



Frontispiece. Rubens (1577-1640) Elizabeth Brandt.
London: British Museum.

- METHOD AND THEORY IN THE -

- PSYCHOLOGY OF ART:-

~~With special reference to the appreciation of painting.~~

- by -

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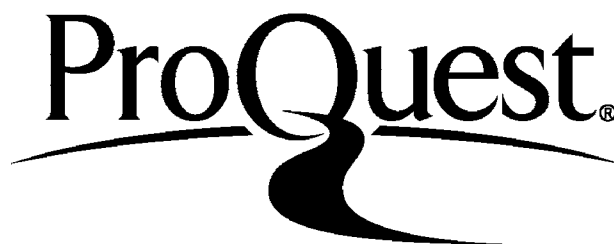
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ABSTRACT

The unsatisfactory state of the psychology of art as a field of enquiry is analysed and two explanations are offered. The current state of psychology is also analysed and recommendations for change are made which should also improve the psychology of art, particularly in terms of effectiveness and relevance. This is followed by a detailed discussion of three major approaches to the subject, viz. Psycho-analysis, Gestalt psychology and experimental aesthetics. The empirical approach is further analysed in terms of the specific problems of aesthetic measurement. Certain procedures and kinds of measurement are strongly discouraged, whereas other forms are encouraged. The ideas of the preceding four chapters are integrated in chapter five within the frame-work of implicit aesthetic theories, which can structure both the individual's and a culture's encounter with art. In addition it can be used to structure the field of enquiry, particularly with reference to the model of aesthetic perception which is discussed in chapter five. In general, an enlightened empiricism is called for which is based on a model of man akin to that of 'the man in the street'. The psychology of art should deal directly with the phenomenal experience of real works of art. To this end introspection is regarded as an indispensable source of hypotheses which can be tested within an empirical framework. It is unlikely that problems in psychological aesthetics can be resolved except through multi-level, multi-disciplinary explanations. The next four chapters contain discussions of major topics in the psychology of art, viz. the structure of aesthetic reactions; the influences and determinants of aesthetic reactions; the development of aesthetic appreciation; and the problem of meaning in visual art. The final chapter presents a summary and overview.

* * *

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CHAPTER ONE

Introduction and Overview

'A frank recognition
of the difficulties
in the road is not a
reason for giving up
but only for being
more careful'.

(Whitmore 1927)

I The poor state of the psychology of art

In recent years the psychology of art has been criticised by a number of writers. In the eyes of Morgan (1950) and Berlyne (1960), the psychology of art has failed to achieve its objectives. More recently, McWhinnie (1971a) concluded a review article by saying that the psychology of art was 'spinning its wheels in the mud' and in a general survey of the field Hogg (1969a) made a plea for a fresh approach, which echoed a similar plea made by E. M. Bartlett in 1937. Others have described the field as confused (Munro 1963; Pratt 1961), and as irrelevant to the problems of art (Arnheim 1952; Dickie 1962). These are not the problems of youth which disappear with maturity for the psychology of art as an experimental discipline is almost a hundred years old.¹ As an outgrowth of philosophy it is much older.

The exact birth-date of experimental aesthetics is usually associated with the publication of Fechner's 'Vorschule der Aesthetik' in 1876. This book had a tremendous impact on the psychology of art. Not only was Fechner the first person to

¹The psychology of art and psychological aesthetics are interchangeable terms. That part of the psychology of art which rests solely on experimental investigation is referred to as experimental aesthetics.

introduce quantification and experimentation to the study of aesthetics, he also laid down several experimental techniques that are still widely used today. The psychology of art must have attracted a great deal of interest for by 1938 Chandler and Barnhart were able to cite 1,739 separate studies in their exhaustive bibliography. Of the studies listed approximately one sixth dealt with visual aesthetics, whereas a third dealt with music. Out of the 352 studies specifically devoted to visual art only 35 were directly related to paintings and other works of art. The rest concerned colour, form, line and other qualities as the elements of paintings. Another indication of the interest in the area at least in the early part of the century was the formation in 1922 of an Aesthetics Section in the British Psychological Society, though it had ceased to exist by 1937.

From its inception in 1927, it is possible to obtain from Psychological Abstracts a rough measure of the variations of activity in the psychology of art (see Appendix A). Examination of the proportion of papers published that are concerned with aesthetics, relative to the total number published for that year, reveals that interest was fairly high during the late twenties. This was followed by a steady decline in activity during the thirties. It was however during this period that Chandler (1934) published the first book in English to provide a general survey of psychological and experimental aesthetics. Only three years later E. M. Bartlett published his general survey, and because of disappointing achievements called for a fresh start to the subject (Bartlett 1937). Between 1940 and 1952 there was a slight increase in activity though it was not until 1948 that the most active period was to begin which lasted for about ten years. From 1958 interest in the psychology of art began to fall off, though in the late sixties activity in the psychology of art seems to be increasing once more.

This index of the relative amount of interest in the psychology of art compared to the rest of psychology does not take into account concurrent fluctuations of interest in other topics in psychology. Even so it reflects fairly well the fluctuations of activity in the psychology of art. The index does however reveal most clearly one very important point. The psychology of art has never been anything more than a very minor subject within psychology as a whole. The highest proportion of papers devoted to aesthetics occurred in 1954. In that year only 1.34% of the 9,117 papers abstracted (i.e. 122) were devoted to aesthetics. The lowest proportion of papers devoted to aesthetics (a meagre 0.24) occurred in 1964 (i.e. 26 papers). The overall median proportion works out at only 0.75%. These figures cover papers which were concerned with any of the arts. Since 1950 there have been five times as many papers dealing with the psychology of literature, and three times as many papers dealing with the psychology of music, as there have been papers on the visual arts.¹ Overall there has been relatively little interest in visual aesthetics.

In view of the importance of art to man it is surprising that psychology has paid so little attention to art. This point is of particular significance as the existence of art in all the three thousand cultures known on earth makes art, alongside language, one of the universal distinguishing characteristics of man.

It is one of the aims of this thesis to investigate the reasons why psychology has neglected this important area of human activity, and in particular to examine why the psychology of art appears to have achieved so little. There are very many different approaches to the subject, so it is necessary to adopt an un-committed view-point

¹This refers mainly to painting. Studies relating to sculpture, architecture, dance, film, interior design, fashion, town planning or landscapes are almost non-existent.

in order to be equally sensitive to the virtues and defects of the various approaches. By exploring the great variety of means and ends that fall under the umbrella of the psychology of art it is hoped to formulate a set of principles which can be used to evaluate past achievements as well as to guide the future development of the subject.

Perhaps the first requirement is to show that the psychology of art is indeed in a state of ill-health. In the first instance I propose to show that this is the result of two main causes. The first is related to the historical development of psychology, with special reference to the way in which this has determined the present-day structure of the psychology of art. The second main cause lies in the traditional antithesis that exists between Art and Science. This will be followed by a more systematic account of the ways in which the malaise manifests itself.

II The historical development of the psychology of art

The psychology of art is floundering in a profusion of competing methodologies. This is largely the outcome of the historical development of psychology as a whole. It is not my intention to write an exhaustive history of the psychology of art. This interesting topic would justify a whole thesis to itself, though Munro (1963) has produced a stimulating though somewhat impressionistic survey of the historical background and Pickford (1972, Chapter 1) has written a short history of experimental aesthetics in England.

Many writers (e.g. Koch 1969, Deese 1972, Child 1973) have argued that psychology is not a single coherent science. Rather it is a loose collection of techniques and approaches to a general problem. Unlike other sciences psychology does not appear to progress by shedding old techniques and assumptions as newer and

better ones are discovered. Instead it seems to adopt new methodologies without relinquishing the old ones. Different methodologies achieve prominence according to the current fashion, but are never totally abandoned. Today, the anti-theoretic, experimental tradition of Behaviourism is the dominant methodology, and the once-dominant methods of Introspectionism¹ are generally frowned upon. Old methods die hard in psychology, so it is still possible to find purely introspectionist accounts of aesthetic experience (Adcock 1962, Mace 1972). There has recently been a shift away from the more extreme strictures of methodological behaviourism towards a more flexible kind of psychological experimentation. Perhaps as Hudson (1972), Joynson (1971) and others have argued, the time is right for a return of mind to empirical psychology.²

It has already been noted that Fechner, the father of psycho-physics, was also the father of experimental aesthetics. There is today an active interest in the psycho-physics of form (shape, pattern, complexity) and colour which stems directly from Fechner's work and methods, but this has largely become an end in itself as there is now no link with aesthetics or with the psychology of art. Among contemporary experimental aestheticians, it is possible to distinguish the tough-minded experimentalists (e.g. Eysenck and Berlyne), who are influenced directly by Fechner's methods and the tenets of Behaviourism. By contrast, there are the tender-minded experimentalists (e.g. Child and Lindauer) who do not subscribe to a mechanistic model of man and who are prepared to deviate from the constraints of the classical experiment which derive from the model of psychology as a natural

¹ Here, Introspectionism refers not only to the standardised techniques used by Wundt and Titchener, but also to the general introspective approach of Galton, Freud, William James and others.

² The double meaning of this phrase is intended. It is both descriptive and evaluative.

science.

Alongside Introspectionism, and the Experimentalists the functionalist psychometric tradition is an active field in the psychology of art and a considerable amount of effort has been devoted to the development of tests of artistic aptitude, aesthetic sensitivity etc. With the advent of personality theory and multivariate statistical techniques, such as correlational measures and factor analysis, the study of individual differences and the dimensional structure of experience was introduced to the psychology of art. The Gestalt school (especially K hler, Koffka and Arnheim) has also had an enormous impact on the psychology of art from its earliest days as an approach to psychology. Similarly the pioneers of Psycho-Analysis (Freud and Jung) and their followers (Kris, Rank) were keenly interested in aesthetics. Today psycho-analytic methods and ideas play a very prominent part in the psychology of art. More recently the introduction of Information-Theory to psychology has resulted in the development of an information-theoretic school of aesthetics. Sooner or later almost every new methodology or approach to psychology has an impact on psychological aesthetics.¹ Each method and approach has different aims, techniques and assumptions.

It has not been the practice of psychology to replace old methods with new and better ones, but merely to accumulate them indiscriminately. Curiously the history of psychology parallels the history of art in this respect. In the words of E. H. Gombrich: 'The whole story of art is not a story of progress in technical proficiency but a story of changing ideas and requirements' (Gombrich 1950).

¹It is, however, interesting that there has been no development in the psychology of art to correspond to the recent emergence of psycho-linguistics, though Gregory (1970) and Arnheim (1969) have speculated on visual images as the precursors of language.

This may well underlie the present malaise of the psychology of art. If this is true then the malaise of the psychology of art is but one symptom of the malaise of psychology as a whole. Consequently a major prerequisite for the re-formulation of the psychology of art is the determination of a formula for psychology as a whole. This will be attempted in Chapter 2. The advantages and disadvantages of specific approaches to the psychology of art will be discussed in Chapters 3 and 4.

III Science, Psychology and Art

The second of the two main causes of methodological confusion in psychology, is the tryadic conflict between Art, Science, and Psychology. (See Fig. 1-1). Science and Art have traditionally been considered as opposite and irreconcilable poles. The experience that is generated by Science is public, objective and verifiable. Art produces experience which is private, subjective and not amenable to consensual validation. Science is extraverted

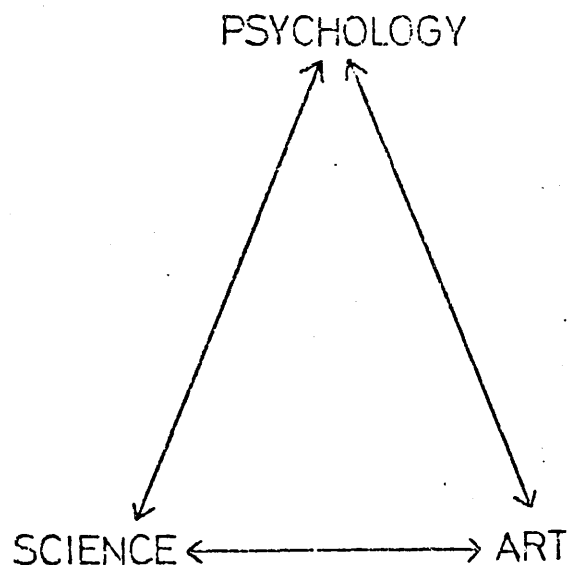


Fig. 1-1. Tryadic conflict between Art, Science, and Psychology.

and seeks universals in the form of generalizable truths about the nature and properties of material things. Art strives for universals in the form of experienced meanings concerning man and his existence.¹

In psychology this polarity is apparent in the gulf between methodological Behaviourism and Psychophysics on the one hand and Psycho-Analysis and Humanistic Psychology on the other. Commitment to an approach anywhere on the continuum between these two extremes entails the adoption of methods and techniques which vary in their degree of scientific rigour. At present there is no agreement in psychology on the most suitable methods for studying man.² It would appear that commitment to a preferred methodology carries with it a model of man which suits the methodology and vice versa. (See Harré and Secord 1972).

