1696-1770) and Piranesi (1720-1778) who worked between 1740 and 1770 in strongly individualistic styles and had a profound influence outside Italy. Piranesi was a great visionary and innovator whose work as a pre-Romantic was more appreciated in the 19th century than in his own.

The 18th century also saw the revival of satire and caricature in print, a tradition which dates back to the engravings made of Breughal's drawings. Hogarth (1697-1764), early in the 18th century, reacted against conventional English painting and engraving with his satires on contemporary life. Later in the century English caricature flowered in the work of Gillray (1756-1815), Rowlandson (1756-1827) and Isaac Cruickshank (1756-1811). In France during the Revolution, engraved caricatures, often influenced by the English artists, were used for propaganda purposes. David (1748-1825) made caricatures for the Revolutionaries which were engraved and published. The finest work of this tradition was created in Spain by Goya (1746-1828) at the end of the century and by Daumier (1808-1879) in the 19th century.

The major direction original printmaking was to take in the 18th and 19th centuries stemmed from a direction which developed in what before had been a united approach to artistic creation in Europe. Painters were faced, especially in France, with two opposing trends: Neo-

classicism and Romanticism. Neo-classicism emerged in the wake of Baroque and Rococo painting as an international movement rooted in antiquity and classical aesthetics. David and Ingres (1780-1867) were its greatest exponents in France. It became the basis of the official French school of the 19th century, bound by rules and Academies. Neo-classical painters were generally conservative in their approach to painting and were more concerned in obtaining highly finished surfaces and delineated form than in exploring the creative possibilities of paint. The same attitude extended to printing. The creative potential of etching or engraving was of little interest to the Neo-classicists.

In order to obtain the equivalent control and finish that they strove for in paint, the services of a professional engraver were required. Neo-classical artists seldom created work specifically for printing as engravers were able to reproduce their paintings. Louis David did no original engraving caricatures for printing. Ingres is credited with one etching and a small number of lithographs.

The Romantic movement emerged as a reaction to Neo-classicism and emphasised the emotive, imaginative and dramatic. Contemporary themes became important. In painting, brushstroke, colour and the creative process were emphasised. Romanticism spread over the whole of Europe. In France, early in the 19th century, it reached its height in the work of Gericault (1791-1824) and Delacroix (1798-1863). In the 18th century there were important forerunners to the movement who, as creative printmakers, produced the most important work of the century. Artists of the Romantic movement had, from its beginnings in the 18th century, an affinity for print. These include two French painter/engravers, Watteau and Fragonard. William Hogarth, often in a shocking manner, anticipated Romantic attitudes in his depiction of contemporary subjects. In print his reaction was in content only as he engraved the plates himself in a conventional manner and made use of professional engravers.

Romanticism was best expressed in print through the 'contrast of black and whites, the battle of light and shade, the antithesis of opposites', which were according to Victor Hugo part of the aesthetic make-up of the movement.²⁴ In this context the prints of Piranesi and Goya are the most important of the century. Piranesi produced a series of etchings of prison scenes in 1745. The strange subject matter, strong chiaroscuro effects, the contrast in scale between the building and human figures and the mysterious foreboding quality, combined with a

free and powerful use of the etching needle resulted in work of the highest order in the Romantic tradition.

Goya is one of the greatest painter/engravers. Without special knowledge of etching or aquatint, he produced, from the age of fifty-three, three major series of prints. His subject matter, often shocking and satirical, in the tradition of Jacques Callot and Hogarth, dealt with situations in contemporary Spain. He worked in the manner of a true artist/engraver and was not bound by rules concerning technique. He laid his own aquatint grounds and produced prints in which the characteristics of the technique are irrevocably bound up in the expressive power of the prints. His masterpiece, 'The Colossus' (executed before 1818) was created using a method halfway between mezzotint and aquatint, which Goya manipulated to produce his most powerful print. Goya was a great admirer of Rembrandt and was indebted to him in his use of line, light and shade and his approach to printmaking. Goya was an important influence on the 19th century painter/engravers, especially those of the Romantic movement and Manet later in the century.

William Blake trained as a reproduction engraver but was able, with the help of a fertile imagination, to break away from convention and produce work to his own liking. He experimented with unorthodox etching techniques and printed and published his own poems and illustrations. The strong prejudice in favour of conventional reproduction printed in England at that time meant that Blake received little recognition for his original approach to printmaking or his powerful imagery. He has, however, been subsequently recognised as one of the greatest printmakers of the 18th century.

In the first half of the 19th century, Europe continued to be dominated by the Romantic and Neo-classical movements. In France Gericault and Delacroix, together with Goya in Spain, were responsible for the first flowering of lithography in the 1820's. The technique was invented in 1798 by Alois Senefelder in Germany. It is the most direct of the graphic processes and is capable of a variety of textures and a wide tonal range which suited artists of the Romantic movement. The prints produced by this group of artists were outstanding examples of lithography and of prints in the tradition of creative printmaking. Etching as a creative technique had generally declined in Europe after the Italian masters of the 18th century. There were important excep-

tions such as the etchings of Goya and Delacroix. One of the main reasons for its decline, other than reproduction printing, was the stifling effect of Neo-classicism and the later Academic style on creativity.

In the rest of Europe very little creative printmaking of note was done, except in Germany and to a lesser degree in England. In Germany there was a revival of woodcutting and wood-engraving. A number of leading German painters contributed to the movement including Adolph Menzel (1815-1905) and Alfred Rethel (1816-1859). In England wood-engraving, perfected by Thomas Bewick (1753-1828), enjoyed a brief flowering as an art form at the turn of the century. Both Constable (1776-1837) and Turner (1775-1851) made etchings (which are not well known) but to the general public mezzotint and engraved reproductions remained the popular graphic art form. The lack of creative printing in the first half of the century, especially after the decline of Romanticism, was not rectified overnight, but by the end of the century original printmaking was viewed in a completely different light.

The tradition of original printmaking initiated by Seghers and Rembrandt in the 17th century established itself through the masterpieces of great artists who found in printmaking an alternative means of expressing themselves. Yet despite the quality of the prints made by great artists and the potential of various techniques revealed by artists, printmaking was not established as an important or popular medium by the 19th century. One of the basic reasons for this, as discussed, was the development and popularity of reproduction printing. Artists were discouraged from attempting printmaking because of competition from craftsmen. It was not possible to make a clear distinction between reproduction and original prints.

On the positive side it must be borne in mind that industrial demand resulted in the maintenance of high technical standards and the further development of print technology. The reason for the development of new printing techniques such as mezzotint, aquatint, lithography and wood engraving was to improve image quality and printing efficiency. Techniques developed by industry for specific utilitarian reasons and purposes were often used by artists for very different reasons and purposes, often difficult to define and personal. It is clear that, although the same medium and technique may be used to make an original print and to make a reproduction of a work of art in another medium,

the thought processes behind the two types of print are totally different. The way a reproduction looks, its qualities and failings are dictated by economic factors recognised by the craftsmen making the prints. On the other hand an original print is the result of a unique interaction between an individual artist and the materials and apparatus at his disposal. Print originality was based on an intellectual appreciation of, and sensitivity to the medium chosen by the artists, coupled with imaginative powers and fine draughtsmanship.

Because of the proximity of reproduction printing to original printmaking, inasmuch as the same medium and content could be involved, a superficial similarity existed between the two types of printing. This encouraged comparisons to be made. The viewing public was generally uninformed and unable to distinguish between reproductions and original prints inasmuch as their approach to the medium differed. What was recognised in reproduction printing was high finish, technical virtuosity and popular subject matter. Reproduction of art work had a more immediate appeal in the print market to the detriment of artist engravers.

As the popularity of original printmaking waned in the late 18th and 19th centuries, the concept of what an original print was became more clearly defined, but was not generally accepted. Richardson implied that the more direct the artist's involvement with the medium, the more 'properly original' a print would be. The word 'original' was then referring to the way in which a print is made rather than originality of content or style.

The defining of originality was not a clear-cut issue. Between the two extremes of (a) the artist working directly onto a plate or block without referring to preliminary drawings, and (b) the artist giving a reproduction craftsman permission to make a print of a drawing or painting, lie many shades of print originality. Many artists employed assistants or craftsmen to a greater or lesser degree. But the most important factor governing print originality concerns the amount of control the artist has, ultimately, over his work and the degree of understanding he has of the medium, the limits and potential of the tools, materials and technique best suited to his style. The artist could exploit anything and anybody who would aid him in achieving an image to his satisfaction.

The development of new industrial printing methods in the 19th century

presented artists with new and very different means of achieving printed statements. It might have been expected that artists would adopt the new technology, as had happened in the past; but because of the nature of photographic technology, artists reacted against it.

The result was a period of withdrawal by artists from the realities and implications of new industrial printing processes and their impact on and visual communication in the 20th century.

(c) References

1. Hayter, S.W., 1966, p.170
2. Lewis, J., 1970, p.16
3. Shestack, Alan, 1972, p.31
4. Zigrosser, C., 1965, p.20
5. Murray, P. and L., 1963, p.194
6. Hayter, S.W., 1966, p.181
7. Ibid., p.181
8. Zigrosser, C., 1965, p.20
9. Hayter, S.W., 1966, p.183
10. Gilmour, P., 1978, p.20
11. Bartsch, Adam, 1803-21, p.IV (quoted by F. Salamon, 1972, p.3)
12. Gilmour, P., 1970, p.10
13. Ivins, W.M., 1953
14. Ibid, Chapter IV
15. Ivins, W.M., 1953, p.70
16. Ibid., p.70
17. Ibid, p.71
18. Gilmour, P., 1978, p.24
19. Read, H.E., 1933, p.34.
20. Hayter, S.W., 1966, p.278
21. Richardson, Samuel, quoted by J.Adhémar, 1971, p.230.
22. Ivins, W.M., 1953, p.79
23. Ibid., p.73
24. Huyghe, R., 1965, p.16

CHAPTER TWO

- (a) A definition of photography and an examination of its impact on 19th century printing
 - (i) Photography, visual perception and communication through the medium of print
 - (ii) The influence of photography on painting and through painting on printmaking
 - (iii) The influence of photography on industrial printing technology
- (b) The development of the concept of print originality in the second half of the 19th century
- (c) References

(a) A definition of photography and an examination of its impact on 19th century printing

The second half of the 19th century was an era of revolution and experimentation in the visual arts. In the space of fifty years printing, painting and sculpture underwent fundamental changes. Since the 15th century original printmaking had played second fiddle to painting and sculpture. Artists seldom made printing their major medium although it was raised to the level of a high art form. As a secondary medium, under pressure from reproduction printing, and lacking autonomy, original printing in the second half of the 19th century did not play a leading role in the changes which occurred. Industrial printing, however, after the invention of photography, did have a profound influence on the whole field of the visual arts. Since the 15th century, European art had fallen within the framework of the Humanistic tradition of the Renaissance. It has as its basic aim the reproduction of the actual world. This could be achieved 'either by an accurate imitation of an actual scene or by constructing a picture according to those optical laws to which our vision inevitably conforms'.¹ In the late 19th century after five centuries of continuous development a break occurred in this tradition. The reasons for the visual revolution are complex and many. Europe in the 19th century was in a state of political and economic turmoil. France continued to be the centre of cultural and political developments, and the 1848 revolution indicated the end of an era in France and consequently in Europe. Socialism and the proletariat emerged as new forces to be reckoned with. Revolutionary developments in science and industry resulted in rapid changes to the European economy and the development of a new society began based on newly realised sources of energy, the machine, the worker and the compulsion to progress.²

As far as Art was concerned, by the mid 19th century the conflict between Classicism and Romanticism which had dominated European art for the past century was all but over. Neo-classicism degenerated into Academic Art which remained the popular style for the rest of the century. Realism followed by Impressionism and Post Impressionism was initiated by avant-garde artists who reacted against the Academic style and eventually broke away from the Renaissance tradition.

Photography was one of the major technical innovations, and certainly the most important visual innovation of the Industrial Revolution.

The impact of photography, primarily through its use as a communications medium was profound and induced a revolution in the visual arts with implications yet to be properly assessed. The principle of photography has been known for centuries and camera vision has been exploited by artists through the use of the camera obscura. In the 1840's, through the inventive genius of Daguerre, Talbot and Niepce, photography became a practical reality. The means were found to fix an image - to freeze a moment in time on a two dimensional surface. Photography cannot be better defined than by Estelle Jussim who wrote the following:

'Photography results from the molecular changes in light-sensitive materials which have been exposed to the light reflected from three-dimensional, real objects through the lens of a camera focussed on a surface, and ordinarily represents the amount of actinic stimulation from the real world by the compression of that information on a flat, rather than on a three-dimensional, surface. Using a lens which approximates the normal range of human vision, and a light sensitive emulsion which has condensed scanning characteristics approximating normally human differentiation of textures, the process of photography can supply a closer approximation to three-dimensional reality, as transposed through molecular codes on a flat surface, than any other graphic technology. With a sharp-focus lens, and a molecular light-sensitive emulsion with a wide exposure latitude, it is probable that the compression index of photographically transmitted information is greater than any hand process, even including the mezzotint. Since photography - as we describe it here - is posited as imitating the characteristics of human vision, with the notable and all-important distinction that it represents the world as flat rather than as three-dimensional, the recording made of a message about an original must be understood to be as much a coding of a message about an original as that used by any other graphic process. The difference is simply that photographic coding is subliminal (except where it is too greatly enlarged from a small negative; then the grain shows distinctly), conveying what amounts to an optical illusion which we learn to accept as a surrogate of reality.'³

It is apparent from the above quotation how different photographic images are from any previous means of transmitting messages about originals. On one level the benefits of photography and its applied

functions were immediately apparent and were readily accepted. On other levels the influence of photography was either rejected or could not be easily assessed as good or bad. It was thus very difficult for those either receiving or transmitting information through the medium to come to terms with it.

For printmaking, both industrial and original, the most significant event of the 19th century was without a doubt the development of photography and photo-mechanical printing. '... the photograph, with all its applied discoveries and its applications to the service of the printing press, may be said to be as important a discovery in its effects on art and books as was the discovery of printing itself....'⁴

Photography was developed primarily as an industrial process, as a means of improving visual communication. This was in line with all previously invented image-making processes. But it was also a product of the Industrial revolution. It differed from all previously used image making processes in that it was a chemical rather than a manual process. It is a 'science in which the physics of light and of lenses and the chemistry of making light images permanent are basic',⁵ but like other visual media such as painting or printmaking, despite the chemistry or mechanics associated with the medium, photography can be used creatively. This depends on the person behind the camera and his ability to exploit the qualities of the medium.

The influence of photography on both industrial and original printmaking cannot be defined in simple terms. It made its influence felt, both positively and negatively, in a number of ways.

Firstly photography initiated a revolution in the communication of visual information. It was able to reflect the external world automatically. The camera and the light/chemical process replaced the hand-held pen, brush or burin. The visual syntax of industrial pictorial printing which had dominated the way printed images looked was replaced by the grain of a pure photograph and the half-tone dot system of a printed photograph. The resultant alteration in the way visual images were perceived had a profound influence on printmaking both directly and through industrial printing.

Secondly, it was possible through pure photography and photo-mechanical printing to produce masses of pictorial images which had an inevitable impact on art and artists despite attempts to repudiate the influence.

'It is not surprising, during an age in which the efficiency of

the machine would appear to be one of the essential virtues, that the authority invested in the machine by which nature could take her own picture would impinge on art in the most fundamental way.⁶

The impact of photography on the dominant medium of painting and painters who were often significant printmakers, resulted in the strong, if indirect influence of photography on printmaking. This was reinforced by the strong stylistic correlation which existed between painting and printing.

Thirdly, on a purely technical level, photography radically altered industrial printing methods in the late 19th century. Photographic images when mass-produced in a printed form, resulted in changes in visual communication and visual perception. Artists involved in printmaking rejected the new photo-mechanical processes for reasons discussed below. This led to the formulation of rather rigid criteria as to the printing methods an artist might use when making original prints.

Before discussing the three sections in greater detail, it must be noted that the influence of photography on the visual arts cannot actually be classified under three distinct headings, but is dealt with in this way to facilitate discussion.

(i) Photography, visual perception and communication through the medium of print.

In this regard Estelle Jussim's book 'Visual Communication and the Graphic Arts'⁷ is of particular interest. In examining the impact of photography on 19th century graphic illustrations, she has made a valuable contribution to the understanding of the revolution which occurred in the graphic arts in the second half of the 19th century. Her concepts and conclusions are especially pertinent concerning the break which occurred between original and industrial printmaking technology. To quote her:

'In terms of the graphic arts, the 19th century was a battleground where competing visual media were vanquished by a brash newcomer, photography.'⁸

'... photography and its accompanying photo-technologies more or less completely redefined the nature of artistic expression and of information transfer.'⁹

'Reproductive printing has as its primary aim the transmission of visual information through visual messages, usually accompanied by verbal text.'

'Book illustration, periodical illustration, prints, should all be understood to be modes of communication which have required the development of appropriate codes for the effective transmission of messages.'¹⁰

Jussim has formulated the concepts of message, channel and code (derived from earlier postulations by Ivins) to explain the theory of visual information. A channel is the physical medium of communication. A code is the structure imposed upon a message which permits that message to be transmitted.

'In all forms of communication, the channel, and the code together form the medium. In the case of the graphic arts, the channels of wood, metal, paper, ink in combination with lines, dots, half-tones or solid areas, provide the characteristic effects of what we label wood engraving, etching and so on.'¹¹

Messages (such as illustrations in commercial graphics) cannot be extracted pure from media. Content is interfered with by the medium. This interference can be severe, although normally the viewer is not aware, through conditioning and education, of the code or message of the medium.

Reproductions and other commercial pictorial statements made before the advent of photography required a 'primary codifier' or artist to create a visual message. The 'secondary codifier' or craftsman was then required to select a channel and translate the message into 'message units' so that the image could be printed. During this process the original image or three dimensional real world was subject to the interpretation of the artist and to the limitations of the medium and craftsman.¹²

From the early years of European printing, illustration was very important. The ability to duplicate detail made it possible to convey more information and as a result there was always a demand for duplicated images which were clearer and more readable. As a result craftsmen strove to improve codification processes through increased virtuosity, new materials and techniques. The less

interference caused by codification the better. Although craftsmen were able to codify images with incredible skill, the limits of the human eye and hand became evident when photo-mechanical techniques were invented. It became possible to translate an image into a code so fine as to be below the threshold of human vision.

In terms of reproduction printing this was the ultimate step in codification; when it ceased to be a texture in itself, but rather the means to imitate any texture or detail with the minimum of code interference.

'The invention of the ruled crossline halftone screen provided both a channel and a code which made it possible to manufacture a printing medium for a pictorial message in which neither the draughtsman (primary codifier) nor the hand engraver (secondary codifier) had a part. Its great importance lay in the fact that the code as distinct from the message could be below the threshold of human vision. In the old hand-made processes, once the visual message had been translated into the code, the message units of the code appeared to be synonymous with the message itself, and these units pre-empted attention as objects of aesthetic interest per se.'¹³

Reproduction engraving became synonymous with photo-technology and autographic printing with the creative process. By the early 20th century reproduction engravers had all but disappeared as they simply could not compete economically or technologically with the photographic processes.

Once it was established that photo-mechanical techniques were superior to craftsmen for industrial codification, the autographic processes could no longer be used for their power and utility as conveyers of information and detail. The old processes were left to artists to use, to codify creative work. In the hands of an artist the code remained a means of conveying information, but was also important for its own sake. The visual characteristics of the code became part of the artists' total statement. How a print was made became an important aspect of what the artist had to say. What came to be valued in graphic art was not technical virtuosity, but rather creative artistry in the struggle with materials and techniques in the codification of an image. This

had always been important in the making of original prints, but became increasingly so as part of the reaction against the dehumanising capacity of photo-mechanical printing.

'The permanent acceptance of the information transfer tasks of communication by the photo-mechanical media can be said to have liberated the autographic "Graphic Arts" to return to their role in artistic expression, and certainly the renaissance of the graphic arts in the 20th century was the direct outcome of the success of the photo-technologies. Yet it was precisely because the photographic technologies were relatively successful at assuming the workhorse role of information transfer, that photography as a medium was long an outcast from the inner circle of "fine arts". It has by no means been completely accepted to this day, despite the admirable achievements of the great photographers of both the 19th and the 20th centuries.'

Hence original printmaking entered the 20th century as a concept reacting against the impact of photography and reproduction technology, as developed for industrial printing which, as the century progressed, began to become an obsession for some artists and critics. Technical originality began to rival originality of artistic vision. However, in the long term, the state of separation which existed between industrial and original printmaking began to have a negative effect on both forms of printing. The situation was inherently artificial. Original printmaking, as revealed through its historical development, was a medium capable of exploiting any new technological developments related to industrial printing. But before original printing could benefit from new technological developments it was essential that artists come to terms with the medium of photography.

(ii) The influence of photography on painting, and through painting on printmaking

The Realist style of painting and the new medium of photography emerged at about the same time in France. The Realists stressed the actual as opposed to the ideal, the observed as opposed to the imagined. This included a pre-occupation with the squalid, ugly and depressing. Gustave Courbet (1819-1877), one of the great painters of the Realist movement, rejected all idealism in art and 'rebelled against both classicism and romanticism for their literary

and exotic subjects, proclaimed that only realism was truly democratic, and that the noblest subject for the artist was the worker and the peasant'.¹⁵

Courbet found that photography could aid his attempts to move away from ideal art. Aaron Scharf in his book 'Art and Photography' deals extensively with the interactions between photography and the visual arts.

'In its renderings of pose and gesture photography offered the first comprehensive alternative to forms fixed by antique tradition.'¹⁶

But artists, connoisseurs and the viewing public alike had difficulties in accommodating the procedures of photography within traditional aesthetic concepts. Jonathan Bental states 'Photography challenges our habitual notion of the control which artists are supposed, or were supposed to have, over their resources. It makes us query or redefine such terms as "intention", "subject matter", "content"; it makes us, first, respect the process of selection as potentially creative, and second, accept the intervention of random, or at least unpredicted, events as a legitimate part of the artist's output.'¹⁷

Courbet used photographs as source material for a number of paintings or parts of paintings including the nude in 'L'Atelier' (1855). The anti-idealism of Courbet's work caused a storm of controversy. Photography came to be associated with the avant-garde and was regarded as a threat by Academic artists whose style of painting approximated to what could be achieved with a camera. However the impact of photography on all the visual arts was persuasive.

'No artist, with minor exceptions, could approach his work without some awareness of the new medium So inexorably did photography insinuate itself into the art of that era that, even in works of artists who repudiated it, the unmistakable signs of the photographic image can be detected.'¹⁸

The Impressionist movement succeeded Realism and was very much indebted to it. The Realists had initiated an alternative approach to the Literary or Historical styles of painting. The Impressionist artists inherited this trend and its debt to photographic vision although they seldom openly acknowledged its influence. But the

basic philosophy of Impressionism indicates an awareness of and affinity for photographic vision. To quote Michael Florisne 'There was an absolute tyranny of the optic nerve from the time of Courbet (of whom Ingres remarked, admiring the power of his visual mechanism "he is an eye") to the time of Claude Monet of whom Cézanne said "He is only an eye, but what an eye".'¹⁹

The Impressionists attempted to achieve an ultimate reality or visual truth through the analysis of light reflected off the surface of objects, the fleeting changes of light and elements of composition. However, they were neither seduced nor overpowered by photography, nor were they a reaction against photography. Photography seemed to act as a catalyst which made Impressionism the culmination of an art style which had evolved since Giotto. It was the final (extreme) interpretation by artists of the natural world. They neglected form and concentrated objectively on the ever-changing effects of light on form which, taken to its logical conclusion, would result in a coloured surface devoid of subject or form (or in a slightly different direction, could become the equivalent of a colour photograph).

A reaction against the extremism of Impressionism was inevitable '... it was realised that analysis pushed too far ends by destroying the very aim of the scientific method in art, which is still to reproduce the appearance of the actual world.'²⁰

The influence of Oriental and Primitive art and culture further accentuated the reaction against the Renaissance tradition, Academic art and the conscious influence of photography. In terms of printing this influence reinforced the reaction against photo-mechanical print technology and encouraged artists to continue using traditional technology.

The reaction to the Renaissance tradition and Impressionism took the form of symbolism, Neo-impressionism and Post-impressionism with individual artists reacting in different ways. But photography, the ultimate imitative medium, became a focal point of the reaction. Aaron Scharf comments on its influence as follows:

'Common to all Post-impressionist styles was the concerted and active rejection of the material world as seen by the camera. Unbounded contempt was expressed in many literary and artistic circles for the mechanistic, unimaginative recording of contem-

porary life which was itself held in much disdain. The antagonism to the vulgarity of photographic realism in art, as well as in literature, contributed to the deliberate prescription of objective representation and the vindication of the subjective. The artificial and unnatural were extolled. The human touch, the intuition and a more abstract concept of reality were now considered fundamental to art. To exceed the limitations of the lens became imperative.¹²¹

It appeared that painters had, by the turn of the century, turned their backs on the 'tyranny of the optic nerve' and the camera. The attitude towards photography, in relation to painting, reinforced the attitude adopted by artists towards printmaking. But photography as a pictorial medium could not in fact be discarded by artists. Its influence both direct and indirect on modern art was to make itself felt continually during the 20th century. But because of the obvious technical similarities between printing and photography, the influence of photography on printmaking was more direct and more apparent than on painting.

(iii) The influence of photography on printing technology

Pre-photographic industrial printing processes depended on artist or illustrator to conceive and draw an initial pictorial image. The drawing was given to an engraver who codified the image so that a print could be made. As a result the final print could be as much as three times removed from the initial concept. Such printed images could only be perceived as symbolic representations of ideas which required interpretation by the viewer.

The artist/engraver who used the same autographic technology was often his own illustrator, codifier and perhaps even his own printer. With the division of labour either eliminated or greatly reduced, the various steps in the process required to make a print were reduced to a single creative process, resulting in an original print.

When photo-mechanical codifying processes were invented, such as photo-gravure and process halftone, they took over the function of codifying images from craftsmen, firstly because these processes were economically beneficial, and secondly because more information could be transmitted by these means. The type compatibility of

process halftone improved efficiency and subliminal codifying changed the quality of the image drastically. Such industrial processes could be used to make either prints or photographs or drawings and paintings. Before photography, subliminal codification eliminated the interpretation and interference of the craftsmen, which meant a more direct, truer reflection of the artist's initial concept, as his initial image could be objectively and clearly reproduced.

As a result of photo-mechanical advances in print technology, two effects could be noted in terms of original printmaking. Firstly, artists using autographic printing methods felt threatened by subliminal codification processes which resulted in confusion as to what precisely was a reproduction and what was an original print. Secondly, it was generally assumed that 'static' or interference was eliminated from the subliminally codified print of a photograph. Ivins supported this contention. Jussim on the other hand proposed that 'Far from replacing the "syntactical" interference by the hand engraver, it merely substituted a new set of transmission problems'.²²

It was only with the rapid development of mass media after World War II that the characteristics and strength of interference of photo-mechanical codification started to become evident. There was an increase in academic discussion and research into the nature of visual communication. The Pop art movement also had, as one of its main pre-occupations, the influence of mass media on society. The visual syntax of industrial printing was exploited by artists, initially through the medium of paint and mixed media and inevitably through printmaking as well. This had a profound influence on the tradition of the original print.

(b) The development of the concept of print originality in the second half of the 19th century

The concept of originality which had been slowly developing over a long period in printmaking came into its own in the second half of the 19th century. As has been established in the examination of painting during this era, painters had, by the end of the century, reacted against the Academic style, the Renaissance tradition, the cultural sophistication of the era and any open acceptance of the influence of photography on fine art.

Original printmaking underwent a similar reaction. Primarily it was a reaction against reproductions by professional craftsmen, but later included any prints made with the aid of photographic technology. Finally, all forms of printing other than the traditional autographic methods were considered outside the realm of original printmaking.

By the middle of the 19th century printmaking had reached a low point in Europe. In France the first flowering of lithography was over by 1830 and was not succeeded immediately by any movement of significance. Reproductions in the academic style were the popular print form of the era. The only printmaking of importance was that done by artists of the Realist and Barbizon movements from 1850 onwards who found in etching a technique suited to the earthy, unsophisticated nature of their styles. Millet, (1814-1875), Corot (1796-1875), Courbet (1819-1877), Jongkind (1819-1891) and others made direct, technically simple statements in etched line. In 1862 Cadars, the French publisher, attempted to revive interest in original printing by publishing the works of artists such as Manet (1832-1883), Jongkind, Haden (1818-1910) and Braquemond (1833-1914). The publication floundered after about ten years. But these artists and others such as Millet, Whistler (1834-1903) and Degas (1834-1917) continued to produce original prints in the face of public indifference.

However, a slow revival of interest in printmaking was in progress which was correlated with the increasing disengagement of avant-garde artists from the popular academic style and the increasing influence of photography. In 1881 the Society of Printer-Etchers was formed in England with Seymour Haden as an active member. In 1889 the 'Peintres-Graveurs Originale' appeared in France and interest in original printmaking revived publications such as 'L'Stampe Originale'.

Despite the apparent lack of interest in printmaking, the direct and indirect influence of photography and its technology on the visual arts was having a profound effect on printmaking. Original printmaking came to be associated with autographic techniques and reproductions with photo-mechanical processes. However, the rejection of new printing techniques by artists was a move contrary to print tradition. The nature of original printmaking and the way artists used developments in industrial printing, as discussed, indicated that they would exploit any new technology as it became available. This was not the case with photography. In the early days of photo-

graphy artists attempted to combine autographic and photographic processes and developed the technique of cliche-verre. Corot, Daubigny (1817-1878), Millet and Théodore Rousseau (1812-1867) used the method, which requires the artist to draw with an etching needle on a blacked out glass plate. This negative is then printed on light sensitive paper. William Ivins commented on the technique as follows:

'... because these prints were neither etchings, nor lithographs, and because they were not actually photographs made with a camera, they never became popular among collectors or public. In this way tradition won out over the actual fact that here were some of the most thoroughly original and indubitably artistic prints of the century. I have sometimes wondered whether there is any field of art collecting which is more hidebound and hamstrung by arbitrary definitions than that of prints.'²³

This conservatism is indicative of the confusion caused by photography. Later in the 20th century, when artists began experimenting with modern photographic printing technology, cliche-verre, because of its likeness to etching, appeared to critics to be perhaps the only legitimate photographic technique suitable for artists' use.

When photography took over from engravers the recording and communicating of factual information, a distinction began to develop between pictorial expression and the pictorial communication of statements of fact. In terms of art the difference between a printed reproduction of an art work and an original print became clear. To quote Ivins:

'The profound difference between creating something and making a statement about the quality and character of something had not been perceived. The men who did these things had gone to the same art schools and learned the same techniques and disciplines. They were all classified as artists and the public accepted them all as such, even if it did distinguish between those it regarded as good and as poor artists. The difference between the two groups of artists was generally considered to be merely a matter of their comparative skill. They all drew and they all made pictures. But photography and its processes quietly stepped in and ... made the distinction that the world had failed to see.'²⁴

* As the distinction between reproductions and original prints became increasingly evident, the status of creative printing began to improve.