In the psychology of art this confusion is further aggravated by the fact that the subject-matter is not just man, but man engaging in an activity which has traditionally been regarded as the antithesis of science. A problem such as this is bound to be fraught with confused thinking and emotivism. The antithesis between empirical psychology and art has resulted in a large number of discussions which have attempted to justify the application of

¹The traditional antithesis between Art and Science may gradually be resolved. For instance McKellar (1957) has described the essential similarity between the creative processes of artists and scientists, just as other writers (Bruner 1962, Ch.4; Koestler 1964; Royce 1970; Hudson 1972) have attempted to show that the same metaphoric process underlies both science and art.

²This does not imply that there are proper and correct methods if only agreement could be reached. Methods are appropriate or not in a given context.

scientific psychology to art, (Bullough 1919; Whitmore 1927; Müller-Freienfels 1923;¹ Murray 1931; Mainwaring 1941; Brimer 1951; Wallach 1959; Westland 1967; McWhinnie 1971a and Lindauer 1973). All these papers have tried to justify the link-up of psychology and art, and at the same time have attempted to establish which methods are most suitable for tackling aesthetic problems.

A common theme underlying the discussions is the apparent paradox of applying objective scientific methods to the investigation of something so mysterious and subtle as art. The papers cited cover a wide span of time from the early days of psychological aesthetics right up to the present. The constant recurrence of these discussions suggests that a satisfactory answer has not yet been found. For example it will be seen below that there have been strong arguments both for and against the use of experimental methods in the study of aesthetics. The real argument however, is not whether experimental techniques should be applied to aesthetics, but what kind and what degree of experimentation is required in view of the special subject-matter viz. art and aesthetic experience.

Whilst most workers in the field are committed to one particular approach others have recommended multi-disciplinary approaches (Bullough 1919; Müller-Freienfels 1923; Lalo 1928; Chandler 1934; Schrickel 1936; Pratt 1961; Munro 1963). For instance, Bullough argued that in order to study aesthetic experience the psychologist must use experiment, observation and his own reminiscences. In a more critical analysis Müller-Freienfels (1923) discussed a number of methods all of which had associated advantages and disadvantages. His list of methods included experimental and questionnaire techniques,

¹The writings, in German, of Müller-Freienfels are discussed in detail by Munro (1948).

idiographic analyses, pathological studies, and what he called the objective-analytical method. By this he meant the use of every conceivable kind of evidence that is in any way connected with the work of art. This would include information on social, economic and cultural conditions, as well as prevailing aesthetic theories both in the past and in the present. In Chapter 5 I will develop the notion of individual and prevailing aesthetic theories as an explanatory framework for the psychology of art.

IV Manifestations of the Malaise

Before proceeding to an examination of the kind of psychology required, both in general and in its application to art, it is necessary to show just how the malaise manifests itself. In general this can be most clearly seen in the isolation of the psychology of art from both (a) psychology as a whole, and (b) from the world of art. It can also be seen in (c) the nature and number of recent surveys of the field, and (d) the criticism from within and from outside the psychology of art. Each of these points will be discussed separately below.

(a) The isolation of the psychology of art.

Not only is the psychology of art a minority subject within psychology, it also suffers the added disadvantage of being isolated from the mainstream of psychological research and teaching. Hudson (1972) has recently listed some 'topics that are beyond the pale of scientific respectability - stereotypes, hypnotism, LSD, ESP, marriage research, sociology and other unspecified forms of intellectual self-indulgence and impropriety'. He might well have included psychological aesthetics or the psychology of shyness in this list. In a sense this isolation can be seen as both a cause and a result of its present troubles. It is difficult to separate cause and effect.

In its twenty-five years of existence the Annual Review of Psychology has featured sections on aesthetics twice only (Pratt 1961; Child 1972) and Koch's six-volume review, 'Psychology: A Study of a Science', contains no discussion of aesthetics. The isolation of the psychology of art is also clearly seen in its conspicuous absence from introductory works on psychology and from general texts on perception, thinking, or social psychology. Rare exceptions to this are a chapter in von Fieandt's *World of Perception* (1966) and a very brief section in Wyburn, Pickford and Hirst (1964). Both are general texts on perception.¹ Consequently the general body of psychologists are rarely exposed to the psychology of art unless they specifically seek it out. This can result in ignorance or suspiciousness of the aims and methodological problems involved. In addition this state of under-exposure to psychologists in general (including students) restricts the range of critical evaluation the field is likely to receive, particularly from those working in other branches of psychology. In this way the field is sheltered from the critical evaluation of the broader field of psychology, and is consequently under less pressure to examine its assumptions, objectives and methods as stringently as possible. This may well explain the existence of so much poor work in the area, which was noted by Hogg (1969a).

The isolation of the psychology of art is also manifested in the absence of theory in the area. With the recent exception of Berlyne the psychology of art has not generated any theory that has had links with other areas in psychology. The reverse is also true. No general theory in psychology (apart from Helson's (1964) *Adaptation-level Theory* and Psycho-Analytic theorising) has

¹ A third possible exception is a book on form perception by Zusne (1970). Unfortunately his section on aesthetics (pp.336-405) does more harm than good to the image of the subject as it is purely behavioural, concerned as it is solely with objective reactions (e.g. ratings of pleasingness) to simple shapes (polygons) and plain colour. There is no reference to art.

attempted to include the problems of aesthetic experience and behaviour within its embrace. Psychology as a whole has neglected both art, as a field of application, and the psychology of art as a legitimate part of the mainstream of psychology. In view of the importance of art to man this neglect of aesthetics by psychology is surprising. There is clearly an argument for reformulating not only the psychology of art, but also psychology itself.

(b) The gulf between the psychology of art and the world of art.

Another way in which the psychology of art is unhealthily isolated is its separation from the world of art. This is manifested in several ways. Those working in the psychology of art are not themselves art-experts and, on the whole, have tended to maintain an oversimplified view of the problems involved. Consequently art experts (artists, historians, philosophers, teachers) have not generally drawn on the findings of art psychology. Once again this is with the exception of psychoanalytic theories (Spector 1972), and Gestalt theories (Pratt 1969). As a general rule the more 'scientific' the psychological approach the less likely is it that its findings will find sympathetic reception in the world of art.

It is perhaps significant that E. H. Gombrich, who, in his influential writings on art has seen the relevance of psychology (cf. Gombrich 1960, 1972a), has utilised not the findings of art psychology but those of the psychology of perception, thinking and meaning. It is also extremely rare for philosophers to use or accept data from the psychology of art to settle philosophical problems in art.¹

¹A notable exception is a study by Gordon (1929) who used empirical data she had collected to discredit two of Kant's (1790) criteria of the aesthetic, viz. universality and disinterestedness. Similarly, Charles Morris (1956) carried out experiments to settle the dispute concerning the location of beauty (i.e. in the beholder or in the perceived object). He settled for a relativist position.

Although the neglect of the psychology of art by art experts can be seen as a poor reflection on the achievements of the field, it may also reflect the prejudices of the majority of the art world, because of their hostility to the idea of subjecting aesthetic experience to scientific study. To complete the circle, their negative attitudes might result from the poor state of the field and the inappropriate methods that are used.

(c) Reviews and Surveys of the Psychology of Art.

Another manifestation of the malaise is seen in the nature of the reviews which survey the field. Since 1960 there has been an unprecedented number of general reviews.¹ The area seems to have become cluttered with general reviews. However, not all the reviews have the same aims. Only Pratt (1961) can claim to be comprehensive, drawing on all approaches to the subject in a useful general discussion. Unfortunately, this article is now out of date due to the large amount of recent work. Valentine (treating art, music and literature) and Pickford (visual art only) respectively concentrate only on experimental aesthetics and are traditional in outlook and organisation of their subject-matter. Their reviews are presented uncritically, with little attempt at theory-building, explanation, or integration of the findings. They do not attempt to build bridges between the psychology of art and psychology in general. In addition, their presentation of the subject is determined by the studies of the

¹Two major reviews of experimental aesthetics have appeared in England (Valentine 1962; Pickford 1972), and a more general survey of the psychology of art in France (Hussain 1967). In addition two books have been published which although they represent specific approaches to the psychology of art, viz. Gestalt (Arnheim 1967a) and Behavioural (Berlyne 1971), also include general reviews of the field. As already noted, two long articles have appeared in the Annual Review of Psychology, (Pratt 1961; Child 1972) and a 63-page monograph by Child in Volume Three of Lindsey and Aronson's Handbook of Social Psychology (Child 1969).

existing psychological research rather than by the intrinsic demands of the subject-matter. Both of Child's major articles have had slight biases in emphasis. In 1969 he deliberately excluded reference to rigorous experimental and psycho-physical studies. In the later review he tended to concentrate on non-experimental contributions to the psychology of art (Child 1972). The most recent reviews of experimental work are contained in Berlyne (1971) and Lindauer (1973). There are three points to be noticed about these reviews.

(1) None of the reviews has given extensive coverage to all approaches to the psychology of art. The most comprehensive review was by Pratt (1961) who managed in only 18 pages to discuss philosophical problems, Fechner, the perception of emotion, Gestalt psychology, Gibson's Perception of the Visual World (1950), Arnheim's Art and Visual Perception (1954a), Gombrich's Art and Illusion (1960), physiognomic perception, aesthetic meaning, social and cultural factors affecting aesthetic reactions, psycho-physics and Behaviourism. It is curious, despite this exemplary review, that there has been no corresponding multi-disciplinary research in the psychology of art.

(2) Another feature of the reviews is that they are largely uncritical and non-evaluative. There is often criticism of specific approaches and experiments, but these tend to be from one committed position to another.¹ None of these reviews present systematic and unbiased evaluations of all the data and techniques available. There is in the field a tendency to take most of the findings of experimental investigations at face value, rather than to evaluate each study before accepting its findings.

¹For example Child (1969), who uses a criterion of 'agreement with experts' in his experimental work criticised and rejected Eysenck's criterion of 'consensus'. Similarly, Berlyne (1971) rejects most experimental studies not employing molecular stimuli. Both these issues are discussed fully in chapter four of this thesis.

(3) Related to the lack of evaluation in the field is the almost complete absence of explanation in the reviews, and still less in the original studies. This is partly attributable to the complexity and subtlety of the subject-matter, the great variety of approaches and techniques, and the general reluctance of modern psychology to grapple with such phenomena.

(d) Criticisms of the Psychology of Art.

I have already referred to the state of mutual intolerance or indifference, that exists between experimental and non-experimental approaches to the subject. In addition I have noted that there are considerable differences in opinion concerning the exact nature of experimentation that is needed for the investigation of topics within the psychology of art. In order to obtain a clear and realistic picture of the present state of the field it is necessary to examine these arguments and criticisms in more detail. They can be classified under 4 separate headings:

1. The psychology of art is too scientific. It has been argued by philosophers, (e.g. Dickie 1962; Langer 1957) that psychological information is not relevant to the solution of logical problems in aesthetics, nor is it relevant to the description of aesthetic experience. This attitude is also reflected in Jung's (1934) rejection of the scientific approach to art in his contention that 'Art is too pure, too unique, too other-worldly and intuitive to be the subject-matter for such atomistic science'. The basis for this argument is that there is an essential contradiction between objective scientific methods of psychology and the value-laden world of art. Most writers have not questioned whether there ought to be a scientific approach to art, but have instead questioned the exact nature of

the scientific approach. For example, Munro (1928) whilst accepting the value of the scientific approach, argued that 'too rigorous an insistence on absolute reliability and objectivity of data, too impatient a zeal for universally valid generalisations, may be an obstacle in a field where these cannot be obtained at once, if ever'. A similar point has been put forward by Mainwaring (1941). He argued that Beauty cannot be defined in terms of objective characteristics or in terms of preference judgements, and 'yet to be comprehensible in terms of an exact science this is the only way it can be defined'. His point is simple. In order to be scientific, the experimental approach may impose restraints on the subject-matter which may render it meaningless. In a similar vein, Whitmore (1927) has argued that the only matters which are amenable to experimental treatment must be relatively simple and easily repeatable. This 'amounts to saying that they are for the most part rather unimportant elements in any aesthetic situation'.