Etching, because of its direct, free quality, became the technique most used by artists as an alternative to engraving or photography. Etchings, however, were not readily accepted by the public or Academics as they lacked the virtuosity associated with engravings. But in terms of expressive power they were often exceptional. Whistler was one of the important leaders in the field of etching. With other artists such as Hayden he looked back to Rembrandt's work for inspiration. He treated a single etching plate as a means to print any number of unique images through manipulation of ink on the surface of the plate. In addition he signed and editioned prints so as to remove them further from mass produced images.

There was also a revival in lithography in the late 19th century in France which was begun by Fantin-Latour (1836-1904) in 1873 and was continued by Odilon Redon (1840-1916), Manet, Degas, Pissarro (1830-1903), Cézanne (1839-1906) and Toulouse-Lautrec (1864-1901). Lithography enabled artists to make prints of a highly personal nature, through the direct use of crayon and tusche on the stone. There was also a revival of the woodcut because of its simple primitive quality which was exploited to the full by Gauguin (1848-1903) and Eduardo Munch (1863-1944). Gauguin, preoccupied with primitive cultures, found the woodcut compatible with his style. He wrote that wood engravings, used much during the 19th century for reproduction and other commercial printing, were losing their special characteristics and becoming 'more like photogravure ... detestable.'²⁵

Thus any association between a photographic process and a traditional printing technique was considered taboo. The negative reaction to photo-technology was aggravated when reproduction printing, mistakenly seen by many as a graphic art form, was radically changed. Professional craftsmen were replaced by photographic processes and posed a threat as competition to artists' original statements, as hand-codified reproduction printing had before. What does not appear to have been clearly understood is that unlike the professional engraver, the artist/engraver cannot be threatened by any technology if his understanding of his medium and media generally is clear. Instead, he should be able to exploit any new technological developments in the tradition of painter/engravers since the 15th century. But it does not follow that artists must exploit the latest technologies in order to make valid statements. Jonathan Benthall comments:

'Artists who remain aloof from modern technology are, in effect, simply preferring to use the technologies which have been absorbed into traditional art, such as painting, carving and the like. This is a very understandable attitude, since the traditional art media generally allow the artist much greater control over his activity than if he introduced into his art a need for specialised skills and equipment; also because there are established styles and conventions within which he can operate, recognised by most of his public as the "natural" channels for art.'²⁶

In the 20th century established styles and conventions changed, in some aspects radically. The 19th century rejection of photo-mechanical printing methods was challenged early in the century by a new generation of artists, but it was some time before wide public support was gained for new techniques.

(c) References

1. Fry, R., 1974, p.46
2. Huyghe, R., 1965, p.146
3. Jussim, Estelle, 1974, p.298-9
4. Crane, Walter, 1896, p.177
5. Ivins, W.M. 1953, p.79
6. Scharf, Aaron, 1968, p.xiii
7. Jussim, Estelle, 1974
8. Ibid., p.7
9. Ibid., p.8
10. Ibid., p.13
11. Ibid., p.12
12. Ibid.
13. Ibid., p.14
14. Ibid., p.277
15. Murray, P. and L., 1972, p.103
16. Scharf, Aaron, 1968, p.101
17. Benthall, J., 1972, p.27
18. Scharf, Aaron, 1968, p.xi
19. Florisone, M., 1965, p.177
20. Read, H.E., 1968, p.47
21. Scharf, A., 1968, p.174
22. Jussim, Estelle, 1974, p.76
23. Ivins, W.M., 1953, p.115
24. Ibid., p.136
25. Gauguin, Paul, quoted by Gilmour, P., 1970, p.12
26. Benthall, J., 1972, p.13-14

CHAPTER THREE

- (a) 20th century industrial printing
- (b) Original printmaking in the first half of the 20th century
- (c) The alternative tradition - Dada
- (d) References

In the four centuries prior to the Industrial Revolution, industrial print technology and the nature of the market for printed products underwent changes as a result of socio-economic developments in Europe and the invention of various new processes. However, there were no fundamental changes such as occurred with the advent of the Industrial Revolution and the invention of photography, changes which caused industrial printing and subsequently visual communication itself to be deeply affected. The explosion of knowledge which followed the Industrial Revolution, coupled with an increase in population, a better standard of living and education resulted in a rapidly expanding market for printed material, primarily to communicate and store information. Printing became a vast industry catering for an enormous 'bread and butter' market on the one hand and specialising in various fields on the other. The fundamental aim in Industrial printing of improving quality, speed and efficiency led to the development of sophisticated machinery requiring skilled technicians and also sophisticated but simple-to-operate printing apparatus which in recent years has begun to revolutionise certain sections of the printing industry, such as electrostatic printing.

As indicated in the previous section, the impact of 19th century social and economic changes on the visual arts was considerable. Original printmaking as an integral part of the visual arts was influenced along similar lines to painting and sculpture. But because of the technical skills and machinery required in printmaking, it was affected to a greater degree by changes in industrial technology which had radically altered the processes used to make printed images.

The Industrial Revolution and the upsurge of new technology initiated a conflict between those who valued craft skills, the individuality of artists and the uniqueness of creative imagery above all else and those who wanted to abandon this viewpoint and become involved in the technical revolution - to imitate the procedures of science and conduct experiments rather than make works of art.¹ Printing, because of its unique position as a highly technical industrial visual medium and also a creative one, became a mirror of this controversy. Initially the concept of originality in printmaking crystallised into a reaction against photo-reproduction processes. Thus, although the stylistic changes which occurred in the visual arts at the turn of the century, as the modern movement got under way, were reflected in prints made by

artists of the time, there was not the equivalent change in print-making technology. The processes remained traditional, meaning that the newly developed photographic processes were found to be unacceptable.

During the second decade of the 20th century the Dada movement emerged in Europe. Dada adherents initiated a new approach to industrial technology, which was basically positive, as a reaction against established norms. In terms of printmaking this new attitude to technology was of special significance. Dada artists ignored the accepted concept of print originality and began experimenting with new industrial printing technology. The movement did not have popular appeal as its doctrine was far too radical, but it did establish an alternative approach to the problem of how artists could come to terms with new technology.

The two approaches to printmaking, which basically constituted an acceptance and a rejection of photographic technology in the making of prints by artists, appeared to be incompatible. The inevitable clash did occur, but after the Dada movement had run its course. Artists of the Pop movement (also known as the Neo-Dada movement) began exploiting industrial printing technology in the 1950's and 1960's on a scale never attempted by Dada artists. This was possible firstly due to new developments in printing technology which lent themselves to the interpretation of Pop philosophy, and secondly, because the Pop movement enjoyed enormous popular support amongst a public more attuned to the imagery and technology of the industrialised society than was the case earlier in the century.

In this section it is necessary first to examine the changes which have occurred in industrial printing technology and visual communications through printing in the 20th century, and secondly to examine in more detail the approach to printing by artists of the Dada movement on the one hand and adherents to the traditional concept of originality on the other hand before World War II.

The controversy over the nature of original printmaking is discussed in Chapter 5.

(a) 20th century industrial printing

The chief use of industrial printing for over four centuries, until the mid 19th century, had been illustrated books, bibles and a limited

amount of general information printing. In a relatively short time printing, in the late 19th century, both pictorial and typographical, had become a major all-embracing mass medium of communication. This involved the printing of magazines, newspapers, illustrated books and advertisement printing. The expansion of industrial printing was made possible through the invention of new printing processes and an increased demand for printed material in the new industrialised societies.

Prior to photo-mechanical printing, industrial pictorial printing was usually the product of a team effort by artists or illustrators, and craftsmen; the primary and secondary codifiers. After the introduction of photo-mechanical processes craftsmen were replaced by a combination of technicians and the photographic processes. Primary codifiers were still artists or illustrators, but their role was slightly altered. Initially primary codifiers linked to photo-mechanical industrial printing were called commercial artists. They emerged to meet the demand for visual material to be transmitted through mass printing. The expansion of and demand for mass media visual information created what has come to be termed a 'post literate age'. One of the main reasons for the increased value of pictorial information was the high information transfer characteristics of printed material produced by photo-mechanical means.

The so-called commercial artists were, early this century, the anonymous creators of visual material for industry. But their status improved rapidly. Today they are called graphic designers and industrial graphic art has evolved into a major discipline and the most wide-spread of artistic professions.

The graphic designer is a product of the 20th century printing industry. Because of the increasing status of the designer in modern visual communication and the variety of autographic and photographic techniques he is able to utilise (all of which can be reproduced in print), some confusion exists as to his role in relation to that of the artist.

The graphic designer, his technology and increasingly sophisticated imagery have become important influences on the development of print-making. These influences are clearly evident in the work of artists of the post World War II era.

A distinction between the artist and the graphic designer does exist, despite the overlapping of roles and the common use of various techniques including photo-mechanical printing processes. Very briefly it

could be stated that the role of the designer is definable, whereas the role of the artist tends to be vague and indeterminable. The basic differences revolve around economic considerations. It could be stated rather glibly that designers work for a living and artists live to work. The creative work of a graphic designer is orientated towards mass-media, measurable response from receivers of visual information and economic goals. The artist, on the other hand, feels he must create work that is not directly dictated by economic demands or the demands of his audience. Work can obviously be sold, but this is an action independent of the creation of the work.

Much of the success of a graphic designer is measured by the number and importance of his clients. If he is able to establish a reputation by working in a particular style which attracts clients there is no need for him ever to consider changing his style provided his clients are satisfied. This is a fundamental factor in his success as a designer.

This is not the case with an artist, although he too may gather about him buyers who are attracted to his work. But the artist must accept the possibility that he may lose his market in order to maintain his integrity as an artist. His creative development cannot be subject to the whims and fancies of collectors. An artist's work is a visual reflection of a search for self which cannot be compromised. If this was not the case, the differences between an artist and a graphic designer would, by and large, fall away.

Three of the most important photo-mechanical processes which evolved out of the three traditional autographic processes: relief, intaglio and lithography, in the 19th century were letterpress, roto-gravure and offset lithography. In addition new processes have been developed this century; of these the most important are screen-printing and electrostatic printing.

These new processes made it possible to print codified pictorial messages about originals which were able to transmit a great deal more accurate information than hand engraved, subjectively codified informational pictures. The development of full colour printing increased this accuracy. Interference by the print medium in information transfer was and is still being continually reduced although a perfect transfer will probably never be achieved. The economics involved place limits on all forms of industrial visual communication. A working relationship must and always will exist between what is technically possible and

what is economically acceptable. In addition, no matter what new printing process may be developed to increase the fidelity of a reproduction to the original, the artist, graphic designer or photographer is still bound by the technological characteristics and limitations of each new medium.² Should these characteristics and limitations be misunderstood or ignored, the full communicative potential of the medium will not be exploited.

There are two other points concerning the impact of the new clarity of printed images that are worth noting.

Firstly, photographic images have come to be regarded by many as a form of truth. Generally speaking photographic images of any kind are accepted as being truthful because of the apparent elimination of human interference in the transfer of information. This, of course, is not necessarily so. The person using the camera or the technician processing an image is able to do a good deal of manipulation.

With the making of reproductions of original art works and other pictorial images it can be further noted that from the 17th to the mid 19th centuries reproductions had tended to be accepted as originals due to the autographic codification of the image. In the 20th century 'pictures interpreted by photo-mechanical engravings still become engravings, that is, the codes which result from diminished size, loss of a sense of scale, artificial colour, approximations, obliteration of crucial detail, transformation of three-dimensional objects to the two dimensions of ink on paper, are all still being regarded as if they were pictures themselves, which of course, they are not'.³

The status of originals, be they prints, paintings or even sculpture has changed as a result of the camera and photo-mechanical printing. This is especially so if they have general popular appeal. The original, through reproduction (in some cases mass reproduction) can lose its uniqueness in one sense and gain a new uniqueness, through publicity. Nevertheless, however much the image and the message of the image may be multiplied, there remains only one original. Photo-mechanical reproduction makes it easier to ignore originals in museums or in their original context and the danger does exist that reproductions could become fully accepted substitutes for originals. As Estelle Jussim observes:

'Photography did not liberate humanity from the false and mistaken

substitution of the codes of a particular medium for the original of a message; it may be said merely to have made it easier and more pleasant to make the substitution.'⁴

Secondly, in the 20th century it has become possible, as a result of photo-mechanical technology, to reproduce paintings, drawings, prints, or any other original material in black and white, and in full colour, in any printable size, with a certain accuracy and cheapness. The availability of these images, or details from them are used for book illustrations, post cards, or posters and are often used in ways far removed from the original, as the means to communicate all sorts of information. Consequently a reproduction, as well as making its own references to the image of the original, becomes itself the reference point for other images. The meaning of the image is changed according to what one sees immediately beside it or what comes immediately after it. Such authority as the reproduction retains, is distributed over the whole context in which it appears.⁵

This together with the apparent truth of photographs was recognised and used by Dada artists as was the property of photo-mechanical technology to reproduce any form or image, two dimensional or three dimensional. In the field of visual communication this property has become of vital importance to the graphic designer who is able to build up collage or assemblage images using different types of materials. Through the medium of print (halftone screen, ink and paper), the collage is unified as it is reproduced. It is possible for the designer to visualise a final image, but not produce an original from which reproductions are made, but rather instruct technicians and the printer so that the printed image in a magazine or poster may be considered an original of a particular kind (see Chapter 3(c)).

With regard to post World War II printing technology the development of screen-printing and electrostatic printing must be noted. Rapid progress was made after the War in adapting photo-mechanical technology to screenprinting. It became an increasingly popular and important industrial process because it may be printed on almost any surface. This property and the process itself was of great importance to some artists of the Pop movement.

The 'instant' printing industry owes its existence to rapid post-war development in electronics and especially computerization. Although

still in its infancy as an industrial printing process, electro-printing (photostat duplicating) has, with the technology available, become economically viable. Electrostatic printing has introduced a new concept into the industry. With the help of computerization, unskilled persons can operate sophisticated machinery and make prints independent of technicians, craftsmen or artists. It is possible for any person to visualise, codify and print images without the aid of craft skills or the facility to draw. Printing has for centuries involved the division of labour and the utilization of specialist skills. Electrostatic technology has made this unnecessary. Printing formerly required the sophisticated handling of simple technology and machinery. It is increasingly becoming the simple operation of sophisticated machinery.

Industrial printing technology has always, and will continue to, evolve to meet the demand for the faster, more efficient, cleaner transfer of information and the trend is undoubtedly towards the increasing computerization of various processes. The position of the artist who may want to use new technology is indeed interesting. It requires of him, as has always been the case, a clear understanding of the medium of his choice. The more sophisticated the technology, the more difficult it would appear for the artist to come to grips with it, even though the machinery may be easy to operate. The artist also risks being accused of making reproductions and not original prints. Both problems are discussed in the final section.

(b) Original printmaking in the first half of the 20th century

It has been established that original printmaking underwent a revival in the late 19th century. The momentum of this revival encouraged most major artists of the early 20th century to attempt printmaking. As in previous centuries, the major innovators in printmaking were painter/engravers and original printing conformed to styles initiated through the medium of paint. Although new aesthetic concepts have been modified and extended through the process of printmaking, it has chiefly been in the 20th century that original printmaking has come to be considered opposed to reproduction printing. Fundamental to the existence of original printmaking has been the concept of truth to materials. By stressing the means used to make a print, in other words, the character of the material as the artist codifies his original

concept, artists contradicted the basic principle of reproduction printing. All industrial printing was based on the minimalisation of means while transferring maximum information. However, inherent in this emphasis on means to an end existed the danger that this could create an imbalance between the means and the end product.

Twentieth century art in Europe evolved out of 19th century stylistic innovations. The new images and concepts of Cubism, Fauvism and Expressionism were expressed through traditional media; in the case of painting, with oil on canvas, and in printmaking, by the traditional autographic processes. Originality in printmaking became increasingly ^{in its quest} equated with the use of these traditional processes. For example silkscreen printing, although used autographically by some artists in the 1930's in America, was not readily accepted as a process suitable for original printing because of its association with industrial printing and lack of a history as a traditional process. Photo-technology, as discussed above, was taboo as far as original printmaking was concerned, mainly because of its association with pure photography and reproduction printing.

Two approaches to the actual printing of images were acceptable within the framework of original printmaking. Either the artist could work in collaboration with a printer or the artist could create, codify and print an image by himself. One of the most significant features of 20th century printmaking has been its acceptance as an autonomous means of expression, an independent art form related to both drawing and printing. Stanley Hayter (1901-) must be mentioned as a graphic artist, who, through his own print work and books, writing on the subject of printmaking, has crystallised the final state of the concept of originality. Hayter in his book 'New Ways of Gravure'⁶ isolated and discussed the creative process specifically related to printmaking which has been discussed briefly above in Chapter 1 page 11. By his own example and by the work of artists such as Picasso (1881-1973), Rouault (1871-1958), Chagall (1887-), Villon (1875-1963) and the German expressionists, original printmaking reached a zenith in the first forty years of this century as a concept which had its origins in the early 17th century. But there had existed since the invention of photography alternative means of making printed images and it was inevitable that these new processes would influence the purist concept of print originality.

Artists, writers, dealers and collectors went to great lengths to identify and establish original printmaking as being different and unique (see chapter 4(a)). Prints made by artists were to be seen in the same light as paintings or sculpture. To make an original print was to make a unique object or unique edition of like objects which in themselves would have a market value. Original prints were collected and valued in much the same way as stamps. The printing of good quality photo-mechanical reproductions of art work, including original prints, was considered a threat to the original print tradition, as artistic images could be mass produced as a form of printing, eliminating the uniqueness of the process used by the artist to make the images something he could call his own. The mass reproduction of images affected painting as well, but because original printmaking was so close, in terms of the image-making process, to reproduction printing (as opposed to original painting which could be easily distinguished from reproductions) it became of paramount importance for collectors, dealers and printmakers that the distinction between reproductions and originals be maintained to control forgeries and to ensure a market for original prints which appeared otherwise to be doomed.

Basically all attempts made to define the nature of print originality were concerned with the print processes involved rather than with aesthetic values. Stanley Hayter wrote two chapters, entitled 'Five degrees of Originality in Prints' and 'How to Distinguish the Original Print' in an attempt to clarify the situation.⁷ This pre-occupation stemmed from a fear that the relationship between original prints and reproductions would revert to the pre-photographic situation as well as from an inability or unwillingness to come to terms with photography and its technology per se. In the early 19th century little distinction was made between the two types of autographic printing. Original prints were even downgraded because they were not technically as sophisticated as reproductions by craftsmen.

Felix Brunner in his book 'A handbook of Graphic Reproduction Processes' states that one of the most important aims of the book is to draw a dividing line between original graphic art and reproductions.⁸

He further states: 'Collaboration between artist and printer has resulted in work of the highest class, but precisely, this collaboration involves a danger of "industrial" reproduction methods infiltrating into the art printer's processes. For this reason it has been felt

essential ... to draw specific attention to the difference between original graphic art and reproductions; only the genuine will last and retain its value, whereas the spurious will sooner or later be recognised for what it is.'⁹

It must be noted that Brunner's concern is not with the printing of reproductions of originals, but with industrial printing methods being used by artists. It is on a technical level that he makes a distinction between originals and reproductions. This may be justified in the fight against forgeries, but implies a blind resistance to any industrial process even if the artist has used that process in a creative manner. Brunner cites as an example a print by Picasso, who made a lithograph drawing directly onto a zinc plate, which was printed with the aid of an offset printing press. Brunner makes the comment 'This fine print by Picasso is unfortunately nothing but an offset print'¹⁰ implying that if the drawing had been made on lithographic stone it would be legitimate. Brunner was correct in recognising that dangers did exist for artists using industrial techniques, but incorrect in thinking that to ignore or ban their use was a solution to the problem. He appears not to have understood that understanding is in fact what is required. The use of industrial techniques by artists is not incorrect in itself. What can be incorrect is the way in which they are used. Ivins wrote in 1953 '... it has become obvious that what makes a medium artistically important is not any quality of the medium itself but the qualities of mind and hand that its users bring to it'.¹¹

A similar attitude to that of Brunner is reflected in Jean Adhémar's book on 20th century printmaking¹² which completely ignores those prints by artists made between 1900 and 1964 which were printed with the aid of new industrial processes. The impression given is that the prints of artists such as Max Ernst (1891-1976), Kurt Schwitters (1887-1948), John Heartfield (1891-1968), Richard Hamilton (1922-) and Eduardo Paolozzi (1924-) amongst others, do not exist in the eyes of the author.

Carl Zigrosser in his book 'A guide to the collecting and care of original prints'¹³ recognised the danger of blindly defending the traditional concept of originality in an era of change.

'The present concept of the original print represents the climax and apotheosis of individuality. The ideal of the established artist of our day, and particularly of the printmakers, is idiosyncrasy of expression, the artist's personal touch. The artist has his own message, which he expresses in his own inimitable way, performing each step toward the ultimate end with his own hand and eye. A public, having grown to like and admire his productions, has placed a cachet of value upon his expression because of its personal and technical idiosyncrasy. Young artists and new movements are emerging, and will continue to emerge, to vie with the older artists, and win their own following. The names of the movements are irrelevant - they succeed each other in bewildering profusion - the movements are significant only insofar as they indicate a trend, a growing indifference to means and techniques.'¹⁴

This indifference to means and techniques could be interpreted as dissatisfaction felt by artists alienated by the arbitrary judgements of critics concerning the use of photographic technology.

The concept of originality, so important to the late 19th century printmakers, began slowly to throttle itself as the 20th century progressed and the main problem appears to have been a narrow pre-occupation with technique at the expense of innovation and creativity. The excitement and stimulation felt by artists when first exploring the creative potential of techniques hitherto dominated by reproduction craftsmen began to wear thin. Inevitably what was new and stimulating became routine. Artists became increasingly pre-occupied with the mechanics of autographic printmaking as craftsmanship became the hallmark of originality.

But by the 1950's the movement was losing momentum, restricted by the narrow regulations imposed on artists as to what was acceptable in terms of good printmaking and what was not.

Artists, especially in England and America, began to look to alternative means of expressing themselves and found that in industry, print technology had made enormous strides offering artists new techniques and new sources of inspiration. In addition the imagery associated with graphic design and mass media in general offered exciting new visual possibilities to artists. It was therefore natural that artists of the Dada and Surrealist movements, who were the first artists of

the 20th century to seriously experiment with industrial print technology and imagery should be regarded as sources of inspiration for new developments in printmaking which were to begin in the late nineteen-fifties.

(c) The alternative tradition - Dada

Christopher Finch noted that one of the great pre-occupations of 20th century art has been with the Object.¹⁵ On the one hand works of art have come to be treated as self-sufficient objects and on the other hand artists have examined and used objects of the everyday world. Either real objects have been utilized, both two and three dimensional, or images made photographically of objects from the 'real' world.

'The direction of modern art was modified by the vision of the camera, and many artists felt compelled to express themselves in abstract rather than in traditional illusionistic terms.'¹⁶ Artists no longer felt compelled to adhere to the Renaissance concept of pictorial space - as reflected in the Cubist revolution at the beginning of the century. Picasso once remarked: 'When you see what you express through photography, you realise all the things that can no longer be the object of painting. Why should the artist persist in treating subjects that can be established so clearly with the lens of a camera?'¹⁷ Van Deren Coke in the conclusion to his book 'The Painter and the Photograph' sums up the various types of influence photography has had on art, both beneficial and negative. He states that an important beneficial aspect of photography for the artist is the vast range of images to draw upon for ideas'.¹⁸ He continues 'Photographers have aroused some artists to throw off the baggage of tradition Artists working in this fashion have not found it is necessary to narrowly comply with the imagery in photographs to benefit from its influence. They know that a firsthand naked eye view of the world has its limitations. Realising this, artists have turned to a combination of the eye and the lens to create new kinds of visual expression that are both relevant to their need as individuals and to contemporary life.'¹⁹

It was artists of the Dada movement during and after World War I who were the first to openly embrace photographic vision and photographs as aids to be exploited without attempting to disguise visual sources. Hannah Hogn wrote of Dada '... our whole purpose was to integrate objects from the world of machines and industry in the world of art.'²⁰

The Dada movement sought a total revision of acquired values and

attempted to base the visual arts on revolutionary principles opposing accepted logic, morality, society, art and aesthetic values. The movement challenged traditional techniques, materials and media used by artists by, amongst other things, utilizing mass produced objects, industrial prints, reproductions and photographs which were 'promoted to the dignity of objects of art through the choice of the artist.'²¹

Picasso and Braque (1882-1963) had incorporated fragments of real objects into Cubist paintings in 1911-12 as a deliberate means of adding to the visual ambiguities of Cubism. Dada artists continued aspects of the visual revolution initiated by Cubism and found in collage and photomontage the true medium of the anti-artists. Realism or illusionism could be attacked with a form of realism itself.

Dada artists exploited those properties of photo-mechanical printing which adherents to the concept of original printmaking most strongly opposed. As already discussed, photo-mechanical technology, to a very large degree, eliminated the 'noise' or 'static' caused by the codification of messages of originals. In terms of industrial printing subliminal codification was highly advantageous as it allowed a far greater amount of information to be transferred than was possible through autographic codification. Prints of photographs acquired the illusionary qualities of photographs themselves. Photographs were commonly regarded as a form of truth (see Chapter 2(a) page 25). Dada artists used fragments of photographs to build up montages which destroyed that illusion of reality through chance arrangements and unexpected juxtapositioning of images. It was a means of 'ironically destroying the tradition of art as a mirror of reality'.²²

They also exploited the illusion of reality achieved through photographs and prints of photographs instead of destroying it.

The power of collage and photomontage lies in the visual possibilities created by the juxtaposing of images or fragments of images on a pictorial surface. Elements of a collage could include autographic as well as 'ready made' fragments in the form of pieces of newspaper, wallpaper, photographs or other examples of industrial printing. The discovery of the irrational was one of the central concepts of the Dada 'aesthetic' and collage lent itself to the creating of illogical, perhaps shocking, images brought about by chance. Juxtaposing photographs was used as a means of voicing disillusionment with society. The 'realism' of the images made it possible for their impact to be

felt by both the general public and intellectuals. And the use of photographs, products of modern technology, symbolised a break with art tradition.

Marcel Duchamp (1887-1968) emerged as one of the intellectual leaders of the Dada group. Duchamp was the initiator of the 'ready made' and among the first artists who fully accepted new media pertaining to the 20th century. He flew in the face of convention by suggesting, amongst other things, that concept might be divorced from craft skill.

Duchamp and his Dada associates were to have a profound effect on 20th century printmaking. To question the tradition of the unique object was to question the tradition of the original print. There existed at the time of the Dada movement all the alternative means of making printed images used in the printing industry, ranging from conventional photography through all the photographically assisted processes which had evolved out of traditional print technology. The Dada artists through collage and photomontage made modern print technology their own.

During the war years and early 1920's Duchamp made a number of 'Rectified Readymades' such as 'L.H.O.O.Q.' (1919) which was a coloured reproduction of the Mona Lisa altered with a pencil. Man Ray (1890-1976), deeply influenced by Duchamp, during this period turned to collage as a means of putting into practice Duchamp's principle stated in 1914 'I want something where the eye and hand count for nothing'.²³ In Zurich Hans Arp (1887-1966) renounced the medium of paint and began working on collage using various 'non art' materials so that works appeared as bits of reality. Kurt Schwitters used cast-off materials to create a new visual world. He published a portfolio titled 'Merz' from 'Kommerz' a word in an advertisement used in one of his collages.²⁴ The prints were photo-mechanically printed with, in some cases, added collage elements.

The Dada movement had a limited life, but many of its revolutionary concepts were carried forward as part of the Surrealist movement of the 1920's and 1930's.

Photography in the early 20th century was certainly not regarded as a conventional printmaking process such as etching or lithography. The idea that serious expressive images could be created through the manipulation of photographic fragments was radical indeed; that the resultant images should be regarded as prints in the conventional sense was generally unacceptable. Heartfield, Man Ray, Moholy-Nagy (1895-1946)

and later Max Ernst, who all started out as painters, began to use photographic images in a new way, through the making of photomontages - the combining of images of several photographs into a single print. John Heartfield in the 1920's and 1930's in Germany, used industrial print processes and photomontage consistently and to powerful effect as a means of attacking the Nazi regime. The directness and shock quality of juxtaposed photographic images served his purpose very well.

'The power of photomontage to provoke the most severe reactions lies precisely in its faculty to make the absurd appear true and the true to appear absurd.'²⁵

By using a subliminal code made through a light-chemical process the artist was exploiting the bourgeois adage of photographic truthfulness.

The technique Heartfield used began with the cutting up of individual prints from different negatives. Fragments of the prints were pasted onto a backing and the assemblage was rephotographed. The resultant print was often retouched by hand so as to look like a single camera shot even though the components of the picture indicated that something was wrong.²⁶

It is interesting and significant to note that Heartfield did not take photographs himself for his montages. He relied on images from magazines and newspapers or would have a friend take photographs for him.²⁷ By doing so he kept a distance between himself and the source of his images, relying on 'found images' to make expressive statements.

Max Ernst was perhaps the most important artist of the surrealist movement to use the technology and imagery of industrial printing. He exploited 'ready made' wood engraved illustrations to create surreal encounters between incompatible elements. He was stimulated by juxtapositions of photographs and photo-engravings found in advertisements and sales catalogues, and was able to create from the banal and trivial highly personal statements.

Like Heartfield, Ernst had been a member of the Dada group and similarly he found affinity with the technique of photomontage. Together they were able to elevate collage and photomontage to a high level. They found in photographs and other 'ready-made' realities as Ernst called them, the means to create images which, although made through the use of the mechanical illusion of reality, were able to penetrate the representative and the conscious faculties. Ernst wrote '... it is now

possible to photograph either on paper or on canvas the amazing graphic appearances of thoughts and desires.²⁸

Breton added to this by stating that Ernst had achieved 'a true photography of thought.'²⁹

Ernst devised a print form which he called a 'photo-graphic'. 'Santa Conversazione' (1921) is an example. The image is a collage composed of an anatomical dummy, paper, two birds, a fan, a hat brim and photographic fragments. The collage was rephotographed to integrate separate elements and submitted to the third Bauhaus portfolio. Moholy-Nagy rejected it, saying a photograph was not an original print.³⁰

The original collages and photomontages made by artists such as Schwitters, Heartfield or Ernst were thought of both as unique works from which reproductions could be made and also as means to a printed end. The photo-mechanical printing of collages helped to unify disparate materials and conceal origins.

Measured against the concept of print originality as understood early this century, photomontages could not be accepted as 'original prints'. A photomontage made of printed material is not a print in itself, but rather a unique image falling into the same category as painting or drawing. The moment such a work is 'printed' in a book or magazine or as a poster it becomes a print which could be termed both an original and a reproduction. Such prints are normally termed reproductions, as the content of the work does not change in the transition from montage to print. The montage would be codified by a photo-mechanical process which would not interfere very much with the image. This is important as the clearer the juxtaposed photo-fragments are, the more powerful the image. Had the montage been codified manually, that is, engraved by a craftsman, the character of the image would have changed substantially. Nevertheless it can be surmised that an engraved reproduction of a montage would possibly have been more acceptable to the public and critics of the time than a photographic reproduction. It may even have been accepted as an original print due to the original nature of the image legitimised by manual codification.