Instead of destroying the subject-matter, the experimentalist may simply choose to ignore certain aspects of it. This is Arnheim's point that experimental aestheticians tend to neglect what they cannot quantify (Arnheim 1952). Several writers whilst accepting the value of experimental techniques are also conscious of the dangers, (Wickiser 1952; Munro 1963; Child 1969). Too rigid an interpretation of scientific method might result in the experimentalist riding rough-shod over the nuances and multiple interactions of aesthetic experience. Koffka (1940) and Munro (1963) have objected to the experimentalists' equation of reactions to artificial (molecular) stimuli with the perception of complex works of art under free conditions. They also question the experimentalists' tendency to isolate a work of art from its actual or usual context and place it in a laboratory setting as this may

change or destroy some of its original characteristics, or change the way it is perceived.

2. The psychology of art is not scientific enough. By contrast with those who though they accept an experimental approach to the psychology of art also stress the dangers of this approach are those who think that even the majority of experimental aesthetics is not scientific enough. In particular Berlyne (1960, 1971, 1972a), and Eysenck (1957) have both tried to show that the experimental approach to the psychology of art has failed because it hasn't been rigorous enough. Their argument is very detailed and will be discussed separately in Chapter 3. Berlyne's main concern is that experimental aesthetics should avoid what he terms 'pre-operationist and pre-behaviourist assumptions' and should concentrate only on the study of observable behaviour. Without adopting a strictly behaviourist view-point Hogg (1969a) has criticised the majority of experimental work before 1960 as inadequate, due mainly to poor stimulus and response sampling. This, he argues, has led to distortions through the intrusion of the experimenters' pre-conceptions.

3. Organisation of the subject. Several writers have been concerned at the lack of concerted planning in the field and the lack of common boundaries or clearly defined objectives, (Munro 1948; Pratt 1961). Consequently this has resulted in confusion over methods, aims, and terminology (McWhinnie 1971). It has also been argued that aesthetic behaviour should not be studied in isolation from other behaviour (Berlyne 1960), and that the lack of contact between psychology and aesthetic theory is detrimental to the subject (Arnheim 1952). As Pratt (1961) has succinctly put it, 'psychological aesthetics is a field in search of a method'. That was true in 1961 and is still true today, thirteen years later.

4. A question of emphasis. Arnheim (1954) has made the point that the superficial relevance of psycho-analysis and its

readiness to tackle art problems has made the psychology of art appear less adequate. This is largely because psychology does not possess methods and techniques which are directly applicable to art problems. This point has been elaborated by Bloom (1961) and by Adcock (1962) who both argue that there has been too much emphasis on measurable stimulus characteristics and too little attention to the 'dynamical context' of a person interacting with a work of art. Finally Hogg (1969a) has drawn attention to the neglect of the motivational aspects of aesthetic perception. Berlyne appears to be the only experimental psychologist working in this area. There is thus a strong case for criticising the psychology of art for serious omissions in the topics investigated.

Many of these criticisms stem from committed view-points and there has not as yet been a systematic attempt to integrate them within a general frame-work for the psychology of art. All these criticisms and the various stand-points they reflect will be taken into account in subsequent chapters.

The aims of the psychology of art

Sofar the aims and objectives of the psychology of art have not been discussed. As it is the aim of this thesis to explore the most appropriate methods for a psychology of art, it is necessary to define its aims as neutrally and as generally as possible. In this way it should be possible to avoid biases through an a priori commitment to a specific methodology or approach to the subject. The main aim of the psychology of art is clear. It is to employ suitable psychological techniques to explore all human behaviour and experience that is associated with works of art or other non-art objects that are perceived in an aesthetic manner. In this way the art psychologist should strive to describe and explain aesthetic

behaviour and experience. It is not necessary for the psychologist to involve himself in discussions of the exact nature of art or beauty for there is a sense in which 'art is what everybody knows it to be' (Gombrich 1950; Saw 1973). In other words, art is what artists produce, or what any individual or culture chooses to classify and respond to as art. As he is required to work in an area where he is not himself an expert the art psychologist is more in need of guidance than he is when working in the more traditional areas of psychology. Consequently the other disciplines that have a bearing on art are relevant to his work, viz. art history, aesthetic theory, philosophy, sociology, anthropology, etc. It is important that the art psychologist should not be naive in any of these areas. Equally he should not be too expert in any of them.

In view of the current discontent with the methods and achievements of the psychology of art as a whole, an attempt at reformulation will be made in Chapter 2. In the following chapter the virtues and defects of the various theoretical and experimental approaches will be discussed. Chapter 4 extends the discussion of the experimental approach to the difficult and all-important area of aesthetic measurement on which much of the empirical psychology of art rests. This will be followed in Chapter 5 by an integration of conclusions which will form the basis of a theoretical frame-work for the psychology of art. The remaining four chapters present discussions of important problems in the psychology of art.

Preliminary Guiding Principles

These guide-lines derive directly from some of the more general points which have been discussed above. They will serve as a starting point for the more detailed discussions that follow.

1. Aesthetic experience and behaviour is a distinctively, (though perhaps not uniquely), human phenomenon.
2. Complex mental processes are involved.
3. There has been too little attention to the nature of aesthetic experience.
4. There is a need for more systematic planning in the field as a whole.
5. There is a need to combine a variety of approaches using each for what it is worth, while acknowledging their respective limitations.
6. There is a need to standardise a descriptive terminology and vocabulary.
7. There should be more emphasis on accurate description as a preliminary to explanation and theory-building.
8. Finally,
 'Let us beware of the subtleties and complexities of art, lest we distort the problems into oversimplified caricatures in the name of empirical science' (Morgan 1950).

CHAPTER TWOExplanation and Theory in the Psychology of ArtI A Definition of the Area

Most of those working in the Psychology of Art publish their research findings, and, much less frequently, their thinking on the subject, with little or no attempt to define or justify their objectives. This has produced an enormous quantity of published work which is poorly conceived, ad hoc in nature, and lacking in any kind of theoretical unity. Most workers in the field (whether they lie at the extremes of the Behaviourist or Psychodynamic poles) are 'non-reflective'. That is, they do not criticise or evaluate their own work, their chosen methodology or its suitability for the problems they are trying to solve. It was noted in the last chapter that even major review articles do not appear to be concerned with the task of clarifying the basic concepts and aims underlying the psychology of art. Many attempt a rather perfunctory definition, and then hasten on to review published work in the area. For instance among recent books, Pickford in the introduction to his *Psychology and Visual Aesthetics* (1972) does not even attempt to define the area, but merely enumerates some of the contributions that experimental psychology can make. In his concluding section (Chapter 10) he spells out the limitations of psychology as an empirical science which he claims 'does not seek to explain the nature of artistic values, although it may do a great deal to

interpret and illuminate the conditions, circumstances, and mental and social processes involved in valuations'. In short, 'Psychological Aesthetics does not exist in order to tell the artist what to do but to interpret and understand what is done'. This is perfectly reasonable but it does not indicate which are the most suitable psychological methods, nor the exact problems and difficulties involved. Fickford's neutral, non-evaluative survey of experimental aesthetics to date neither interprets nor helps us to understand, particularly in view of the fact that Fickford does not define or analyse these two critical words.

An examination of Valentine's book, 'Experimental Psychology of Beauty' (1962), which is very similar in organisation and approach, shows that Fickford is not alone in this failing. Valentine's aims are clearly but broadly defined. He sees the aim of experimental aesthetics as the study of individual differences in the experience and apprehension of beauty (Valentine 1962 Ch.15). It is interesting to note that Valentine, unlike Fickford, defined the essence of beauty in an unashamedly introspectionist manner (see Ch.1, p 9), and yet in a way that was completely unrelated to the majority of experimental studies with which his book deals. Child, in his major review, (Child 1969) had no hesitation in claiming: 'As part of behavioural science, aesthetics is the study of man's making works of art, man's experiencing works of art, and the effects on man of this making and experiencing'. This is a global definition of the area, and includes the extremely important feature of the effects of art on man, which has been very little studied despite the fact that its importance was stressed by Whitmore (1927), over forty years earlier. This break-down of the subject-matter of aesthetics is best represented by Child's own schematic diagram (Fig. 2-1).

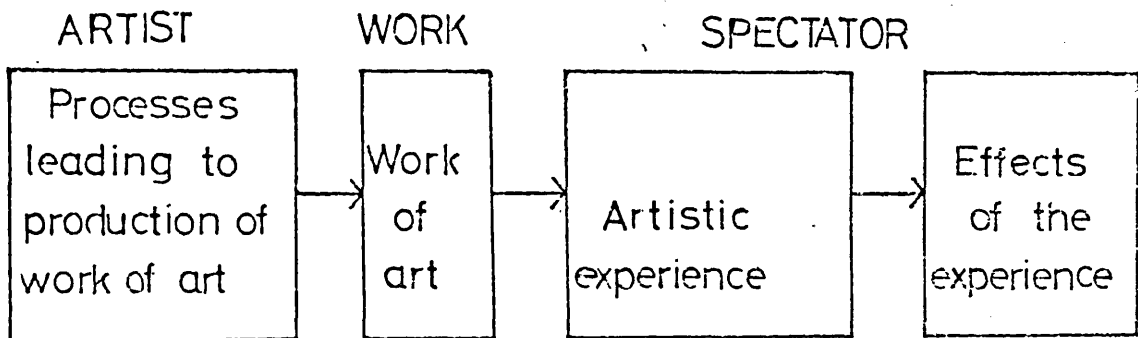


Fig. 2-1. A breakdown of psychological aesthetics. (From Child 1969)

Unlike Valentine, Child is not solely concerned with Beauty but art in general, but like him and Pickford he is largely uncritical of most of the psychological methods employed. Although he breaks down the subject-matter into four major areas, Child is not specific about the actual questions that ought to be answered by a psychology of art; he only discusses those that have been attempted. As the nature of the questions asked to some extent determines what constitutes an adequate answer, neither Child, Valentine nor Pickford give any clue concerning what kind of description, explanation or theory will help us understand man's behaviour and experience in relation to art.

Child's later review (Child 1972) which concentrates less on purely experimental work in aesthetics and more on what he calls the cognitive psychology of art, provides no definition, or conceptual frame-work of any kind whatever. Pratt, being less committed to an experimental approach in his own work (e.g. Pratt 1956) is very aware of the conceptual confusion in the area, and attributes it to the overlap of common boundaries in the field, and the resulting absence of any commonly held set of criteria for evaluating work (Pratt 1961).

Other definitions of the area have been presented by researchers in the field who are committed to a particular approach (e.g. Lundin 1956) but these need not concern us here. Thomas Munro who is not a psychologist, has been critically reviewing the contributions of psychology to the understanding of art for a very long time (Munro 1928a, 1948, 1963), and has probably provided the best definition of the area which has the charm of being free of immediate methodological assumptions. This is quite intentional for Munro has for over forty years been arguing for a multidisciplinary, multi-methodological psychology of art. His definition of the aim of the psychology of art is simple. Its aim is 'to describe and explain the phenomena of human behaviour

and experience in relation to works of art' (Munro 1963). This will be taken as the expression of the main aim of the psychology of art in this thesis. However, it has already been noted that expressing an aim, such as that quoted above, does not tell us (i) what practical questions should be asked; (ii) how they should be expressed; (iii) what constitutes an adequate answer; and (iv) how different answers to the same question should be evaluated. Hogg (1969a) in a careful, critical introduction to his collection of readings on psychology and the visual arts was aware of this problem to some extent. After defining the aim of the psychology of art¹ he enumerated four main topics which should be investigated. These topics can be expressed as questions, viz. (i) why do we look at all? (ii) how is meaning expressed in art? (iii) how is a work of art perceived? and (iv) how do people differ in their experience of art? These questions correspond to the four topics of aesthetic motivation, aesthetic perception as process, meaning in art, and individual differences in aesthetic experience. The four questions are posed in a way that can lead to almost any kind of research or psychological interpretation, though Hogg does not suggest how this can be done. In a brief though general theoretical discussion of the possibility of an experimental psychology of art, Wallach (1959) presents an all too rare attempt to go this one stage further and define how the questions, or statements of problems, should be translated into empirical investigations. He concentrated on only two specific areas, viz. teaching (or inducing) sensitivity to art, and the problem of aesthetic motivation. Although limited in range Wallach's discussion is an excellent example of the transition from problems in aesthetics to empirical psychology of art; the

¹Hogg's definition refers to the psychological study of the production and appreciation of works of art. Munro's somewhat similar definition quoted above is preferable because the word 'appreciation' has connotations of evaluation as an intrinsic component of aesthetic experience, which could influence the design and interpretation of research. In this respect Munro's word 'experience' is more neutral.

transition from theory into experiment.