Photomontages and collages by Ernst and Heartfield benefit visually when reproduced in books or magazines. Very little is lost through photographic codification and the illusion that the montage or collage is 'reality' is increased. They can be termed originals, but of a

new kind. This is in contrast to autographic originals which lose presence when reproduced through a photomechanical process (see Chapter 5(b)). Aaron Scharf wrote of Heartfield's work 'Photomontage ... was, technically speaking, modern in its rapport with photo-mechanical reproduction and mass communication and it is worth noting that when exhibiting his original photomontages, Heartfield usually showed with them the pages of newspapers and magazines in which they had been reproduced. In the developing concepts of a machine aesthetic, these artists fully understood its relevance.'³¹

Two other artist/photographers of this era must be noted - Man Ray and Moholy-Nagy.

Man Ray began his career as a painter, but found in photography a medium which suited him. He concentrated on experimental photography using the camera and the light/chemical process as other artists may use brushes and paint. He never allowed photographic technology to dictate to him and once stated 'A certain amount of contempt for the material employed to express an idea is indispensable to the purest realization of the idea'.³²

Moholy-Nagy concerned himself with the relationship between art and technology and photography became his medium of expression. He too, like Man Ray, realised that the relationship between artist and technology was critical. 'Everyone is equal before the machine. There is no tradition in technology, no class-consciousness. Everybody can be the machine's master or its slave'.³³ Amongst other things Moholy-Nagy put into practice Duchamp's suggestion that concept could be separated from craft skills in the making of a work of art. He telephoned instructions to a technician as to how a picture should be painted. He forced the intervention of a machine between himself and his work.

As with Man Ray, Moholy-Nagy found the photogram - or photograph without a camera - the most valid means of photographic expression allowing the artist maximum latitude for innovation and experimentation.

The Dada approach to photography, print and printmaking had important implications for the future. The technology and imagery rejected by adherents to the concept of originality were found to have potential in creative printmaking. Artists could create images, drawing from the photographic and reprographic world, as well as from conventional sources. Using halftone and gravure it was possible for artists to bring together images, objects, marks or textures of unlimited variety

to make prints. As opposed to the traditionalist pre-occupation with originality judged in terms of technique, there now existed a means of making images which did not depend on the autographic mark and personal codification by the artist - but still carried the stylistic traits of the artist.

This was originality that was not based on technique, craft skills or the artist's signature, but on content. Gilmour³⁴ quotes Gray from 'The English Print' 'The false distinction is not in the process, but in the way in which, and the purpose for which it is used.'

The Dada movement broke through the psychological barrier concerning the use of photography by artists and opened the way to future exploitation of industrial printing technology. Photographic techniques and imagery of every description became the common basis of a link between graphic designers (commercial artists) and artists. Artists such as Man Ray, Max Ernst and Moholy-Nagy, using photography as a medium, broke through the barrier of 19th century pictorial illusion as Picasso had done earlier in paint. Through experimental techniques such as photograms, photography became liberated and was, perhaps for the first time, fully understood as a creative medium. Photography viewed as a light/chemical process was used as a more personal and inventive means to make images - and not merely as a camera orientated technique which directed artists to pay homage to the 'real' world. Through the Dada and Surrealist movements, photography became as free and inventive a printing technique as any of the conventional autographic processes.

At the same time photography, as a visual aid, offered artists a new world of source material which could be used in the making of prints, paintings, collages and mixed media work. But as artists, especially in the field of printmaking, began using industrial printing processes, it became evident that the need for craftsmanship as had been understood for centuries, was not necessarily an essential prerequisite in the 20th century for the making of 'original' prints. Cameras, chemicals, ready-made printed images and technicians could be used. Concept could be divorced from craft and the role of the artist in the making of printed images could be greatly diminished.

But as artists in the post World War II era, following in the wake of the Dada and Surrealist artists, began increasingly to involve themselves in new print technology, a clash between those who supported conventional views on print originality and the avant-garde was inevitable.

The attitude of the traditionalists is very clear in the statement by M. Georges Limbouer (quoted by Gilmour³⁵) in reviewing ten years of printmaking 1946-1956, in the 'Maeght Editeur.' 'It is composed of that which this House finds particularly horrific: mechanical reproductions, reflections of photography.'

Such a clash could be viewed on two levels; as a case of petty squabbling between conservative and progressive elements over new printing methods when what is important is not the means but the end result. It could also be viewed as a much deeper dilemma concerning the human situation in a changing world which is reflected in a controversy over the means to make printed images. The 20th century has seen the steady erosion of the human element in all facets of life as mechanical and electronic technology has advanced. How the technological revolution of which we are part will ultimately affect the quality of art is a subject of speculation. In the field of printmaking a crisis point was reached in the 1960's as values pertaining to printmaking had to be revised in the face of radical changes in print technology used by artists.

(d) References

1. Lucie-Smith, E., 1975, p.8
2. Jussim, Estelle, 1974, p.305
3. Ibid., p.277
4. Ibid., p.278
5. Berger, J., 1979, p.29
6. Hayter, S.W., 1966
7. Hayter, S.W., 1962
8. Brunner, Felix, 1972
9. Ibid., p.10
10. Ibid., p.286
11. Ivins, W.M., 1953, p.114
12. Adhémar, Jean, 1971
13. Zigrosser, Carl, and Christa M. Gaehde, 1965
14. Ibid., p.34
15. Finch, Christopher, 1968
16. Coke, van Deren, 1964
17. Ibid., p.299
18. Ibid., p.301
19. Ibid., p.301
20. Ibid, p.259
21. Breton, André, quoted by Max Kozloff, 1969, p.123
22. Coke, van Deren, 1964, p.255
23. Tancock, John, 1973, p.25
24. Castleman, Riva, 1976, p.70
25. Scharf, Aaron, 1968, p.219
26. Life Library of Photography Vol.2, 'The Print', 1970, p.193
27. Ibid., p.193
28. Scharf, Aaron, 1968, p.222
29. Life Library of Photography, Vol.2, 'The Print', 1970, p.195
30. Gilmour, P., 1978, p.110
31. Scharf, Aaron, 1968, p.217
32. Life Library of Photography, Vol.2, 'The Print' 1970, p.197
33. Ibid., p.201
34. Gilmour, P., 1970, p.76
35. Ibid., p.76

CHAPTER FOUR

- (a) Post-World War II attitudes and developments concerning printmaking
- (b) Abstract Expressionism and printmaking
- (c) The Pop Art movement and printmaking
- (d) References

(a) Post-World War II attitudes and developments concerning printmaking

World War II acted as a watershed in western art as World War I had previously done. The war resulted in the devastation of Europe and the emergence of a new balance of power. As a result of accelerated scientific and technological research during the War, post-war industrial nations entered a new era of development. America benefited from a massive migration of Europeans away from the turmoil in Europe which included many important artists.

The post-war economic revival in Europe, and especially America, resulted in a general revival of interest in art. A new buying public emerged not restricted to an elite economic or cultural strata.

Democratization, on political, social, educational and economic levels, became the touchstone of western culture. This naturally had an impact on aesthetic values, the marketing of art and artists themselves.

Printmaking as a traditionally democratic art form came into its own under these circumstances. Advances in communication in all media after the War helped to internationalise art. The dissemination of art works world-wide through dealers, international and educational exhibitions rapidly increased. Prints, being easily transported, became the ideal means by which artists could overcome the barriers of distance.

The critic-dealer system initiated in the late 19th century still held sway. An artist's reputation was made through promotion by a dealer. This involved exhibitions, exposure to news media and the approval of critics. In terms of printmaking it was easier for the critic and financially sound for the dealer if an artist worked within certain print conventions. The critic-dealer system had grown up amid the capitalism of the late 19th century and depended on art as a tangible fact; that each work should be valid and acceptable and could be bought and sold on these grounds. It was expected that artists using the medium of print would adhere to accepted procedures. With the post-war revival in the art market, emphasis was again placed on 'validity' or 'originality' of prints bought and sold.

At the same time there were new factors which influenced attitudes towards printmaking. Artists, sensitive to cultural and social trends became increasingly unhappy about the critic-dealer system, which produced objects for a luxury market at a high price. Artists

began looking past the patronage of wealthy collectors to the more democratic and more adventurous patronage of small collectors whose collective buying power was substantial. Lawrence Alloway observed in 1958:

'In the arts, however, traditional ideas have persisted, to limit the definition of later developments. As Ortega pointed out in 'The Revolt of the Masses': "the masses are today exercising functions in social life which coincide with those which hitherto seemed reserved to minorities". As a result the elite, accustomed to set aesthetic standards, has found that it no longer possesses the power to dominate all aspects of art. It is in this situation that we need to consider the arts of the mass media. It is impossible to see them clearly within a code of aesthetics associated with minorities with pastoral and upper-class ideas because mass art is urban and democratic.'¹

The questioning of the exclusive nature of the art market and the power of dealers was part of a broader reassessment of the nature of art itself in an industrialised society. The stage had been set for change by the Dada movement earlier in the century. This change was to come in the form of the Pop movement in the late 1950's and 1960's. Artists began to investigate mass print technology and imagery associated with industrial printing and other mass communication media. The accepted norms of printmaking were challenged and an inevitable controversy resulted involving the whole gamut of printmaking - economic, technical and aesthetic.

(b) Abstract Expressionism and printmaking

Before examining the impact of industrial printing on Pop art and through Pop art on printmaking, abstract expressionism as the immediate post-war art movement in Europe and America must be briefly discussed.

A new generation of artists not directly associated with the century's earlier movements of Cubism, Fauvism, Expressionism and Surrealism took up where Kandinsky (1866-1944), Delauney (1885-1941), Malevitch (1878-1935) and other pioneers of abstraction had left off thirty years before. Abstract art evolved in a number of directions, but it could be described as a search for a new reality based on the inner reality of the intellect, imagination and the senses. As a generalisation,

perceptual reality was by and large replaced by subjective reality. The pre-occupation that artists of this era had with the making of highly personal autonomous statements led to a tendency for them to see art as a refuge from the 20th century environment and as a protest against mechanization and inhumanity.

Printmaking, in the post-war period up until the end of the 1950's, tended to follow the trends initiated in paint. The 1950's also represented the end of an era in printmaking. The late 19th century renaissance and subsequent flowering of original printmaking had run its course. T.B. Hess, referring to printmaking of this time noted that the medium '... seemed moribund. Its techniques had shrivelled to craft-secrets of master-printers and of academic artists, saturated in the late 19th century aesthetic, who despised, as much as they were despised by the modernists'.²

Technical originality appeared to have become an important criterium by which prints were judged regardless of aesthetic considerations. Artists of the abstract and abstract expressionist schools seemed generally uninspired by the potential of traditional graphic techniques, despite the spontaneous autographic quality of their paintings. There were naturally exceptions such as Willem de Kooning (1904-) and Karel Appel (1925-) in Europe and in America, Jackson Pollack (1912-1956) made etchings in the 1940's and Robert Motherwell (1915-) was associated with Hayter's Atelier 17. The existing attitude is reflected in remarks made by Franz Kline (1910-1962) to T.B. Hess in the mid-fifties. Hess observed that Kline's black and white images would be perfectly suited to the velvety inks and papers associated with lithography. Kline rejected the possibility of making prints.

'... printmaking concerns social attitudes, you know - politics and a public ... like the Mexicans in the 1930's; printing, multiplying, educating; I can't think about it; I'm involved in the private image ...'³

Diane Kelder remarked of this era: 'By the late 1950's it was apparent that if printmaking were to achieve more than a parochial significance it would have to attract artists whose energies and determination could extend its known or tested limits and thus create a broader base of sensitivity to the particular properties of the printed image'.⁴

Printmaking, generally, was in need of stimulation. One form of

stimulation, as already mentioned, was to come in the form of renewed public interest in printmaking in Europe, America and further afield, mainly due to post-war prosperity.

A more significant form of stimulation was beginning to make itself felt by the end of the decade. The norms and traditions associated with the Modern movement were challenged by a new generation of artists who also questioned the insular nature of printmaking.

(c) The Pop Art movement and printmaking

It is not necessary to examine in detail the origins of Pop Art or its stylistic development, but rather to examine the way in which Pop artists exploited industrial print technology and photography and the resultant impact this had on printmaking in general.

Christopher Finch noted that one major pre-occupation in 20th century art had been with the Object.⁵ On the one hand it has been the art work itself as an object, which culminated in the work of the Abstract Expressionists. On the other hand, there has been a lasting interest by artists in everyday objects. These have been incorporated into art works in the form of collage or assemblage or have themselves become 'ready-made' art works. This pre-occupation, initiated by Picasso early in the century and developed by artists of the Dada movement, reasserted itself in the Pop movement.

Pop art was initiated in England in the 1950's and in America in the early 1960's partly as a reaction against the obscurity of imagery and composition in Abstract Expressionism. As Dada artists had before, Pop artists drew their imagery from contemporary sources and incorporated in their art, in a cool, satirical manner, those elements which interested them. This included the ugly and glamorous, commercial and banal, derived primarily from the commercial culture of Europe and especially America.

An integral part of American commercial culture was communication and the use of mass media. By the late 1950's this was becoming a subject of increasing interest to artists and academics. As noted by Michael Compton

"The "information industry" was a fashionable subject of sociological study at the time when Pop was coming to life. Scholars and journalists Clement Greenberg, Dwight MacDonal, Marshall McLuhan, Vance

Packard - made it an obsessive topic of conversation By the late 1950's so much attention had been focussed on the hitherto unregarded media and their contents that, when Pop paintings appeared, the public response was ready-made....'⁶

Industrial printing in all its aspects formed the basis of the 'information industry' and as such was a particular interest to Pop artists. The mass printing of images taken from the contemporary world in newspapers, magazines, posters etc., together with television and film images of similar or the same subject matter resulted in what could be termed 'reality transfer'. The impact of codified printed images on the perception and experience of those images, events and reality itself was of great importance to Pop artists.

The photo-mechanical codification process that most modern printed images have to go through contributes to what Compton terms the 'Gestalt' effect of mass media images. The codified printed image of a photograph, which is itself a mechanically produced image of a real situation, is experienced as a single, integrated image in which the parts are subordinate to the whole. The interference with the image caused by codification, its flatness, colour and general print quality helps to render detail insignificant. It is interesting to note that what Ivins called the 'net of rationality'⁷ when referring to pre-photography, reproduction engraving, is again applicable as part of Compton's 'gestalt' of mass media images. As was the case with autographic industrial reproduction, the most economical means of achieving a recognisable image have been used by designers and technicians working with photo-mechanical processes. The amount of information put across is low, but sufficient (see Chapter 1(b) page 9). A printed image can be read without having to be worked out. The printed image of a famous personality is recognised as a 'code' for that person. The individual behind the image is not necessarily comprehended. In addition, because the image is a photograph and therefore supposedly not subject to human interpretation, it could be accepted as the truth, as a form of reality. The artist who incorporates photographs in his work is exploiting that assumption of reality. The effect is similar to that of collage or photomontage as used by the Dada and Surrealist artists.

Other properties of printing reinforce the unified quality of received images and were exploited by artists. Printed images can be repeated

so that detail within an image becomes insignificant as the eye relates one whole unit with another. In addition, the whole image can be printed in a single colour or colours which may be arbitrary and which would enhance the integrated quality of the image.

The artists who initiated the Pop movement adopted industrial printing techniques such as screenprinting, not as printmakers, but rather as painters in order to comment on an aspect of the contemporary experience of perceiving reality. Artists such as Andy Warhol (1930-) and Robert Rauschenburg (1925-) used photographic images screenprinted on canvas as a form of pictorial brushstroke; as fragments of ready-made imagery would be used in collage and photomontage. An integrated surface could be achieved of paint and print, autographic and photographic textures and imagery.

A brief examination of the evolution of the medium of screenprinting since early this century will demonstrate the nature of the conflict between the traditionalists and the avant-garde over the role of new industrial technology in printmaking. The use of screenprinting was a critical factor in the break with tradition which occurred during the Pop era.

From the turn of the century until about 1930 screenprinting was used almost entirely as an industrial process for the mass production of posters, display cards, banners and the like. In the 1930's a handful of American artists, amongst others, Guy Maccoy and Ben Shahn (1898-1969), began to make screenprints. The early use of the medium by artists tended to be in the line of reproduction printing. It was used to imitate other fine art media such as crayon, oil paint and water colour, but was not truly exploited for its intrinsic characteristics. The subject matter tended to be popular with the idea of offering inexpensive colour prints for the masses.⁸

After the war the approach changed as artists, including Jackson Pollack, experimented with screenprinting as a medium which could translate the intimate tactile characteristics of Abstract-expressionism into print. The term 'serigraphy' was coined in order to distinguish it from its industrial application. This was very much in keeping with the tradition of print originality whose adherents (as discussed in Chapter 3(b) page 46) were insistent on divorcing industrial from printmaking technology. Autographic gesture through direct drawing on the mesh became the main characteristic of serigraphy.

At the same time as screenprinting was being established as a medium for original printmaking in the 1950's, its potential as a means of printing photographic images outside the realm of industrial printing was also being investigated. An alternative approach to the role of industrial technology in relation to art had existed from early in the century (as discussed in Chapter 3(c) page 51). Dada artists exploited the potential of photography and printed images derived from the commercial world through collage and photomontage. Although the photo-silk-screen process was patented in 1915 it was never used by Dada or Surrealist artists to translate collage or photomontage into print, primarily because its accessibility to artists was limited. As noted by Christopher Finch:

'Inevitably there was some time lag in the explicit impact of mass media on fine art; this was largely so for technical reasons. Any new advance in technology involves large sums of money and it was some time before apparatus that could be used for the simulation of mass media techniques came within the economic reach of the fine artist.'⁹

As a result of the science and technology explosion after World War II, photo-screenprinting technology advanced to a point where it could be used by artists, although usually with the aid of expert technicians such as the British printer Chris Prater.

As a result of advances in industrial screenprinting technology, the neo-Dada or Pop artists now had the means to exploit their pre-occupation with mass media.

'It was only when artists began to seek alternatives to touching the medium, to search for a way back to figural subject matter and to comment on the threatening crush of mass-ad and mass-media communication, that silkscreen was to come into its own. Silkscreen was no longer regarded as a technique for making something, but as a process. The idea of process was embedded in commercial habits, including the unrestricted use of photography.'¹⁰

This use of a print medium was unique in the history of printmaking. Instead of adhering to the originality concept and using the medium within its 'serigraphic' context, they chose to use it to simulate the industrial method of screenprinting. In other words the medium was used as a means of processing images which were either taken directly from mass media imagery or were created by artists and put through a

simulated industrial process in order to make the changes which occur to images when they are thus printed in an industrial context. To quote Richard Field:

'It is the only medium that has been able to combine the collective, use-orientated, commercial aspects of the printed image, with the individual, expressive, fine-arts aspect of what we call prints.'¹¹

Just as original drawings and paintings, prior to the advent of photography, were processed by craftsmen in the making of reproductions, so the medium of photo-screenprinting processed images for the modern commercial world. It was the 'gestalt' quality of the generalised low information screened images which attracted artists wanting to comment on mass media. In its industrial context screenprinting does not have the sort of graphic qualities associated with woodcuts or etchings. The ink is deposited on the paper rather than in it, and tends to have an anonymous, manufactured smooth quality.

As Dada artists such as Heartfield discovered early in the century, the most diverse kinds of images can be integrated through the use of photography. Later, artists such as Richard Hamilton, Eduardo Paolozzi and Ron Kitaj (1932-) found that screenprinting offered the unifying factor of a single ink layer, with a uniform anonymous surface. Also, within the Dada tradition, artists were able to restrict their participation in the creative process. Prints could be made through instruction and photographic means, although the artist, remaining outside the image-making process, could involve himself at any time.

The nineteen-fifties serigraphic approach to screenprinting was supplanted by another specific way of treating the medium orientated towards the philosophy of Pop art, rather than towards the tradition of printmaking. Screenprinting, as a tool in the hands of Pop artists, served its purpose very well and at the same time helped break the barriers surrounding printmaking. But it did not offer a lasting solution to the crises concerning the relationship between photo-technology and the concept of original printmaking. Doubts were expressed as to the quality of original prints in relation to reproductions of original art. (See quotation 6, Chapter 5(b), page 79). Similar doubts were expressed more than a decade earlier (see Chapter 3(a)) when it appeared that traditions associated with printmaking were to be repudiated. Attempts to establish guidelines for artists were unsuccessful, but new criteria for printmaking in the post-Pop era appeared

necessary as the print renaissance ran its course.

In terms of the Pop art movement as a whole, the use of screenprinted images on canvas was only an aspect of the greater revolution which occurred in art. For printmaking it had other highly significant implications.

The Pop movement broke down barriers around 'high art'; it broke the rules of accepted taste and released art from a potentially barren confinement by being receptive to every kind of imagery and every means of communication. The introspection and privacy of artists in the 1950's gave way to a more public, cooler, self-confident attitude. Printing with its ability to produce plural images and its more public extrovert characteristics reflected the new attitudes of the 1960's.

The tradition of experimentation with new printing technology has a long history within the Seghers-Rembrandt tradition. Artists such as Rembrandt, Goya and Blake experimented with the most up-to-date printing technology at the time. The invention of lithography heralded a new alliance of art and technology. The lithographic means of codifying and establishing the image on the stone prior to printing was chemical rather than physical and hinted at future developments in photography. The image-making process in lithography is closer to drawing than to engraving. Artists were freed from the reproduction engraver's 'net of rationality'. They could work directly on the stone without special graphic skills. Yet despite the difference in character of lithography compared with previous techniques, artists did begin to exploit it relatively soon after its appearance. More artists would probably have tried lithography had printmaking generally not been in a depressed state.

As discussed, the next major technological breakthrough was photography which was not generally accepted as a new printing technique by artists. However, in their use of autographic techniques, artists continued to experiment as reflected in the 20th century in the work of printmakers such as Gabor Peterdi (1915-) and Stanley Hayter, and in the prints of great artists such as Picasso. In the 1960's, following the acceptance by artists associated with the Pop movement of new technology, artists re-affirmed their commitment to experimentation and exploration of new techniques.

Charles Spencer wrote of Alecto Editions, an English Graphic Workshop in 1967: 'Alecto's heart being in creative research ... with the prime

object of searching out and examining potentially useful industrial materials and methods.'¹² The approach of Alecto epitomised a whole generation of artists who suddenly realised the potential of industrial printing technology, so long ignored. Once freed from the restrictions of traditional norms there was an explosion of innovative and experimental printing which could be likened to the situation which existed in Europe in the late 19th century when new reproduction processes freed autographic techniques and allowed artists to use them as they saw fit.

Jaspar Johns (1930-) stated in an interview with Joseph Young in 'Art International', (September 1969) that he rejected the premise that printmaking was merely a translation of problems and solutions previously stated in paintings: 'The paintings and the prints are two different situations Primarily, it's the printmaking techniques that interest me. My impulse to make prints has nothing to do with my thinking it's a good way of expressing myself. What interests me is the technical innovation possible in printmaking.'¹³

Judith Goldman noted in 1973 the importance of technological exploration for Roy Lichtenstein (1923-) and Richard Hamilton.

'In Roy Lichtenstein's Mirror Series and Richard Hamilton's photographic screenprints the look and means of technology are integral to success.... For Hamilton, technology enables him to transfer film to print, to juxtapose disparate mediums: film, painting, printmaking.'¹⁴

The tradition of technological experimentation was reaffirmed by artists associated with Pop art by their breaking through a psychological barrier concerning the use of contemporary imagery and technology. But by doing so a Pandora's Box was opened. The criteria by which prints by artists had been judged for decades appeared to many artists and others concerned with printmaking, to be no longer applicable. The impact of contemporary industrial printing technology on printmaking in the 1960's certainly changed the course of printmaking in terms of imagery, size, techniques and status. The approach to technology initiated by Duchamp early in the century was, in Pop Art, broadly accepted.

The graphic designer, himself a product of the printing industry, also played an important role in the print renaissance. Since the late 19th century a new world of visual material linked to advertising and mass media had been assembled. Just as artists past and present were, and are, influenced by each other's work, so the Pop artists drew on the visual material of the graphic designer. Pop artists Andy Warhol and James Rosenquist (1933-) began their careers as commercial artists. The blurring of the distinction between industrial imagery, reproductions and art work is reflected in the closeness of the designer to the artist although a distinction between the two fields of creativity must be recognised.

Photo-mechanical printing technology offered exciting possibilities to artists, but also harboured pitfalls. More than ever before in the history of printmaking, artists who chose a contemporary industrial medium to express themselves, would have to be aware of and understand that medium fully in order to dominate and truly exploit its potential.

(d) References

1. Alloway, Lawrence, 'The Arts and the Mass Media' in 'Architectural Design', 1958, as quoted in 'Pop Art', 1970, p.154.
2. Hess, T.B., 1972, p.29
3. Ibid., p.29
4. Kelder, D., 1972, p.58
5. Finch, C., 1968
6. Compton, Michael, 1970, p.12
7. Ivins, W.M., 1953, p.69-70
8. Field, R.S., 1972, p.42
9. Finch, C., 1968, p.91
10. Field, R.S., 1972, p.42
11. Ibid., p.42
12. Spencer, Charles, 1973, p.10
13. Young, Joseph, as quoted by Kelder, D., 1972, p.59
14. Goldman, J., 1973, p.35

CHAPTER FIVE

- (a) The controversy over the concept of print originality
- (b) Printmaking criteria: photo-mechanical printing techniques and the artist
- (d) References

(a) The controversy over the concept of print originality

As artists began to explore the possibilities of new industrial printing technology, the traditional concept of print originality appeared to be in jeopardy and was strongly defended by artists, dealers and collectors. It appeared as if the problems which had faced 19th century artist/engravers before the advent of photography would again have to be faced. As discussed in Chapter 2, printing techniques used by reproduction craftsmen and those used by artists were to the average viewer similar or the same, except that the codification of a reproduction appeared to be more sophisticated and the content more 'popular'. The economic implications discouraged artists from involving themselves in serious printmaking. To artists and connoisseurs originals differed from reproductions in the way printing methods were utilised. Either the making of a print was part of the creative act of willing vision into form or it was a means of reproducing a given image.

In the 1960's artists began to use printing methods which since the late 19th century had been used for industrial printing. In terms of art these methods had only been used for the making of reproductions of paintings, drawings and prints. The danger existed, once again, that reproductions and original prints would, in the eyes of the viewing public, become indistinguishable.

Reproductions of art works have for centuries enjoyed popular support, more so than original prints, because from the beginning they were market orientated in a way original prints could not be. Reproductions increased in popularity with the use of photo-mechanical processes. Paintings, prints and drawings could be printed using subliminal codification which made possible the reproduction of fine detail including the surface textures of original work. It was also possible to reproduce original colour with varying degrees of accuracy depending on the cost limitations placed on the printer. The 'truthfulness' of photography or the elimination of interpretation by a secondary codifier also enhanced their status.

For the first half of the 20th century a distinction existed between originals and reproductions; that of method and technique, which became entrenched because it was the only clear distinction. However the importance of means to printmakers, collectors and the like appeared not to be based on aesthetic grounds as much as it appeared

to be based on conservatism, misunderstanding and financial considerations.

For those selling or investing in prints as works of art, the difference between originals and reproductions was of paramount importance. This applies to all forms of collecting where the goal is financial investment. The process of classifying types and controlling the rarity of prints, as in the case of stamps, had to be as structured as possible. The artist's signature and editioning of prints were additional means of control.

Uniqueness and rarity, even when achieved artificially, were found to push up the price of prints, thus beneficial to artists, dealers and investors. The new industrial methods were capable of printing large numbers of prints without loss of quality or time. The possibility existed that cheap but high quality prints could flood the market. Artists could make prints using photo-mechanical methods as opposed to the traditional autographic methods. These prints could not be called reproductions and could compete with actual reproductions as well as prints made in the traditional manner. The possibility also existed that the critic/dealer system could be by-passed. Hence the apprehension of dealers and many artists.

There also existed an additional problem concerning the role of craftsmanship and the relationship between the artist and his materials which had to be settled. Industrial printing, as with many other mechanised processes became increasingly automated, as a result of increasingly sophisticated industrial technology. Progress was achieved at the expense of craft skills and contact between man and his materials.

Finally, the popularity of paintings and prints by Pop artists indicated that the viewing public were ready to accept changes and were attracted rather than repelled by their pre-occupation with mass media imagery and techniques.

Between 1960 and 1965 a number of attempts were made to define print originality and lay down general and specific rules or guidelines for artists to follow. The first guidelines were drawn up in five paragraphs at the Third International Congress of Plastic Arts held in 1960 in Vienna (Appendix (a)) The Print Council of America modified the terms of the Vienna definition in 1961 allowing the printmaker greater freedom (Appendix (b)). The American definition was later

modified slightly by Karl Zigrosser (Appendix (c)). Finally in 1964 the Comité National de la Gravure also attempted to define originality (Appendix (d)).

Most of the sections in the definitions are of importance to dealers and collectors, such as the limitation of editions and the use of the artist's signature. However in all four definitions it is stipulated very clearly that the artist must make the plate block or stone from which the print is taken. In other words, the artist must codify the image he has created or visualised himself. Photo-mechanical prints were considered invalid and are termed 'reproductions' (see Appendix (a)). But as Pat Gilmour asks - as reproductions of what?¹

There is the temptation and danger in such a controversy to split hairs over what is or what isn't acceptable. As Richardson stated in the 18th century (see chapter 1(b) page 13) degrees of technical originality exist ranging from direct codification without prior planning to printmaking which could be considered very close to reproduction printing. It was recognised in the latter half of the 1960's that attempts to define and control the character of original prints on the basis of what printing process the artist may or may not use, and even how he may use it, were futile. Attempts to control artists who find that the direction of their creative development takes them into areas which demand the use of certain technology or materials cannot succeed. Artists must lead. Critics, connoisseurs, dealers and the public must follow.

In 1970 Anthony Gross expressed his view concerning print originality. They reflect the later, broader approach to the problem of dealing with new technology.

'I could call prints produced by the artist himself in etching, engraving, lithography, etc. "original prints", but I would not wish to single them out from reproductions and other mass media. It is not possible today, nor was it in the past, to ignore contemporary technology. Indeed there is very little difference between a camera and a good copyist engraving by hand. The speed of the camera is easily compensated for by the high cost of the equipment needed in reproduction work. By the term original print, therefore, I simply mean a work full of inventiveness, originality and humanity.'²

Neither Ivins nor Jussim would entirely agree with Gross concerning the 'very little difference' between photographs and reproduction engravings. Nevertheless it is important to note that 'originality' as defined by Gross is not directly associated with printing processes or technique. Rather, it concerns the artist's vision and the way the medium is used. Gross continues:

'However, the difference between painting or drawing and printmaking is that each painting or drawing is different, whereas in printmaking a matrix is prepared from which identical images can be taken.'³

It could be added that possibly that is the only difference between painting, drawing and printmaking, and is almost beside the point. For the artist using the medium of print, the utilization of the unique properties of a particular material and process are of paramount importance. This together with the quality of the paper used, pressure marks, thickness of the ink and the way it is deposited on the paper makes up what could be termed print presence and can be seen as an integral part of the total impact of the print. Such presence is relatively easy to establish and recognise when an autographic process is used such as woodcut or etching. However, when an artist uses a photo-mechanical process it is far more difficult for the artist to establish and achieve print presence and for the viewer to recognise it as such.