Questions for a Psychology of Art

The word 'understanding' has occurred several times in this and the preceding chapter. It is a 'voluptuously ambiguous'¹ word, with a virtually free-for-all meaning, and yet it is of paramount importance. I have argued that understanding results from asking the right questions, and having done so, determining the rules for the transformation of questions into empirical tests, and the possession of rules for evaluating the results of the tests. In this section I shall present some of the main questions and give examples of subsidiary questions. This arrangement of scientific questions ranging from the very general to the highly particular represents an open-ended hierarchy, or what Koestler has called a 'holon'². I shall then discuss what kind of psychology should be capable of providing answers to the questions. This is followed by a discussion of explanation and theory which will lead to some rules for evaluating and integrating findings in the psychology of art.

The Main Questions

I What is the nature of aesthetic experience?

This question involves the description and explanation of what is happening when someone is responding aesthetically to a work of art. This is an almost totally neglected area in the empirical psychology of art.

Underlying concept: Aesthetic experience as process

¹ A phrase borrowed from Medawar (1969).

² For a detailed discussion of the nature of 'holons' see Koestler's Ghost in the Machine (1967).

Subsidiary questions: e.g. Does aesthetic experience vary in quality and intensity?
Are there different kinds of aesthetic experience?

II What is the structure of aesthetic experience?

This is a question more familiar to psychologists because they have asked the same question of personality, intelligence, skills and other hypothetical constructs.

Underlying concept: the structure of aesthetic experience.

Subsidiary questions: e.g. Can aesthetic experience be described in terms of discrete categories or dimensions?
Is the structure of aesthetic experience similar to that of intelligence or personality?

III Is the perception of a work of art qualitatively different from the perception of other classes of objects?

This is another very important question that has not been systematically investigated by psychologists.

Underlying concept: the uniqueness of aesthetic experience.

Subsidiary questions: e.g. Is aesthetic perception different from object perception?
Is aesthetic perception reducible to perceptual and cognitive controls?

IV What influences the perception of a work of art?

At a general level this is an area often studied in the psychology of art. However there is an almost total neglect of specific works or schools of art.

Underlying concept: determinants of aesthetic experience.

Subsidiary questions: e.g. What influences liking for specific works of art? What influences evaluation of works of art? What determines an individual's sensitivity to art in general?
Why do some people like Classical as opposed

to Romantic Art?

Why do some people like Eskimo carvings but not Naum Gabo?

V How and why does aesthetic experience vary between and within individuals?

The answers to this question and its subsidiaries is dependent on answers to the main questions above. There is clearly a correct order of priority for research in the psychology of art.

Underlying concept: inter and intra-individual variation in aesthetic experience.

Subsidiary questions: e.g. How does personality influence aesthetic preference, evaluation or sensitivity?

What aspects of the context influence aesthetic experience?

What role does expectation or familiarity play?

What features of given works of art influence people in different ways?

VI How much of aesthetic experience is attributable directly to (i) the characteristics of the observer; (ii) the characteristics of the work of art; (iii) the culture of the observer; and finally (iv) the interaction between these three.

Underlying concept: dynamics of aesthetic experience.

Subsidiary questions: e.g. What is the role of imagination and projection in the perception of a painting?

Is pictorial perception learned?

How does past experience influence present perception of a work of art?

How does an observer perceive meaning in a work of art?

What is the role of illusion?

How far do cultural assumptions influence the way a painting is perceived.

VII Why and how are people motivated to look at works of art in the first instance?

Underlying concept: aesthetic motivation

Subsidiary questions: e.g. Is the desire to look at works of art innate or learned?

What is the influence of upbringing?

What social and cultural factors influence the desire to look at works of art?

Why is art held in such esteem in our, or any other, society?

VIII How can people be trained (or induced) to be sensitive to works of art and to be motivated to look at them?

This is another active area in the psychology of art, but as with other main questions it cannot be successfully answered until prior main questions have been answered.

Underlying concept: aesthetic education

Subsidiary questions: e.g. Does mere exposure to art create the desire and ability to appreciate it?

Does training in artistic style discrimination lead to greater aesthetic sensitivity?

Does training in art improve the quality of life?

IX How do children develop aesthetic awareness?

Underlying concept: aesthetic development

Subsidiary questions: e.g. Is the aesthetic development of a child similar to the development of other complex cognitive processes such as perception or thinking?

Does the onset of adolescence have a critical effect on the aesthetic development of a child?

Do children develop aesthetic criteria naturally or is it learned?

Is the very notion of aesthetic development a valid construct?

X What are the effects of aesthetic experience on the observer?

Underlying concept: The effects of aesthetic experience

Subsidiary questions: e.g. Does observation of a painting produce tranquillity in the individual or is this a primary condition for perceiving a painting aesthetically?

Does observation of a painting produce measurable physiological change in the observer?

All these are mainly psychological questions which modern empirical and theoretical psychology should be capable of answering. Some questions overlap with other areas of psychology (e.g. child psychology) and other disciplines such as sociology, anthropology, art history and so on. To the extent that some questions could also be asked within other disciplines then to that extent those fields of enquiry are relevant to the answers provided by a psychology of art. It can also be seen that even the main questions are not conceptually distinct and that many of the subsidiary questions are inter-dependent. At this level greater conceptual clarification and distinction can only be achieved through artificial logical distinctions which have little or no corresponding existence in reality. In other words clear-cut conceptual categories at this level may well destroy the veridicality of the ideas as expressions of reality.

The main questions do not imply value judgements or prescriptions for value judgements about art, and do not attempt to pose questions about the ultimate nature of Art and Beauty. The fact that questions on these topics are not posed as part of the legitimate aim of the psychology of art does not imply that they are irrelevant to the psychologist interested in art. The real point is that such topics are not intrinsically relevant to, and should not influence, the design of the empirical investigations that result from attempts to answer the main and subsidiary questions. However, these topics are, or could be, highly relevant to a general discussion of the psychology of art. In this sense, metaphysical and similar considerations are relevant to the psychology of art just as sociology, anthropology, and history are relevant to the development of explanation and understanding of man in relation to art. Under this scheme there is no contradiction between an empirical psychology of art, and Braque's famous dictum: 'You can explain everything about painting except for the bit that matters'. There is quite enough for psychology to describe and explain, even though it may not be possible to explain 'the bit that matters'.

III What kind of Psychology

Psychology is not a coherent subject. Ryle (1949) has described it as a 'partly fortuitous federation of inquiries and techniques'. Twenty-five years later the situation is even worse. With every new development in psychology new methods are adopted so that more and more techniques and methodologies fall under the umbrella of psychology. Consequently the question: Is Psychology relevant to Aesthetics? really reduces to a more meaningful questioning, viz. What kind of psychology is relevant to aesthetics? It is not really a question of whether or not experimental techniques should be used but rather what kinds of experimental techniques and what kinds of quantification etc. are appropriate to the psychology of art in view of its special subject-matter. This

question can only be answered within the context of modern psychology in general.

Criticisms of Modern Psychology

In recent years there has been increasing dissatisfaction with the state of modern psychology. Despite considerable overlap it is possible to isolate four main areas of criticism, which will be discussed separately below.

a) Two types of psychology: internal versus external events.

We have seen in an earlier chapter that psychology consists of a great variety of methods and techniques, many of which are opposed to each other. Despite this they all flourish while psychology as a whole flounders. Cronbach (1957) has drawn attention to the gulf that exists between two basic types of psychology viz. experimental and individual psychology. The former rests on the assumption of the stimulus determination of all behaviour, whilst the latter seeks to interpret behaviour and experience in terms of internal events within the individual such as his motives, desires, wants, ambitions etc. To use a phrase from Bartlett (1932) the experimental psychologist 'stands in awe of the stimulus' because his chosen methodology dictates that the observable stimulus is the only determinant of behaviour that is amenable to scientific investigation. This is because it can be observed, controlled and quantified in a way that is impossible with internal events. The conflict between experimental psychology and individual psychology is a function of differing interpretations of psychology as a science. To the experimentalists who see psychology as a natural science it is unscientific to investigate phenomena that cannot be controlled and quantified; to the individual psychologists it is unscientific to ignore these topics.

More recently this issue has been extensively discussed by Deese (1972), Hudson (1972) and Child (1973). All three authors

recognise the double life led by modern psychology. Deese draws attention to the fact that behaviourism is the dominant methodology of modern psychology, and expresses deep concern over what he regards as its pseudo-scientific bent. He rejects the 'curious, now nearly universal assumption, that the subject-matter of psychology is behaviour'.¹ Deese shares with Harré and Secord (1972) the view that psychology is anti-theoretical, conservative and intellectually unappealing. Child (1973) is less caustic. He makes a distinction between hard and soft psychologies that is somewhat similar to Cronbach's (1957). He argues that each approach has its own virtues and defects. The 'hard' psychology of the 'Research Tradition' is objective, quantified, precise and verifiable. However, it restricts its fields of enquiry to those that readily meet the requirements of its scientific methodology based on operationism and positivism. At the same time it neglects whole areas which are not amenable to the experimental approach and the possibility of causal explanations. Consequently the 'hard' psychology excludes experience and awareness, and in its efforts to be scientific concentrates on behavioural data. To these may be added the more specific defects which consist in a tendency to over-generalise from experimental data, and an assumption of invariance both between and within individuals which is a direct result of the assumption of stimulus determination. By contrast, the 'soft' or humanistic kind of psychology embraces many of the areas neglected by experimental psychology (e.g. aesthetics, personal ideals, fulfillment, moral responsibility) and emphasises rather than suppresses the uniqueness of individuals. However, its defects lie in the vagueness and ambiguity of its concepts and a general disinterest in empirical verification. This is allied to a general smugness about their special 'insight' to human experience. Child

¹cf. The definition of psychology as 'the science of behaviour' given by Broadbent (1961) and by Marx and Hillix (1963).

is obviously concerned to characterise the extremes of the two positions. However, it is just this polarization towards irreconcilable extremes of a barren but scientific experimental study of behaviour and an unrestrained, unscientific but 'relevant' psychology of human experience, that puts the future of psychology in jeopardy unless there is a change of heart and these poles begin to merge.

b) The dehumanisation of modern empirical psychology

The dominant methodology of scientific psychology is Behaviourism. This has led to the criticism, already referred to above, that psychology in its scientific form is not human enough. This is not something that should be passed over as a necessary consequence of choosing a particular scientific methodology. It is a fundamental weakness of modern psychology, and deserves further discussion.

In his attack on behaviourism, Koestler (1967) has argued that it is absurd to deny the living organism even that degree of unpredictability which modern physics accords to inanimate nature. In an earlier discussion Koestler (1964) argued that the self-transcending emotions, (e.g. grief, hope, worship, aesthetic pleasure) tend to be neglected by modern psychology because they do not tend toward overt muscular activity, but rather toward quietude. His statement that psychologists tend to think of all emotions as of the 'active, adreno-toxic, hit-run-mate-devour kind' may be an exaggeration, but it is one which is grounded in truth. While it is an oversimplification, it can usefully be regarded as an attempt to hold up a mirror to psychology. The value of this kind of overstatement especially when pitched at the right level is that a more moderate statement is usually accepted. This is often the ploy used by fashion designers who exaggerate their own drawings in the sure knowledge that the watered-down version that is eventually accepted will be closer to their real intentions.