The problem of photo-technology and print presence is dealt with in the next section.

(b) Printmaking criteria: photo-mechanical printing techniques and the artist

In chapters 1-4 an attempt has been made to establish the nature of both industrial printing and printmaking and to ascertain the degree of influence industrial printing has had on printmaking since the 16th century.

In this final section criteria for contemporary printmaking are discussed. It concerns the problems faced by artists who may want to use photo-technology for printmaking purposes, as opposed to their being used as a means to make statements about the nature of mass media or as a means to make reproductions.

The guidelines as discussed in Chapter 5(a) proved to be ineffectual in stopping artists breaking away from accepted norms within the tradition of print originality. In breaking down the barriers surrounding printmaking, artists associated with the Pop movement did not immediately set up new guidelines. Instead an attitude of 'what the artist says, goes' was generally adopted. As a result of this break with tradition no clear criteria existed by which prints by artists could be judged. Concerning this problem Finch stated the following:

'Critics, collectors and even most artists - are generally reluctant to admit that any and every work of art is governed by its own set of rules. The feeling, and it is very deep rooted, seems to be that if one accepts this simple fact then one is somehow acquiescing to a situation in which value judgements are abolished. This is, of course, absurd. Even when we accept this principle of each work governed by its own rules there are two important questions to be asked. Firstly: Do these rules allow for a rich or interesting statement? Secondly: Has the artist managed to work within this structure without evident contradictions, without cutting corners or bending rules to accommodate for failure of imagination? Once an art work has established its internal rules, the artist must observe these rules and he must do so with vigor.'⁴

The above is especially relevant with regard to printmaking and could form the basis of any criteria. But further problem areas exist. The technical distinctions between original prints, reproductions of originals and industrial prints by graphic designers, mainly advertisements, fell away with the advent of the Pop movement. Photo-mechanical reproduction processes were so perfected as to allow an artist to have any original, in paint, pencil or print expertly reproduced. That is to say, the minimum of information would be lost in the codification and transmission of the message about the original. According to the traditional concept of print originality, such prints would be rejected out of hand. In the post-Pop era, following the rejection of guidelines concerning print originality, no such clear-cut judgement could be made. Despite the acceptance of photo-mechanical techniques as a means by which artists could make prints, their ability to make high quality reproductions as well remained a cause of concern. Christopher Finch wrote in 1972:

'Among suspect printing techniques (suspect, that is to say, in fine-art terms), photo-lithography ranks pretty high. It is capable of producing very high quality images. This is especially true of the process known as collotype - but it does allow for the intervention of the artist's "hand" except insofar as his touch can be accurately reproduced. This is clearly a problem since making art and reproducing art are two quite different things.'⁵

Richard Field, also writing in 1972, identified the same problem:

'It has not yet been ten years since the renaissance in screen-printing began, but one might already question its continuing vitality and validity. Many publishers are simply sending artists' work to a printer to be superbly reproduced, entirely without participation of the artist. Yet some very beautiful work has come from original drawings supplied by Jasper, Johns, George Segal, Christo, Marisol and others. Whether such processed drawings are some sort of subtle medium-transformation or merely fine reproductions, we cannot yet say.'⁶

This was the problem recognised and dreaded by those who had attempted to keep industrial and printmaking techniques apart earlier in the century.

A lack of a true understanding of this technology associated with photo-mechanical printing and a lack of awareness of its position in the history and evolution of printmaking could lay artists and students intent on using such methods open to certain dangers. The following are possible problem areas:

The popularity of photographic imagery during and after the Pop movement set an international stylistic fashion which in printmaking was best expressed through photo-mechanical printing methods. It is possible that an artist could place emphasis on photographic imagery and photo-mechanical methods in order to give his work a contemporary appearance regardless of whether such source material and means would be compatible with his personal style.

Associated with the above it is possible that an artist could make use of juxtaposed photographic images of an unrelated nature in the tradition of Dada, Surrealism and Pop art, but in a pre-determined manner without true understanding or meaning. It is possible that an artist

might use photographic images and technology to compensate for a lack of drawing skill. Print technicians or industrial printers could be employed to hide a lack of understanding of a particular technique. Artists lacking a genuine interest in printmaking but keen on making multiples could also make use of technicians or industrial printers. The possibility could also exist that an artist might not be in a position to intervene during the printing process and would accept the final print made by the printer although not what the artist had initially intended. There could be a lack of experimentation due to the incogitant use of highly worked source material and photo-mechanical techniques.

The misunderstanding of print technology and selected source material is not confined to the contemporary situation. Ivins described the impact of Rembrandt's etchings on 19th century artists associated with the revival of etching, mainly in France. Rembrandt, through his own ability, experimentation and dedication was able to break through accepted norms and achieve superb effects by what appeared in retrospect a free mixture of techniques.

'The fact that he often thought out his technical procedure instead of following a mere recipe, was seized upon as justification for a great deal of technical incompetence that carried with it few compensating qualities Thus Rembrandt, who was the most highly disciplined and trained of workers, became the patron saint of a group of hasty sketchers who set up sketchiness as the criterion of what they liked to call "the true function" of etching. It is to be doubted whether any other etcher, no matter of what school or time, has ever produced plates which required such careful technical forethought and planning as, for example, Rembrandt's "Presentation in the Temple in the Dark Manner" or his portrait of the Young Haaring.'⁷

Ivins' criticism of artists such as Corot, Jongkind and Hayden may be a bit harsh, especially if one considers the state of original printmaking at that time (see Chapter 2(b)). Nevertheless the point made by Ivins applies to printmaking of any era. The seemingly casual or easy effects which do not appear to have been achieved through particular craftskills and application are often deceptive and difficult to emulate. This is perhaps even more applicable when photo-mechanical printing methods are used. The relative ease by which a print made up

of photographic imagery can be composed and printed (especially if a technical assistant is employed) could result in superficial and stereotyped work. To use sophisticated technology to maximum effect in terms of an artist's aims and style; research, experimentation; and the acquisition of skills (or knowledge about the medium if a technician or printer is to be used) is essential.

Finally Van Deren Coke recognised certain dangers concerning the use of photographic material by painters which are relevant to printmaking as well. The first concerns the limits photographs may place on an artist's creative freedom:

'However fertile photographs may be as stimulation, their use carries a considerable measure of risk, for they can have a debilitating effect on the artist who accepts their aid without discrimination. Dependence on a camera can dry up the inspiration that comes from extended personal observations.'⁸

The second danger noted by Coke relates to the views held by Ivins and Jussim concerning the limitations of photographic vision (see Chapters 2 and 3).

'Ever present is the danger of falling into the trap of merely illustrating the photograph with all its limitations as an object itself. John Sloan recognised this when he said "One trouble with a great many contemporary artists who are using photographs for documentary details is that they are drawing directly from the photograph - repeating all the visual distortions".'⁹

Camera vision could supplant human vision, or more specifically personal artistic vision, without the artist deliberately intending it to happen or even being aware of the danger. The use of photography need not be considered a negative phenomenon if an artist intends his work to be photographically processed and deliberately limits his intervention in the making of the print in the tradition of the Dada and Pop movements.

In order to establish criteria, the first question which must be answered is whether there is any point in an artist making original prints when the technology exists to reproduce, with high accuracy, his work in other media. If the answer is in the affirmative, the next question is when, then, are printing techniques, especially photo-mechanical printing methods, used successfully by artists?

The answer to the first question is in the affirmative provided that an artist can rise above a pre-occupation with craftskills, technique or any material at his disposal in order to make a work of art in the particular medium of his choosing. A delicate balance exists between mastery of a technique and unnecessary virtuosity - as far as an artist is concerned. Ivins observed:

'The price of virtuosity is abject slavery to a complaisant tool, that of creative artistry is wilful dominance over a recalcitrant tool. The world has a curious but encouraging habit of forgetting virtuosity.'¹⁰

Most great prints made to date have come from the hands and minds of painters and sculptors rather than from specialist printmakers. The possible reasons for this are that an artist who has mastered a major medium (painting or sculpture) would, first of all, have evolved a strong personal style and would have at his disposal rich pictorial material on which to draw for printmaking. Secondly an artist's accomplishments in one medium would give him the experience and understanding required to come to terms with another medium and realise and exploit its potential in terms of his personal style.

'The quality of a print rests only with the artist's ability to utilise graphic potentials to make art.'¹¹

Picasso springs to mind as an example of a painter who was able to use the medium of print in such a manner.

The justification for artists having access to any print technology is that inherent in all printing processes are characteristics, unique to those processes, which can be exploited. The basic requisite of an artist should be to make prints which are in and of a chosen medium.¹²

In addition, the act of making a print (as discussed in Chapter 1(b)) offers artists opportunities for visual exploration through technical experimentation which applies to photographic as well as autographic techniques. Today, more than ever before, justification for using the medium of print by an artist does not have to be based on the making of multiples.

The answer to the second question depends on the artist's understanding of the implications inherent in using the medium of print in the first place as well as an understanding of the limitations and potentialities,

the materials and codification methods associated with the particular technique of his choosing. The choice of what printing technique will be used is not critical. Of far greater importance is the way in which the chosen technique will be used. Even if a technician and printer are employed by the artist, it is necessary that an understanding of the process used is acquired in order to make value judgements with regard to the way in which the print is made and with regard to the effectiveness of the completed print in terms of the process used. As Estelle Jussim observed:

'An inadequately trained photo-technician could wreak as much havoc on an original as the hand engraver had with his arbitrary codes. An incorrect choice of printing paper or ink will destroy any chance of proper transmission.'¹³

Understanding of the medium can be acquired, firstly by indirect means through reading about printing, its techniques, history and the way artists have approached the medium in terms of their styles. Perhaps even more important is the necessity to look at prints made by artists from the 15th century to the present time. Unfortunately the main sources of examples are reproductions of originals in books and periodicals. For the examination of imagery and style, reproductions are possibly adequate, but because reproductions of original prints in books are prints in themselves, the physical presence of the original is eliminated. The reduction of the original textures, through a subliminal code to a smooth even layering of ink, usually on a smooth glossy paper, may be characteristic of photo-mechanical printing, but is not characteristic of woodcut prints, etchings, stone lithography or serigraphy where the codification marks are much less sophisticated and an inherent reflection of the material and printing process used. Hence reproductions are totally inadequate as far as the understanding of print presence is concerned.

Secondly an understanding of the inherent characteristics of techniques can be achieved through direct experience, by making prints and through experimentation, trial and error, and so coming to conclusions. The more direct the contact is between the artist and materials and machinery at his disposal the easier it is to establish what the inherent characteristics of the medium are. Much can be learnt during the codification process if an autographic medium is used (as described in Chapter 1(b)). The visual 'noise' or interference caused

by the artist wrestling with, and manipulating the medium, and the additional interference caused by the way the printing machinery deposits ink and applies pressure reveal inherent characteristics of the medium. Almost any manual as opposed to automatic operation of the machinery and tools would increase awareness of the potential or limits of a printing technique. If the chosen means for codifying and printing an image are photographic and automatic, and a subliminal code is used, the characteristics of that method would be very difficult to identify, but not impossible, provided that the artist could through experimentation achieve an understanding of the technology involved. The single characteristic of a photo-mechanical process utilising a subliminal code is the almost total elimination of any characteristics other than its smooth anonymous presence. This is not an absolute value. All codes, depending on methods and materials, have interference levels; some lower than others.

As a generalisation, it would be true to say that the lower the noise level, the less interesting the printing medium is in terms of printmaking and the more difficult it is for an artist to make prints characteristically in and of that particular medium. Most artists prefer to incorporate the interference caused by method and materials as a means of enriching the visual impact of their prints. The situation could occur when an artist might want to eliminate as much transmission interference as possible in order to achieve a specific visual quality - which is a different situation altogether.

It is interesting to note that in a field of industrial printing such as high quality advertising equally high quality subliminal codification is usually required in order to transmit the maximum amount of information by photo-mechanical means. But even in this field the interference caused by a coarse halftone screen is sometimes intentionally used to achieve interesting visual effects.

The complexity of the problem faced by artists attempting to come to terms with modern industrial printing methods can best be demonstrated by examining the ways offset photo-lithography can be used by artists. Offset lithography was singled out by both Felix Brunner and Christopher Finch as being suspect as a medium for printmaking. (See Chapter 3(b) quotation 10, page 49, Chapter 5(b) quotation 5, page 79).

Firstly an artist would have to come to terms with the fact that the

presence of an offset-litho print would be very similar to that of an average industrial print made through the medium of either photolithography, photo-gravure or letterpress halftone. This lack of presence was part of the reason why Felix Brunner rejected the offset-lithograph by Picasso as not being properly original despite the fact that Picasso drew directly on the zinc plate (Chapter 3(b) page 49). Brunner noted in connection with this print:

'The surface of the paper which is fairly rough, seems to be quite unaffected, for the impression was made with an elastic rubber cylinder. In a proper lithographic impression the surface of the paper is changed by contact with the plate.'¹⁴

The lack of presence must be considered important. Through the physical presence of a print the spectator is made aware of the craftskills of the artist and the pride and pleasure he has experienced in making that work of art. A photo-lithographic print, no matter how directly the artist has worked with plates and the press, will have a 'reproduction' look about it. The overall presence would be enhanced by the use of a good quality paper, but beyond that the artist must accept the thin, evenly-layered, rather lifeless ink surface as characteristic of the medium.

However, a lack of presence alone cannot be considered a valid enough reason for rejecting a print or the process used. Secondly, a problem as far as artists are concerned, but an enormous asset in industrial printing, is the versatility of a photo-mechanical process such as photo-lithography. The limitations of a technique or material could be accepted as a challenge or a framework within which an artist must work. This could be likened to the position of a poet who accepts rhyme and rhythm as restrictions on the use of words, but also as stimulants, as he is forced to seek out unusual words and word combinations in order to comply with the given framework. Photo-lithography has limitations, but these limitations do not affect what may be printed. Any mark or texture an artist may care to make, or photographic images he may care to use, can be reproduced. How the printed image will look when compared to the original will indicate the limitations of the process.

How the technique will be used depends on the artist much more than is the case with autographic print techniques.

There are two basic ways an artist can use photo-lithography:

Method (a) falls within the Dada-Pop art tradition which in turn has its roots in the Rubens, Callot, Bosse tradition (see Chapter 1(b) page 9). Within such a tradition an artist would use the medium primarily for its properties developed for industry. These would include its ability to codify and transmit the message of collage or photomontage with great accuracy and at the same time unify disparate textures and images. Other properties would be the ability of the press to print large editions using thin ink deposits to achieve precise, controlled quality. In addition, the printing of the image would be more 'instant' than 'evolved'. That is to say: much of the designing of the print would take place prior to printing and the image or sections of the image would be placed on plates as part of a preconceived plan as to how the various plates, colours and imagery would be brought together as a completed print. A technician or printer would be able to take over from an artist once sequential planning and the images are completed prior to codification. This approach is similar to that used by graphic designers, but different from the evolutionary method described below.

Method (b) falls within the Seghers-Rembrandt tradition as discussed in Chapter 1(b). This method would involve the use of direct drawing by the artist either on paper or on a transparent material such as acetate. The image would then be transferred onto lithographic plate photographically but without prior codification. Within this tradition the printing of the image would be more evolutionary, that is to say successive plates would be made, colours chosen and the image slowly built up but without the preplanning of Method (a). The artist would be involved in the printing of the image to a far greater degree and would work with the printer in order to be able to intervene and change a colour or a plate at any time.