From a different point of view Sanford (1965) and Hudson (1972) have argued that psychology's obsession with objectivity and operationism inhibits the experimenter from considering his own experience as relevant to the design and conduct of his research. This reduces the psychological insight and sensitivity which the experimental psychologist brings to bear on his work, as he is working within a methodological straight-jacket. Sanford and Hudson make a plea for a more human psychology which has also been made by G. A. Miller (1964), McKellar (1968) and Warr (1973). Whereas these authors argue for a human psychology that is still empirical, Koch (1969) is so disillusioned that he rejects empiricism. This reaction is too extreme. It is essential to the future of psychology that it be both human and empirical within the same overall methodological frame-work.

c) What price empiricism?

We have seen that scientific psychology (as manifested in behaviourist methodology) tends to ignore what is distinctively human, whereas a more humanistic psychology tends to be unscientific. It would seem that because the notion of empiricism has been badly interpreted by experimental psychology it has been rejected totally by extreme humanistic psychology. Miller (1964) has argued that there is a general scientific ethos shared by most psychologists, i.e. 'they expect to base their image of man on empirical knowledge, not upon political dogma or traditional opinion or divine revelation or aesthetic appeal'. This is a reasonable ground-work for a scientific psychology. However, modern psychology's interpretation of empiricism consists in the exclusive attention to overt behaviour and the use of a methodology culled from the natural sciences (cf. Watson 1924, Kimble 1967). This interpretation also assumes that no other interpretation can be considered scientific. Joynson (1970) has criticised the various attempts of psychology to study internal events whilst still maintaining scientific objectivity, viz. the intervening variable approach, psychometric

approach, and cybernetic feed-back models. All these are indirect attempts to get inside or control for events inside the traditional 'black box'. They are indirect because their self-imposed methodology does not accept as scientific the more direct study of experience (e.g. by means of introspection). It is the apparent impossibility of producing scientific validation of statements concerning personal experience that led to a disinterest in mind. This is the narrow view of empiricism and scientific psychology. An alternative view is needed which will reconcile the need to be scientific, whilst at the same time enabling psychology to cover its field, viz. the experience and behaviour of man.

d) What model of man?

This is the final area of criticism of modern psychology. It will not be possible to reconcile the need to be scientific and the need to do justice to the subject-matter of psychology unless a suitable model of man is embraced. Miller (1964) has interpreted the history of psychology in terms of changing models of man. He points out that psychology's first model was Man as Knower. The empirical psychologies of Wundt and Fechner were still largely philosophical in orientation as they were concerned primarily with the source and nature of man's conscious knowledge. The behaviourists replaced this model with Man as Animal, and introduced suitable experimental techniques. This became Man as Social Animal, and eventually it was the difficulty of dealing adequately with man's symbolic processes that brought about the return of Man as Knower, but now within a vastly expanded context of new methods and theories. Miller does not however share with Deese (1972) the view that the mechanistic model of Man as Animal is still the dominant model of psychology. While behaviourism dominates psychology the mechanistic model of man dominates psychology, despite recent developments in cognitive psychology and psycholinguistics. Burt has presented a view of psychology which must not be taken less seriously because it is so amusing.

'As a cynical onlooker might be tempted to say, "Psychology having first bargained away its soul, and having gone out of its mind, seems now as it faces an untimely death, to have lost all consciousness "' (quoted in Koestler 1967).

Many writers have rejected the mechanistic model of man that underlies most of experimental psychology. Most of them have already been mentioned above, and many others, including a regular flow of articles in the British Psychological Society Bulletin.¹ The majority of these papers lean towards what Child (1973) calls the humanistic model of man. This is the view that is faithful to and aware of the 'immediately felt reality of human experience'. It embraces the many-faceted reality of conscious experience and the dynamic diversity of the integrated person as he is known to himself and others. With this as its subject-matter scientific experimentation is difficult but not impossible. Psychology should seek to meet the challenge of its true subject-matter rather than to distort or neglect it so that it fits into an inappropriate methodology. Psychology should cease following the example of Proustes who stretched or topped-and-tailed his guests so that they fitted the exact length of his bed. Psychology needs methods and techniques that are appropriate to its true subject-matter.

This may sound like a rejection of scientific method in psychology. This is not the case. All that is being rejected is the narrow view of scientific method that destroys the subject-matter of psychology. My main concern has been to support the overthrow of the domination of psychology by (a) the mechanistic

¹For a complete list of the sixteen papers discussing the nature of psychology which have appeared in the Bulletin or its equivalent, the American Psychologist, since 1970, see Warr (1973), p. 1.

model of man; (b) the obsession with causal relations; and (c) the philosophy of positivism. Two further points must be made at this stage. First this view is not new. There have always been those in the broad field of experimental psychology who have resisted the narrow view. The personalistic tradition of Kelly, Allport, Murphy, Bannister and Laing have all maintained a model of man that has not been forced out of all recognition by the rigours of scientific methodology. The second point is that there are occasions when a mechanistic model is sufficient for the purpose at hand. There is a danger that the current anti-rationalist zeitgeist, and the reaction against scientism, that now seems to be emerging, may result in a swing away from experimental methods in psychology towards the intuitive, non-empirical humanistic camp or to the excesses of phenomenological psychiatry. This would be a retrograde step. With such persuasive and eloquent writers as Broadbent (1973) and Eysenck (1972) defending the 'hard' kind of psychology, it is doubtful that the pendulum will swing too far. Perhaps this point can best be summed up by a quotation from Warr (1973): 'The argument is not that all psychologists should change their professional value system but that the average value system within the culture should shift to redress the imbalance which at present clearly exists'. He argues that psychology, overall, should be less pure, individual and experimental; instead it should become more social, experiential and applied.

The Methodology of Psychology: The return of Mind, Arm-chairs and Philosophy

If a psychology of art is to succeed it must be empirical in an enlightened sense. To be empirical does not mean to be experimental only. It certainly does not mean to be operationist in the sense defined by Stevens (1939). There is a lot of data that can be obtained that is not amenable to quantification, or is

only destroyed or distorted by being quantified or inappropriately quantified. As Deutsch (1964) has pointed out, one of the dangers of premature quantification (of which there is a great deal in psychology) is the fact that it can conceal weak or inadequate conceptualization.¹ He argues that it is necessary to verify a system before quantifying it. Quantification can give a spurious sense of confidence because of the sophistication of the procedures. Clear systematic conceptual analysis must precede empirical investigations.

There is a strong need for a return of introspectionist techniques. Harré and Secord (1972) have argued that it is the only direct method of studying personal experience. Sanford (1965), McKellar (1968), Hudson (1970) and Joynson (1972) have put forward a similar case for the return of mind and introspectionism.² Munro (1963) and Osborne (1964) (both philosophers) have argued this specifically in relation to the psychology of art. Miller, Galanter and Pribram (1960) postulated a kind of 'subjective behaviourism' which represented a compromise between introspection and behaviourism. This approach enabled them to formulate a decision-making mind inside the black-box. Their book represents a clear demonstration that introspection can lead to insights which are amenable to empirical evaluation and confirmation. Their book is also important as one of the first signs of a recovery from methodological behaviourism.

Royce (1970) in a discussion of the possible theoretical unification of psychology has reminded us that there is more than one legitimate road to knowledge. In addition to the Empiricism that results from sensing, there are two other inter-dependent epistemologies, viz. the Metaphorism of symbolising and intuiting,

¹This is all too evident in attempts to measure aesthetic reactions. See chapter four of this thesis.

²See footnote overleaf.

The term introspection embraces a variety of techniques. At one extreme there is the 'systematic experimental introspection' developed by Külpe, and at the other, the casual observations of untrained observers. In between lie the interpretative self-observations of psycho-analysts, and the systematic interrogation of children and adults. Almost every nineteenth century psychologist held that the study of immediate direct experience was the main purpose of psychology, and introspection was the most favoured technique of investigation. In the early part of the twentieth century behaviourism emerged as a protest against the over-dependence of psychology on introspection, and the consequent tendency to regard psychology as the science of consciousness. It is being argued here that introspection should be allowed back into the fold of respectable, acceptable methods of psychological investigation. The lesson which was learned from Külpe and the Würzburg school and which still applies today is that if introspection is used at all it should be thorough and systematic.

The draw-backs to the technique are well-known. They can be summarised as follows: when experience per se is being studied (a) it involves the observer in an artificial double-task of experiencing something and observing the experience at the same time; (b) the subject doesn't know what it is exactly that he has to observe and distortions easily arise; (c) language is inadequate to describe all that a person experiences; and (c) bias is likely to occur through the effects of differential verbal ability in different observers, the nature of the instructions, the use of special training, and each individual's expectations and interpretation of the task.

There is a sense in which it is impossible to give complete, accurate, reliable phenomenological descriptions of aesthetic experience per se. On the other hand the free verbal introspections (or written theories and comments) of artists and non-artists may give the empirical researcher clues or insights which he would not otherwise obtain. These can lead to the formulation of hypotheses which can be checked by means both experimental and introspective. The methods are complementary and are not antagonistic unless extreme positions are taken. Ideally, there should be no experiment or factor-analytic study in aesthetics which does not also include a request for the subjects' introspections, particularly with regard to his interpretation of the task and the means by which it was tackled. Another introspective approach is to investigate what a person feels about art in general and works of art in particular. There are many ways of externalising inner processes of thought, expectation, association, aspirations, etc. Asking for verbal reports and free verbal descriptions is one among many complementary techniques which are discussed in chapter four. Introspection should be regarded as one among several techniques for studying an individual's experience of, and attitude towards, art. By using a variety of techniques, all aimed at the same general target, the researcher stands a better chance of achieving veridical description and valid explanation.

and the Rationalism of thinking. Royce characterises science as being predominantly rational-empirical, and art as predominantly metaphorical, whereas religion is predominantly metaphorical-rational. He then goes on to argue that contemporary psychology is suffering from super-empiricism. His argument is not that psychology should become less empirical, but that it should become more powerfully rational, and more open to the knowledge-giving qualities of the metaphor. 'Psychology must invoke the knowledge-giving tools of the humanistic trade, but also do all that is possible to provide empirical tests for whatever is so revealed.'¹

Although discussed in the context of psychology as a whole, Royce's argument is particularly apt for the psychology of art. Psychology has tended to re-structure its subject-matter so that it comes into line with its interpretation of scientific methodology. This will be most clearly revealed in the discussion of experimental aesthetics and of aesthetic measurement in chapters three and four. In common with psychology as a whole, the psychology of art has suffered from too high a degree of empiricism. However, the results of this empiricism have not been wasted for a large number of observed facts are a pre-requisite for theory-building and explanation. The main emphasis of the psychology of art should be to find ways of analysing and elucidating human experience and behaviour in relation to works of art whilst avoiding extremes of subjectivity and objectivity.

¹ There are already exemplary instances of the first part of this conclusion. Gombrich (1965a), an art-historian, has analysed art in terms of the elucidation it can provide for the psychologist in his study of mind; Bruner (1962) argued that art, like science, gives knowledge through a metaphoric process, and more recently Arnheim (1969) has argued that perceptual and conceptual processes are different aspects of the same mental activity. These ideas are extremely interesting. They must be empirically tested.

IV Explanation in the Psychology of Art

Bridgeman, who is possibly the chief proponent of operationism in physics, has also provided us with an excellent definition of explanation. 'Explanation', he says, 'consists of analysing our complicated systems into simpler systems in such a way that we recognise in the complicated systems the interplay of elements already so familiar that we accept them as not needing explanation'.¹ This definition of explanation can be likened to looking up the meaning of a word in a dictionary. Usually it is defined in terms of words that are already familiar to us, so that they provide the meaning of the word in question. It might happen that one of the words used to define the unknown word is itself unfamiliar to the enquirer and so will itself require 'definition' in terms of other words which are familiar to him, and so on until all words required to 'define' the original word are 'familiar'.

Bridgeman's definition of explanation can be taken to mean nothing more than the translation of the complex and/or unfamiliar into the familiar. This appealing interpretation does not however provide any prescription for achieving that end. Perhaps this is why some explanations fail because complex phenomena are 'explained' in terms of concepts which, though familiar, are themselves in need of explanation. This is what ^{sometimes} happens when 'classificatory' explanation is employed. This is a term employed by Deutsch (1964) to distinguish it from the alternative which he prefers viz. structural explanation. He argues that classificatory explanation is essentially descriptive or generalizatory. A particular instance is explained by being subsumed under a statement summarizing a number of similar phenomena, i.e. it is shown to be an instance of a general case. Deutsch gives as examples Hull's drive stimulus (S_D) and the fractional anticipatory goal stimulus (S_g)

¹Quoted in Theobald (1968) p. 55.

as examples of this kind of explanation. The alternative is 'structural' explanation, by which an event is explained if it can be deduced as the property of a structure, system or mechanism. Generalizatory explanation is in terms of other behaviour of a like nature, and is therefore similar to Argyle's (1957) notion of same-level description. On the other hand, structural explanation is in terms of other behaviour, observations or hypotheses about the underlying structure. This, Deutsch claims, takes us away from the 'economic redescriptions' of behaviourism towards revelation of the abstract system. The system need not be quantified, for like arguments in formal logic, its validity stands regardless of the content. By the same argument the actual embodiment of the 'structure' is not relevant to the validity of the explanation. Consequently physiological speculations are not necessary.

This form of structural explanation seems to be a goal worth striving for, and the structural explanations developed by Deutsch seem to confirm this as a fruitful approach. The total absence of this kind of explanation in the psychology of art makes it virgin territory of enormous potential for the explanation-bent psychologist who seeks order and comprehensibility out of the chaos of unrelated, experimental data that comprise the psychology of art. In fact, in the experimental psychology of art there is an almost total lack of any kind of explanation, structural or otherwise. Foss (1956) has provided a useful list of eight different types of explanation. Apart from the first type (viz. naming or classification) the occurrence of the other seven types is extremely rare in experimental aesthetics. Even causal explanations (the model of S-R psychology) is relatively rare. This is possibly due to the complex nature of works of art which makes it difficult to relate stimulus characteristics causally to aesthetic responses. This is the main reason why experimental aestheticians have tended to use molecular stimuli instead of integral works of art, as the former

can be operationally specified and controlled in a way that is impossible with works of art.

It can be argued that the difficulties of satisfying the stringent definition of explanation (i.e. being testable predictively) based on the natural science model of psychology may have discouraged psychologists from trying other kinds of explanation. Generally speaking, correlational or teleological or historical explanations are considered inferior by modern psychology and are often criticised as unscientific. A more open minded attitude is required. Theobald (1968) has pointed out that the distinction between description and explanation is not clear-cut. To a large extent the difference between them depends on the context; the same statement can be taken as either description or explanation depending on the questions asked. In an earlier section I stressed that what constitutes an explanation is in part dependent on the exact question that is asked. This in turn is dependent on the level of knowledge of the questioner. The psychology of art must begin by asking very basic questions, as its level of knowledge is very low.

There is a danger that just as excessive quantification can conceal poor conceptualisation, technical jargon and phraseology can be used which has not been properly thought out. This is not an appeal to operationism of the kind recommended by Stevens (1939) or to logical positivism, but merely a stipulation that logical cogency is the chief aim of explanation. In other words, it should be the most reasonable under the circumstances, and not dressed up in elaborate quantification, pinched and bullied by inappropriate methodologies, or bent by pre-existent conceptual frame-works.

V The Role of Theory

Just as there is very little explanation in the experimental

psychology of art, there is also very little theory. This is not surprising as theory can be regarded as a form of explanation. Berlyne's progressive theoretical development which is tightly linked to his extensive programme of empirical investigation represents the one major theory-building effort in the otherwise theoretically barren field of experimental aesthetics. The only other theoretical contributions represent applications to art or more general theories, e.g. psycho-analysis, Gestalt psychology, Information theory.

Theobald (1963) has described theories as linguistic structures which provide a way of talking about things. In this way the theory gives meaning to experience and observation. In a similar vein Toulmin (1953) has conceived of theories as providing pictures of the sort of phenomena to be expected in any given circumstances, and uses the analogy of 'maps for representing phenomena' to illustrate this point. These two notions resemble the translation of the complex and unfamiliar into the simple and familiar. Theory is one way in which phenomena can be explained. It can do this in a variety of ways, directly or indirectly. Marx and Hillix (1963) have distinguished two main functions of theory viz. its 'tool function' as an aid in directing investigation (cf. Berlyne 1972a) and its 'goal function' which is valued in its own right as a contribution to scientific knowledge. In its goal function theory integrates and orders empirical laws, and also codes summarises, and integrates information. Just as too limited a definition of explanation can impose strictures on the subject-matter that destroy what is most meaningful and important about it, too limited a notion of what constitutes theory can restrict our potential understanding of the experience and behaviour. There are no hard and fast rules for determining what is the best type of theory, for no theory is ever final.

There have been many classifications of theory. Perhaps one

of the best and most exhaustive has been presented by Boring (1953). Similar but more restricted classifications have been made by Argyle (1957) and by Marx and Hillix (1963). The categories are fairly similar, and when Boring produces 14 categories it is only by making further subdivisions within a larger category. Labels, such as axiomatic theories, and intervening variable theories, are well known in psychology and serve a useful purpose. However an alternative classification has been proposed by Royce (1970) which promises to provide greater insight into the role of a theory and the appropriate criteria by which it is to be evaluated. He argues that all theories are predominantly correlational, experimental, phenomenological, explanatory, descriptive, speculative, or combinations of these. For instance Helson's Adaptation-Level Theory (Helson 1964) is experimental-explanatory whereas Fromm's theory of personality is phenomenological-speculative. From his analysis of general theories Royce concludes that optimal results are obtained when there is either high empiricism (sticking close to the empirical data) or relevant high formalism (e.g. an appropriate mathematics), and when the theorist restricts himself to a relatively limited domain, rather than attempt an all-embracing theory. This may be taken as the prescription for theories in the psychology of art, once the point has been reiterated that there is a serious need for theory-building in the psychology of art. General theories are not encouraged as they tend to be over-generalised, and are programmatic rather than explanatory.

Perhaps what is needed in the psychology of art is what Boring (1953) refers to as 'a modified tolerance' on matters of theory. As in explanation, cogency is required rather than theoretical sophistication, for as Toulmin (1953) has pointed out, the criteria of what constitutes a theory changes with the changing horizons and developments of a field of enquiry. It is best to let the subject-matter determine the nature of the theoretical explanation

and not the other way round. If a theory is cogent, and not just a stylistic and methodological straight-jacket for empirical data, it should either clearly provide explanation, or reveal by the absence of explanation the areas where further data are needed in order to produce explanations. Deese (1972) has put this point very succinctly: 'The purpose of empirical data is to give rise to fact!'

VI Models as explanatory aids

In a field of enquiry which is crying out for explanation, and the need for order, and is totally lacking in theory, models must have a vital role to play. The notion of analogy has already been used in a loose sense in connection with explanation and theory, but models are analogies in a very strict sense. A model is nothing more than an analogy, whereas a theory goes beyond analogy. A model lays no claim to correspond to reality but rather to symbolise it in some critical aspect. Its functions in an 'as if', almost a 'let's pretend', capacity whereas a theory functions in an 'it is' capacity. This important difference between models and theory led Simon and Newell (1956) to argue that theories can make Type I errors (that is they tend to state that things are the case when they are not), whereas models are particularly prone to making Type II errors (that is to assert that things are not the case when they are). This is because no analogy is perfect. A theory is a conceptual system which attempts to describe the real thing. Facts which are inconsistent with a model can be tolerated, but inconsistent facts are fatal to a theory.

It is not easy to define a model in strict terms. Deese (1972) has characterised them as metaphorical representations of aspects of reality, which tend to concentrate on the essence of something while avoiding the detail. Chapanis (1961) has listed

five of the chief advantages of models. They are that (a) they describe and help us to understand complex systems or events by replacing them with simpler and more familiar analogies; (b) they can help us to see new relationships; (c) they provide frame-works within which experiments are done; (d) they help us predict when experiments are impossible; and finally, (e) they amuse us. Another advantage lies in the potential of some models to provide pictorial visualization (Lachman 1960), which helps to tie abstract notions to physical reality, thus making the ideas easier to handle.

In the psychology of art, the development of models would provide an important first step towards explanation and theory-building. The models would help to create order out of the chaos of empirical data that exists, and help re-structure the empirical data as a pre-requisite to developing more elaborate explanation. Models, however are not without their dangers. It is possible to be blinded by their 'mental dazzle' (Royce 1970) and, as a result, fail to see the shortcomings of a particular model on account of its concrete appeal and plausibility. There is also the related danger that the model may become reified, if it is forgotten that the model is only an analogy. Chapanis (1961) has argued that models are too often not validated, but qualifies this by saying this is a criticism more of model-builders than models. However the point still holds. The dazzle, and illusion of instant comprehensibility may encourage model-builders and others to forget that models should be evaluated by the same rigid standards that would normally be applied to theories.

It is clear then that models must be used with great caution. However they do have a vital role to play particularly in a field like the psychology of art which is lacking in theory and explanatory devices. Both as explanatory aids in their own right and a stepping-stone to the development of theory, models have a vital role to play.

CHAPTER THREEApproaches to the Psychology of Art

'Psychology should be pictured, not as a society of good men and true, harbouring the occasional malefactor, but rather, one in which everyone is searching for sense; in which differences are largely of temperament, tradition, allegiance and style; and in which transgression consists not so much in a clean break with professional ethics, as in an unusually high-handed, extreme or self-deceptive attempt to promote one particular view of reality at the expense of all others'.

(Hudson: The Cult of the Fact, 1972, p.125)

The broadest division of method and theory in the psychology of art can be seen in three major approaches to the area, viz. psycho-analysis, Gestalt psychology, and experimental psychology. The founding fathers of these broad approaches to psychology were also pioneers in the psychology of art. Freud and Jung made many references to aesthetics and problems in art, though neither of them wrote a systematic treatise on the subject. This is also true of the two members of the Gestalt triumvirate who wrote on aesthetics, (viz. Koffka and Köhler). Only Fechner, the pioneer of experimental aesthetics, produced a large-scale work on the subject.

All three approaches have generated large amounts of research, theory, and interpretations. Today they survive as three rival camps with little communication between them except when one side sees fit to repudiate another. It is necessary to take a closer look at the three approaches in order to determine their respective merits and defects. In this way an integrated approach to the psychology of art may evolve.

I Psycho-Analytical Approaches to the Psychology of Art

(a) Freud's writings on aesthetics

The word theory was deliberately avoided in the heading to this section since Freud did not in fact write a theory of aesthetics, and it is doubtful whether a complete system can be built out of his views, despite the many attempts to do so (cf. Spector 1972). Freud's basic thinking on the psycho-dynamics of art is most clearly set out in one passage of approximately 400 words in his Introductory Lectures on Psycho-Analysis (Freud 1916-17). It is here that Freud explicitly states that it is the function of fantasy to give a degree of comfort and consolation to man in the constant struggle between the instinctual demands of the id, ever craving satisfaction, and the practical difficulties and obstacles of the outer world which obstruct satisfaction. Fantasies are a kind of relief mechanism, and have their origins in the unconscious. According to Freud, the artist has a peculiarly flexible repression mechanism which is not possessed by ordinary men. It enables the artist to transform these fantasies so that they become depersonalised, and thus detached from their obvious source in the Unconscious. By disguising and transforming his fantasies into the culturally accepted forms of art he is able to dispell his repressions. 'If he is able to accomplish all this he makes it possible for other people once more to derive consolation and alleviation from their own sources of pleasure in their own unconscious, which have become inaccessible to them; he earns their gratitude and admiration and he achieves through his fantasy what originally he had achieved only in his fantasy - honour, power and the love of women' (Freud 1916-17).

In short, Freud is here saying that both the creation and appreciation of art is grounded in the satisfaction of unconscious impulses and wishes. Freud did not systematically develop this

notion, nor did he try to explain just how the artist achieved this transformation of his unconscious wishes. Freud was only interested in art as a further example of the process of sublimation. This is the major mechanism by which man escapes from the painfulness and frustration of reality into the world of fantasy, and finds a path back again to reality in a way that is not so unpleasant. In this way art functions as a substitute for instinct-gratification protecting men in the painful transition from the 'Pleasure Principle' to the 'Reality Principle' (Freud 1920). The sublimation of libidinal impulses to alternative gratifying activities underlies not only the origin of art but also of myth, religion, science and philosophy. In other words, the whole of civilisation is a product of sublimation, but it was in art, above all, that Freud saw the opportunity for the fulfillment in fantasy of wishes which in real life are frustrated either by external obstacles or by moral inhibitions.