The major difference between Method (a) and Method (b) is the way in which the image is codified. A preconceived image created by an artist is processed and codified by a remote photographic method in Method (a) as occurs in industrial printing and as discussed in Chapter 4(c) with reference to the Pop movement and screenprinting. In Method (b) the image is created as it is codified by the artist. Method (b) may be considered a more acceptable way of making original prints because of the direct participation of the artist (in codifying the image). But

as previously discussed, a 'processed' image is also subject to changes which occur in the automated codification process which should be recognised and exploited by artists who attempt to make the technique their own.

It goes without saying that combinations of the two methods can be used by artists. Neither of the two approaches to the utilization of photo-lithography can be regarded as not original in a contemporary context.

The successful use of both methods or combinations of the two depends on an artist's understanding of the medium of printing in general, specific knowledge of the process chosen, and the will to master and exploit that process to his own ends subject to the initial concept of the print and personal style.

Finally it would be relevant to discuss the increasingly sophisticated industrial technology which is available to artists. The electrostatic printing process has been briefly discussed in Section 3(a). Its availability as a black and white, and more recently as a colour medium, is significant. Both the codifying and printing processes are fully automatic. The operator, be it artist or member of the public, has merely to push a button in order to obtain a codified, printed message of an original image. The process, nevertheless, has creative potential for printmaking, although due to technology employed, it is impossible for the artist to personally codify an image.

If an artist were to use an autographic technique to make prints, his understanding and mastery of the technique would come about almost unconsciously because of his direct physical involvement in the codification of an image, and in the printing of a block or plate. But as previously observed, the more sophisticated the printing machinery and technology utilised, often, the easier it is to make a printed image, but the more difficult it is to come to grips with the medium and achieve an understanding that will make it possible to create prints which are in and of that medium, and which would also reflect the artist's style.

If an artist were to use an electro-static process it would, strictly speaking, be possible only to use Method (a) because the making of the image would have to occur before printing and not during the process. The electrostatic printing process was designed for industry, to trans-

fer as much information about an original as possible, in the most efficient, economical way. However, changes do occur when the original is electronically codified.

The procedure that an artist could follow in using an electrostatic process would require that he make drawings or paintings which would then be printed. By comparing the original with the prints, an analysis could be made of the way in which the image is codified, and so the artist could discover the characteristics of the medium and establish what presence the print might have. The characteristics which he may discover and utilise would, in industrial terms, be recognised as interference caused by the medium's inability to transmit a perfect message about the original. Once the artist has made an analysis, further drawings or paintings could be made using colours, textures and materials which he has discovered would print in a way suited to his aims and style.

In more general terms it could be said that as long as industrial printing processes remain imperfect in their ability to reproduce original images, so long could those imperfections be exploited by artists in one way or another, within the concept of print originality (as understood in Method (b)) to make prints characteristic of the medium and of the artists concerned.

Understanding of print media, and more especially understanding those methods utilising sophisticated technology, must be consciously sought through experimentation and the accumulation of experience. It cannot be achieved by giving instructions to a technician or by pressing a button and merely waiting, unthinking, for results.

(c) References

1. Gilmour, Pat, 1970, p.34
2. Gross, Anthony, 1970, p. 1
3. Ibid., p.1
4. Finch, C., 1972, p.35
5. Ibid., p.37
6. Field, R.S., 1972, p.76
7. Ivins, W.M., 1953, p.81
8. Coke, van D., 1964, p.300
9. Ibid., p.300
10. Ivins, W.M., 1957, p.146
11. Ivins, W.M., 1953, p.144
12. Goldman, J., 1972, p.49
13. Jussim, Estelle, 1974, p.305
14. Brunner, F., 1972, p.286

CONCLUSIONS

Industrial printing has had a profound influence on artists over the centuries, particularly on those who have concerned themselves with printmaking. Because industrial printing is such a widespread, all-pervading medium of communication, artist/printmakers have never been able to dissociate themselves from its technology and imagery.

Technology of one kind or another is a fundamental component in the making of multiple images and artists cannot escape its function in the creating of expressive visual statements. Indeed it is the awareness and acceptance by artists of the technical aspects of printmaking which are the first steps towards the making of original works of art in this field and justifies the choice of the medium of print in the first place.

Reflected in the history of printmaking are the problems caused by the explosion of technology associated with the Industrial Revolution. The central issue has been the degree to which artists can or should exploit new technology which could lead them away from the traditional, more personal tools and techniques of the past; techniques which appear to be much more in keeping with the personal vision of artists.

It can be understood why artists felt threatened by industrial printing technology at a time when industrialised societies as a whole were struggling to come to terms with the sometimes overwhelming new technology and its ramifications. But attempts by many of those concerned with printmaking to ignore or reject photo-mechanical printing processes during this century have not offered a lasting solution to the problem of how artists should deal with sophisticated printing technology in general.

The threat of photography as a dehumanising factor in printmaking is valid only if the chosen technology is misunderstood or misused by artists. Should an artist not be master of his medium and his concept or personal vision not strong enough, the resultant prints may indicate the domination of the technology over the artist.

Despite the antagonism of many artists towards photographic technology, the 1960's saw the breaking of barriers surrounding the traditional concept of print originality. New industrial technology and imagery offered exciting new ideas and means and was the source of a renaissance

in printmaking. Nevertheless, the advantages of photographic techniques have not ruled out the use of traditional printing techniques which still enjoy great popularity because of inherent qualities they possess, which are lacking in newer, more sophisticated printing methods. In the long run it may well be that photographic and electrostatic means of making images will be used, not so much to make final statements, but as a means to explore the visual world and the subconscious, to record images and to experiment with new ideas quickly and without the limitations that the learning of craftskills impose. Such visual vocabulary could then be used to create final statements by autographic means which would allow artists ultimately to involve themselves more in the evolution of concepts through successive print states. At the same time the tactile qualities of the printed images could be lifted above that of anonymous industrial prints.

Although sophisticated printing processes are able to establish presence which is characteristically their own and which may be exploited by artists, this presence tends to be very similar to, if not the same as, that of industrial prints. The physical presence achieved in an etching is very different from the smooth anonymous surface of the photo-lithograph. It is the tactile quality of the surface of an etching which adds greatly to its power as a work of art. A print is enriched by its tactile quality as is a painting or a sculpture.

Artists have always had the choice either to master printing techniques themselves or create works by other means and avoid coming to terms with the technical problems of printing by handing over to craftsmen or technicians. In terms of creative development, artists can benefit very little from the making of such reproductions. Nevertheless, it cannot be considered incorrect to exploit the methods normally employed to make reproductions to make original prints. Ultimately the difference between a reproduction and an original print does not lie in the technology employed to make a print, but rather in the approach and attitude of mind of the artist concerned. Artists must be aware that it is what they make of the medium and not what the medium makes of them that is important. The artist must remain in control of his media. Methods of printing, no matter how old or new, cannot become obsolete or be irrelevant in artistic terms. The woodcut in the right hands is as valid and as powerful a medium today as it was in the 15th century. The etching press, the electrostatic copier, the spoon for rubbing woodblocks are merely tools, products of man's ingenuity. Any tools may serve to express the vision and purpose of the true artist.

APPENDIX

(a) Original prints

1. It is the exclusive right of the artist-printmaker to fix the definitive number of each of his graphic works in the different techniques: engraving, lithography, etc.
2. Each print, in order to be considered an original, must bear not only the signature of the artist, but also an indication of the total edition and the serial number of the print.
The artist may also indicate that he himself is the printer.
3. Once the edition has been made, it is desirable that the original plate, stone, woodblock, or whatever material was used in pulling the print edition, should be defaced or should bear a distinctive mark indicating that the edition has been completed.
4. The above principles apply to graphic works which can be considered originals, that is to say to prints for which the artist made the original plate, cut the woodblock, worked on the stone or on any other material. Works which do not fulfil these conditions must be considered 'reproductions'.
5. For reproductions no regulations are possible. However, it is desirable that reproductions should be acknowledged as such, and so distinguished beyond question from original graphic work. This is particularly so when reproductions are of such outstanding quality that the artist, wishing to acknowledge the work materially executed by the printer, feels justified in signing them.

(b) An original print is a work of art, the general requirements of which are:

1. The artist alone has created the master image in or upon the plate, stone, wood block or other material, for the purpose of creating the print.
2. The print is made from the said material, by the artist or pursuant to his directions.
3. The finished print is approved by the artist.

These requirements define the original print of today and do not in all cases apply to prints made before 1930.

- (c) 1. The use of technical innovations is allowed in the making of a print (so that it could conceivably become three dimensional), although engravers do not like the idea of photo-mechanical methods.
2. The aid of a professional printer or a pupil is allowed (as it was in the past), provided that the artist supervises the work. If it is the artist who is personally in charge of the printing, the word imp (ressit) should be added after the signature in pencil;
3. Trial proofs (in other words, the first attempts before arriving at the perfect original) ought to be marked as such;
4. So-called artist's proofs should be limited;
5. The edition does not necessarily have to be limited, just as it was not limited in the past, when more copies were printed than nowadays. But if it is limited it must really be so, and therefore each print should bear an indication as to the total number of copies printed;
6. It is advisable for the engraver to cancel or obliterate the master image once the edition has ended;
7. An indication as to the date of the engraving is a useful requirements.
- (d) The following are to be regarded as original engravings, prints and lithographs: impressions printed in black and white or in colour, from one or more matrices, conceived and executed entirely by the artist himself, whatever the technique employed and excluding the use of all mechanical or photo-mechanical processes. Only those prints which correspond to this definition have the right to be called original prints.

GENERAL BIBLIOGRAPHY

- ADHÉMAR, J. Graphic Art of the 18th Century
Thames and Hudson, London, 1964
- BENTHALL, J. Science and Technology in Art Today
Thames and Hudson, London, 1972
- BERGER, J. Ways of Seeing
British Broadcasting Corporation, London, 1979
- BRUNNER, F. A Handbook of Graphic Reproduction Processes
Visual Communication Books, New York, 1972
- CASTLEMAN, R. Modern Prints Since 1942
Barrie and Jenkins, London, 1973
- CASTLEMAN, R. Prints of the 20th century: A History
Thames and Hudson, London, 1976
- COKE, van D. The Painter and the Photograph
University of New Mexico Press, 1964
- COMPTON, M. Pop Art
Hamlyn, London, 1970
- CRANE, W. Of the Decorative Illustration of Books, Old and New
Bell, London, 1896.
- FINCH, C. Pop Art: Object and Image
Studio Vista, London, 1968
- FLORISONE, M. 'Impressionism and Symbolism' Larousse Encyclopedia of Modern Art. Hamlyn, London, 1965
- GILMOUR, P. Modern Prints
Dutton Studio Vista, London, 1970
- GILMOUR, P. The Mechanised Image
Arts Council of Great Britain, London, 1978
- GROSS, A. Etching, Engraving and Intaglio Printing
Oxford University Press, London, 1973.
- HAYTER, S.W. About Prints
Oxford University Press, London 1962
- HAYTER, S.W. New Ways of Gravure
Oxford University Press, London, 1966

- HELLER, J. Printmaking Today
Holt, Rinehart and Winston, New York, 1972
- HUYGHE, R. Larousse Encyclopedia of Modern Art
Hamlyn, London, 1965
- IVINS, W.M. Notes on Prints
Da Capo Press, New York, 1967
- IVINS, W.M. How Prints Look
Beacon Press, Boston, 1943
- IVINS, W.M. Prints and Visual Communication
Harvard University Press, Cambridge, Massachusetts, 1953
- JUSSIM, E. Visual Communication and the Graphic Arts.
Bowker, New York, 1974
- LEWIS, J. Anatomy of Printing
Faber and Faber, London, 1970
- LUCIE-SMITH, E. Movements in Art since 1945
Thames and Hudson, London, 1975
- McLUHAN, M. Understanding Media
Routledge and Kegan Paul, London, 1964
- MURRAY, P. and L. The Art of the Renaissance
Thames and Hudson, London, 1963
- MURRAY, P and L. A Dictionary of Art and Artists
Penguin Books, London, 1972
- READ, H.E. Art Now
Faber and Faber, London, 1968
- READ, H.E. Art and Industry
Faber and Faber, London, 1934
- ROGER-MARX, C. Graphic Art in the 19th Century
Thames and Hudson, London, 1962
- SALAMON, F. A Collector's Guide to Prints and Printmakers
Thames and Hudson, London, 1972
- SCHARF, A. Art and Photography
The Penguin Press, London, 1968

SPENCER, C. A Decade of Printmaking
Academy Editions, London, 1973

STUBBE, W. A History of Modern Graphic Art
Thames and Hudson, London, 1963

TIME-LIFE BOOKS (The Editors), Life Library of Photography: Vol. 2
The Print. 1970

ZIGROSSER, C. and GAEHDE, C.M. A Guide to the Collecting and Care of
Original Prints.
Crown Publishers, New York, 1965

PERIODICALS

FIELD, R.S. Silkscreen, the Media Medium
Art News, January 1972, Vol.70, No.9

FINCH, C. Breaking through the Print Barrier
Art News, January 1972, Vol.70, No.9

GOLDMAN, J. Print Criteria
Art News, January 1972, Vol.70, No.9

GOLDMAN, J. Exploring the Possibilities of the Print Medium
Art News, September, 1973, Vol.72, No. 7

HESS, T.B. Prints: Where History, Style and Money Meet
Art News, January 1972, Vol.70, No.9

KELDER, D. Tradition and Craftsmanship in Modern Prints
Art News, January 1972, Vol.70, No.9

RAYNOR, V. Jaspar Johns
Art News, March 1973, Vol.72, No.3

SHESTACK, A. Master Prints as Visual Images
Art News, January 1972, Vol.70. No.9

TANCOCK, J. The Oscillating Influence of Marcel Duchamp
Art News, September 1973, Vol.72, No.7

OPSOMMING

Hierdie studie verken die wisselwerking tussen nywerheidsdrukwerk en afdrucke as deel van grafiese kuns. Die klem val op die invloed van fotografie en verwante tegnologie op drukwerk.

Die ontwikkeling van, en die verhouding tussen oorspronklike- en reproduksiedrukwerk, en die aard van visuele kommunikasie deur middel van drukkuns voor die uitvinding van fotografie, word bespreek. Daarnaas word die uitwerking van fotografie op nywerheidsdrukwerk en die grafiese kuns, asook die ontwikkeling van die konsep 'oorspronklikheid' in die drukkuns, belig.

Die twee teenoorgestelde benaderings in die grafiese kuns wat in die eerste helfte van die 20ste eeu bestaan het, en die veranderings wat as gevolg van kunstenaars se aanvaarding van fotografiese-tegnologie en -beelde teweeggebring is, word ondersoek.

Ten slotte word gevolgtrekkings gemaak ten opsigte van die oorspronklikheid van afdrucke en maatstawwe uitgelig wat van toepassing is op die grafiese kuns, in 'n tydperk gekenmerk deur 'n toenemend verfynde druktegnologie.

SUMMARY

This study examines the interaction between industrial printing and printmaking with emphasis on the influence of photography and associated technology on printmaking.

The evolution of, and relationship between original and reproduction printing and the nature of visual communication through the medium of print prior to the invention of photography is discussed, as is the impact of photography on industrial printing and printmaking and the development of the concept of print originality.

The two opposing approaches to printmaking which existed in the first half of the 20th century and the changes brought about as a result of the acceptance by artists of photographic technology and imagery are examined.

Conclusions are drawn concerning the nature of print originality and criteria established which are relevant to printmaking in an era notable for the rapid development of sophisticated printing technology.