Freud stresses the close relationship between the artist and the neurotic. If a man cannot sublimate his impulses, and these impulses cannot be satisfied in the real world, then he withdraws into the fantasy world of neurosis. The artist is a special type of person, who according to Freud 'has an introverted disposition and has not very far to go to become a neurotic'. The artist has the advantage of producing all the wish-fulfilling benefits of fantasy, whilst not losing complete contact with wish-denying reality, which is the fate of the neurotic.

Freud was most concerned with explaining the origins of art in order to illustrate his general theory of the mind. He was not at all interested in explaining formal aesthetic qualities. To Freud every work of art was a manifestation of the unconscious. In the *Interpretation of Dreams* (1900) Freud does not discuss art, though he does draw the analogy of the dreamer and the poet. In

this view art is like a public dream. The mechanisms which transform the latent content of the unconscious into the manifest content of the dream are the same as the mechanisms which enable the artist to express unconscious wishes in his art. Of these mechanisms, condensation, displacement, and symbolisation have become the stock-in-trade of all psycho-analytic interpretations of art.¹

Most of Freud's writing on art consisted of interpretive analyses of individual artists, or particular works of art.² In each case Freud's approach was 'biographical' in that he examined what was known about the life-history of the artist. By explaining this in psycho-analytic terms Freud was also explaining the work of the artist. For instance, Freud argued that Leonardo's problems as an adult, viz. his incapacity for even homosexual love, his indifference to his artistic productions, his ultimate turning away from the life of the artist to that of the scientist - could be traced to his childhood experiences (Freud 1910).

It is interesting that Freud did not interpret the work of any living artist. This makes the testing of his interpretation all the more difficult, for as Farrell (1963) has argued, Freud is merely applying the methods of psycho-analysing a living patient to

¹ Condensation is the mechanism by which one idea in the manifest dream can stand for a great many associations which in turn lead to quite separate meanings in the latent content. Displacement occurs when the emotional charge is separated from its real object or content, and attached to an entirely different one. Symbolisation is the transformation of latent content by substitution of objects or ideas which are linked to the original in some way (e.g. through function, appearance, association, etc.). The important notion of the Freudian symbol has been criticised by Bertanffy (1965) who argues that they are not really symbols at all. As they can have either a one-to-anything relationship or an anything-to-one relationship they have no more significance than free-playing association. Pickford (1968, 1970) has analysed the semantic content of paintings as though they were dreams, and provides examples of displacement, symbolisation, condensation, and secondary elaboration, and restitution and abstraction.

² Notable among these are the famous studies of Leonardo da Vinci.

the analysis of the life of a dead artist. There is no way of checking the effectiveness of the analysis. The interpretation is little more than an 'explanatory narrative which fits together the known facts about the artist, and removes the inconsistencies'. Farrell goes on to argue that an explanation of this type has no logical necessity, and therefore does not preclude the possibility of alternative explanations. This is a particularly important point as the greater proportion of psycho-analytic writing on art consists of this type of interpretation.

It has already been noted that Freud's emphasis on the content of art, and his neglect of aesthetic qualities, is due largely to the fact that art was used by Freud to illustrate his general theory of the mind. However, the emphasis on content also results from Freud's own view of aesthetics. Spector (1972) has given a detailed account of Freud's tastes in art and stresses that Freud was influenced by the theories of Goethe and Lessing. This is the view that what is important in art is the spiritual value of the depicted content, and not its formal qualities. Marcuse (1958) has argued that Freud's view on art were a product of the time in which he lived. He speculates that if Freud had grown to manhood after 1914, 'He would have seen that the make-believe reality of art is capable of using much that is unaltered, unconcealed, and not at all mild and gentle'. Marcuse was referring to the harsh realism of German expressionist painting (e.g. Otto Dix, George Grosz, Max Beckman)¹ after the first World War. This argument can be taken further in two ways. First, Freud's notion of the sublimated content of art is only applicable where there is semantic content. A great part of world art is abstract or semi-abstract, e.g. much Greek

(continued)

(Freud 1910) and Michelangelo's sculpture 'Moses' (Freud 1914), and four studies in literature (Wilhelm Jensen 1837-1911, Goethe, Dostoyevski, Shakespeare).

¹See H. Read: A Concise History of Modern Painting (1959)

ornament, Islamic art, Medieval illuminated manuscripts (see Plate I) or even modern abstract art. At the time Freud was writing on art the radical transformations of modern twentieth century art were occurring all round him. It appears that Freud was very hostile to the modern art of his day, and paid no attention to it at all (Spector 1972). Had he done so, he might have had to reformulate his thinking on art.

Another respect in which Freud's sublimation theory of the content of art fails is in its failure to explain the existence of erotic art. Two recent books on eroticism in art (Lucie-Smith 1972; Kahman 1972) clearly show that explicitly erotic scenes have been depicted in almost all periods of art, and in almost all cultures even though it may not always have been the 'official' art of the time. Much primitive art, and a great deal of Hindu, as well as contemporary, art is explicitly sexual in content. In addition many of the great masters of the past have indulged in the depiction of erotic scenes, though they are not generally well known (Lucie-Smith 1972). Freud's theory of sublimation in art could never have been universally true, and is certainly not true today. There is still however the possibility that for some painters and some observers sublimation may play a role in determining their production or appreciation of certain works.

Many writers have sought, in vain, to find in Freud's writings the skeleton of a more formal theory to correspond to the ego-psychology that he developed in contrast to the id-psychology to which the theory of sublimation belongs (Weiss 1947, Rieff 1960, Waelder 1965, Spector 1972). Spector (1972) has pointed out that as early as 1913 Freud had recommended his book on jokes (Freud 1905) for its relevance to aesthetic problems. This was not actually taken up in detail until Weiss (1947) used it to propound a formula for aesthetic perception. Freud had characterised wit, comedy, and humour as the economy of the expenditure of psychic

energy in inhibition, thinking and feeling respectively. Weiss simply extended this idea; pleasure in formal aesthetic qualities derives from the economy of expenditure of psychic energy in perception. Both Rieff (1960) and Spector (1972) find in scattered remarks, and casual references to art the grounds for their respective constructions of Freud's later ego-theory of art. Rieff lays stress on the notions of emotional catharsis and psychic economy, and Spector emphasises ideational processes and the theory of empathy. These interpretations are elaborative constructions that go well beyond what Freud actually said.

Another problem in Freud's theory of art is that he does not explain how the work of art comes to have any value for the observer. Freud suggests that the symbolic content of the work of art grants emotional release to the observer 'and an enrichment that would not be possible without the relaxation of inhibition by aesthetic means' (Fraiberg 1958). In this sense form is no more than dressing for the unconscious content. Gombrich (1965b) has tried to define in more detail the exact nature of symbols in art. He describes them as 'sensible analogues to higher meanings' which constitute the essence of art. Gombrich argues that it is often impossible to separate the content of the symbol from its manner of presentation (Gombrich 1966). This occurs in such a way that only those ideas that can be adjusted to the reality of formal structure become 'communicable', and their value to others rests at least as much in their formal structure as in the idea'. In trying to show that psycho-analysis is relevant to form, Gombrich leaves Freud's views far behind.

Psycho-analytic theory has often been criticised for its vagueness, and poor definition of concepts, and the general lack of empirical support (Eysenck 1972e). In his extensive review of empirical tests of Freudian ideas and concepts Kline (1972) included

a section on the psychology of art. He argues that the sublimation theory is scientifically testable, though no empirical tests have so far been carried out. This is not altogether true for a number of experimental studies have been carried out which have investigated psycho-analytic ideas in relation to art. For instance, Child and his associates (Child 1965; Cooperman and Child 1968, 1969; Child Cooperman and Wolowitz 1969)¹ have found significant correlations between measures of psychoanalytic personality traits and a test of aesthetic judgement. Machotka and Waite (1968) have shown that the more sexually arousing the depiction in art of a female nude, the more it must be distorted to be considered aesthetically pleasing. It must be admitted however that these studies do not provide rigorous tests of Freud's ideas and that Freud's basic ideas have not yet been tested.

I think it can be agreed that the Freudian theory of art is not a scientific theory in the Popperian sense of that word, but that is not to share Eysenck's opinion that it is therefore of no value. Despite the fact that the theory rests on the validity of Psycho-analytic theory as a whole², with its deterministic view of man, the Freudian approach to art does have some distinct advantages. First it does not shrink from that 'consonance and dissonance of multiple meanings that interlock in the structure of artistic meanings' (Gombrich 1963). Secondly, the method rests on

¹See Chapter seven of this thesis for details.

²According to Rachman (1971) empirical support for psychoanalytic theory is very poor, but according to Kline (1972) it is reasonably good. It should be noted, however, that Rachman is mainly concerned with the effectiveness, or rather the ineffectiveness, of psychotherapy which he regards as the main source of proof that psychoanalytic theory is valid. By contrast, Kline has gathered together and evaluated almost all the experimental tests of Freud's ideas, over a very wide range of topics. There can be no doubt that interpretation of these studies is influenced by prior belief as Kline so ably expressed in his reply to Eysenck's criticism of his work (Eysenck 1972e).

direct contact with, and experience of, art. Thirdly, it has involved the interpretation and explanation of individual works of art. This is in stark contrast to experimental aesthetics which is rarely directly concerned with works of art, and is rarely applied to help analyse and understand a particular work. As Spector (1972) has put it, psycho-analytic interpretations of works of art are 'sometimes revealing, sometimes wildly off the point, but frequently point the way to new interpretations of considerable interest'. There is no reason why empirical tests cannot be made to substantiate a given interpretation. This would be necessary to stem the tide of ad hoc, diverse psycho-analytic interpretations.

(b) The Jungian Approach to Art

In the broadest sense Jung's 'Analytical' psychology is trans-personalistic. This is because, in Jung's view, the factors that form and influence an individual's personality lie outside his personal life-history. This is in opposition to the prevailing Freudian view that the determinants of a person's personality are to be found mainly in his personal life-history, particularly in the first five years of his life. According to Jung, these influences which lie outside the individual person are located in the Collective Unconscious. This is unlike Freud's notion of the personal Unconscious, for it 'represents deposits of man's typical reactions since primordial times to universal situations such as fear, danger, the struggle against superior power, relations between the sexes, relations between child and parent, hate, love, birth, darkness'. (Jung 1923). The contents of the Collective Unconscious result from 'inherited possibilities of psychical functioning in general'. The Unconscious functions to supply typical reactions, arising from the experience of mankind consonant with the laws and necessities of man's inner life.

An extremely important concept developed by Jung which has direct relevance to a psychology of art is the archetype. As these

correspond to the typical and fundamental experiences incurred by man since primordial times they form the constituent elements of the Collective Unconscious. They are themselves non-perceptible and are never explicitly manifest. Jung describes them as 'instinctive', or psychologically necessary reactions to certain situations. With their inborn propensities to react in a certain way they augment Consciousness, and lead to modes of behaviour that are psychologically necessary', (Jung 1919). The symbolic images of art represent extremely powerful manifestations of arche-types. Each arche-type has an invariable nucleus of meaning that is never fully present in the manifest arche-type. As such its meaning is metaphoric and can never be fully explained (see Jaffé 1964).

Art is not the only source of archetypal images. Jung devoted much of his life to the exploration of archetypal symbols in myths, fairy-tales, religions, and mysteries. He did not discuss particular artists or particular works of art. His only paper on an artist was a short analysis of Picasso's creativity (Jung 1932) which had more to do with Jungian therapy than Picasso's work. Jung's interest in art did not arise out of an interest in aesthetics but rather his concern with the psychology of the pictorial representation of psychic processes. This led to Jung's interest in symbols, which he saw as representations of libidinal energy canalised into new forms. Jung stresses that what makes something a symbol depends on the attitude of the consciousness which contemplates it. The same object can be a sign for one man and a symbol for another depending on whether he regards it as a concrete phenomenon or a symbol of human life.

In a paper on Analytic Psychology and Poetry (1925) Jung spells out the function of art. 'He who speaks in primordial (arche-typal) images speaks with a thousand voices. He enthralls and overpowers, while at the same time he lifts the idea he is trying to express out of the occasional and transitory into the

realm of the ever-enduring. He transmutes our personal destiny in the destiny of mankind, thereby involving in us all those beneficial forces that have always enabled mankind to find a refuge from every peril and outlive the longest night'. Jung is obviously impressed by the enormous importance of art in our lives, but feels that it does not have this effect solely because of its aesthetic qualities. It is due mainly to the comfort to be derived from the ability of artists to make arche-typal content available to us (Jung 1931). Jung tells us that in considering pictures containing arche-typal symbols we should think not of art but of something more and other than mere art, viz. the living effect of the arche-type. Jung asserts that it makes no difference whether such a picture is good or bad from an artistic point of view. The fixation of a symbol is a kind of objectivisation; it lends form to what is otherwise indeterminate and inexpressible, and enables one up to a certain point to penetrate to its true meaning and to understand it. By drawing or painting it, and by implication contemplating it, the individual can assimilate it into his own consciousness. (Jaffé 1964).

I have already noted that Jung did not engage in interpretive analyses of artists or works of art. However, followers of Jung have not hesitated to 'hunt the archetype'¹ with the same relish with which Freudians (e.g. Wight 1946) seek symbols of male and female genitalia in works of art. Neumann has undertaken a detailed Jungian interpretation of the work of Henry Moore (1959a) and also of the work of Leonardo da Vinci (1959b). (The latter forms an interesting contrast with Freud's own interpretation of Leonardo (Freud 1910)). It has often been said of psycho-therapy that Jungian analysts always seem to get Jungian patients and Freudians always get Freudian patients. The same effect seems to influence their respective interpretations of art.

¹The resemblance of this phrase to 'Hunting the Snark' (Lewis Carroll) was accidental but appropriate.

Apart from interpretations of art there have been no experimental attempts to test Jung's theory of arche-typal symbols in art. It would appear to be very difficult to test these ideas. However, Read (1943) has described an informal experiment in which he asked school children to relax, as though falling asleep and to paint the images that appeared to them. The children produced a startling number of mandala-like images (See Jacobi 1968, pp 136-141) (See Fig. 3-1) which Read saw as an empirical confirmation of the existence of the Collective Unconscious. Read's examination of the mandala symbols produced by the children (See Fig. 3-2) also led him to confirm Jung's claim that the symbolic manifestation of the arche-type is naturally aesthetic in form and quality. This experiment is full of loop-holes and would not satisfy the criteria of scientific acceptability even as laid down in this thesis. However, it would not be difficult to check this finding under more controlled conditions.¹

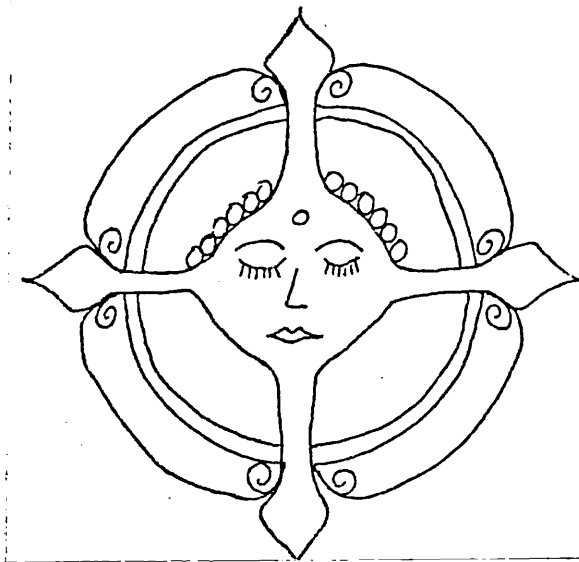


Fig. 3-1. An oriental mandala, from Jacobi (1968)

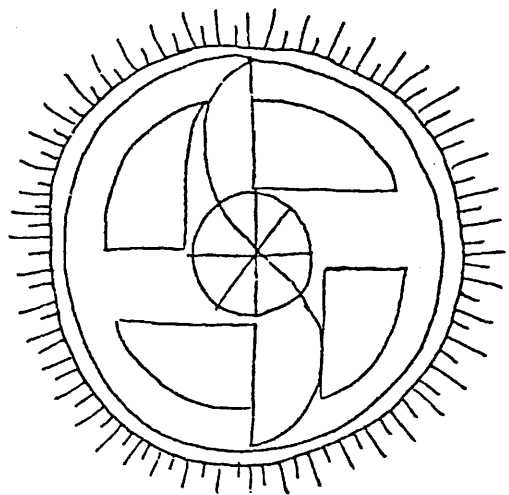


Fig. 3-2. A mind-picture from Read's experiment with children (Read 1943).

¹The children also produced abstract paintings of astonishing sophistication. See Read (1943), plates 22-25, for similar examples.

In *Psychological Types* (1923) Jung described the four functions of the Conscious which are present in every individual viz., thinking intuition, feeling and sensation. They represent four modes of apprehending and assimilating psychic data regardless of content, one of which tends to be dominant in each individual. In addition each individual has a general attitude, viz., extraversion or introversion, which when combined with the four functions makes eight personality types. The extraversion-introversion dimensions and its relation to aesthetic reactions has attracted much attention among experimental aestheticians.¹ Jung explains how one's general attitude, or habitual manner of reacting to outer or inner experiences is reflected in art. He sees the creative process as activating the eternal symbols of mankind which lie dormant in the Unconscious, and shaping and elaborating them to produce a finished work of art. Extraverted art springs from the artists remoulding of outward experience, whereas introverted art is created when the artist is overwhelmed by the inner contents of the psyche.²

The relation of Jung's types to art has been systematically developed by Read in *Education Through Art* (1943). He argues that there are eight distinctive modes of aesthetic expression which correspond to Jung's eight modes of psychic expression. For example he sees that a form of Thinking Extravert art is modern academism, whilst Thinking Introvert art is seen in Impressionism. Feeling Introvert art can be seen in abstract expressionism (e.g. Jackson Pollock, Mark Tobey), and Expressive Extravert art is seen in caricature. This is a stimulating and challenging application of Jung's ideas to the history of art which could be systematically

¹These studies will be discussed in detail in Chapter seven of this thesis.

²This corresponds closely to Lowenfeld's (1952) 'visual' and 'haptic' types. For a discussion of Lowenfeld's work and the art of the blind, see Pickford (1972 ch.3).

tested. Similar attempts to analyse artistic style in Jungian terms have been made by Neumann (1959a) and Abell(1952). These ideas could also be empirically tested, though it would be hard to test Read's additional claim that all the diversity of art from prehistoric art down to the present can be explained, and to a large degree ordered, by reference to corresponding psychological types.

Another Jungian idea that has relevance to the psychology of art was described in 'On Psychic Energy' (1948), viz. progression and regression in the movement of psychic energy. Progression consists in a continuous and unobstructed adaptation to the conscious demands of life. This includes the differentiation of 'attitude' and 'function' types, which is rooted in the need for adaptation to the outside world. By contrast regression in the movement of psychic energy is caused by a failure of conscious adaptation. The intensification of the unconscious which results in a regression, provokes a one-sided accumulation of energy. This in turn causes the contents of the Unconscious to rise to the surface. Regression is thus rooted in the need for adaptation to the inner world, and Jung stresses that although it may be a symptom of disturbance, it can also be a way to restore balance and even broaden the psyche. Regression has particular relevance to art as it is the means by which images (i.e. specific manifestations of psychic energy or arche-types) are activated and raised from the Unconscious so that the psychic processes can be channelled in a progressive direction. This idea was taken up by Kris (1953) who developed the notion of 'regression in the service of the ego' which is discussed below.

For both Jung and Freud the role of the Unconscious is of critical importance to art. Although both men were most concerned with artistic creativity their ideas are relevant to the perception of art. Whereas Freud saw art as a means to the satisfaction of libidinal desires in the individual, Jung saw art in transpersonal

terms, having relevance to mankind as a whole. For both Freud and Jung art is not a luxury. It is an important and essential means by which adaptation to the outside world is achieved. Art serves the needs of the Unconscious. To this effect the content of art is of supreme importance, and its formal or aesthetic qualities are of secondary importance.

(c) Other Psychoanalytic writers on art: Rank, Kris, Waelder and Ehrenzweig

There have been many developments of the original ideas of Freud and Jung, each one usually starting as a point of disagreement and often developing into a whole brand of psycho-analytic thinking far from the orthodox theory (Brown 1961). In the field of aesthetics there have been many developments of, and deviations from, Freud's original ideas. This section will concentrate on four of them.

(i) Rank (1932) was dissatisfied with Freud's mechanistic interpretation of art as no more than the sublimation of repressed libidinal wishes. He saw the real problem as explaining why the artist produces the form he does, for Freud could not explain why some artists are geniuses and some are mere hacks as the same sublimatory process underlies all art. As both psycho-analyst and art-historian, Rank re-interprets the relation between art and the artist. He developed important explanatory concepts such as the notion of a collective cultural factor which places the artist in the social and cultural setting which has an impact on his art. Rank argues that the artist's creative impulse has something positively anti-sexual in its yearning for independence of organic conditions. This is the very opposite of Freud's view. The artist is seen as both an individual and as a social being. This is the fundamental dualism of all life in which artistic creativity (and the creative impulse generally) originate. Rank stresses the free creative and self-representative character of all

art, and its tendency to liberate from the biological. He also stresses its self-justification and immortalising urge, its need of and yet resistance to the cultural age, and the conflicts that result from being an artist. Rank's contribution is significant in that he has tried to explain problems in art and the history of art, and has moved away from Freud's oversimplified notion of art.

(ii) Ernst Kris, in *Psycho-Analytic Explorations in Art* (1953), has attempted to reconcile and integrate Freud's biographical determinism with Jung's hereditary collective determinism. In this way he is able to interpret not only specific works of art or specific artists but whole traditions and styles in art. Like Rank he analyses the complex interaction between the personality of the artist, his chosen media and 'those historical conditions which determine the modes of expression and the problems to be solved'.¹ The main contribution of Kris (1953) lies in the notion of 'regression in the service of the ego'. This is the notion that the creation and enjoyment of art involves in part a controlled regression from more mature forms of cognitive activity to less mature ones deep in the Unconscious. All the while the ego remains intact with reality and in command of the individual which is what differentiates this kind of regression from that of the neurotic. With the ego still in command a positive use of the less mature functions can be made in the interest of the more mature ones. A partial confirmation of this notion has recently been revealed by Child (1965) who found a low positive but significant correlation between a specially devised measure of 'regression in the service of the ego' and a measure of aesthetic judgement. This formed only a small part of a much larger study; there is good reason for exploring this notion

¹See Gombrich (1950) for a succinct account of these unfolding conditions and problems.

systematically and in more detail. In much the same way, Kris's and Rank's interpretations of the history of art could be tested empirically, at least in terms of contemporary reactions to the various periods and styles of art.

(iii) The psycho-analytic interpretation of art by Waelder (1965) also grew out of a dissatisfaction with the limitations of Freud's theory of sublimation as the essential process in art. Waelder argues that Freud's main contribution was the revelation that 'there is a conscious and an unconscious reaction to art: the former is due to its aesthetic qualities, the latter to its more or less hidden content, and aesthetic merit makes it possible for otherwise inadmissible content to pass'. Waelder argues that Freud's theory of sublimation in art corresponds to Freud's early writings on Psycho-analysis. He did not develop an ego-approach to correspond to the development of his 'id-psychology' to which he paid great attention in the latter part of his life. That Freud did not devote even one paragraph to an ego-approach to aesthetics suggests perhaps that he did not intend to develop his sublimation theory. Waelder argues that Freud lacked the time, so he has developed his own ego- and super-ego approaches to art. Whilst characterising the id aspect of art as a means of obtaining wish-fulfillment and the satisfaction of fantasy, Waelder describes the ego-aspect as the striving for perfection and economy of means in the achievement of the 'id' objectives. This is virtually the same as the view expressed by Weiss (1947), though Waelder also stresses the role of the ego as a problem-solving agent. Besides striving for economy of means the ego also derives pleasure from the solution of a problem that had seemed impossible, and also from the quality or fittingness of the solution. Waelder claims that this pleasure derives from 'the victory of mind over brute forces'. The super-ego approach developed by Waelder is only weakly psycho-analytic. It is based on a self-consciousness, or a self-transcendence of the self in the face of fate or reality through

the medium of art.

(iv) Perhaps the most detailed attempt to explain the unconscious roots of artistic form can be found in the writings of Ehrenzweig (1962, 1967). He rejects the attempt by Weiss (1947), Maelder (1965) and others to explain artistic form on the model provided by Freud's theory of jokes (Freud 1905). Ehrenzweig argues that jokes have only a superficial structure, but works of art have, in addition, an unconscious structure. This deep structure cannot be seen by means of ordinary day-to-day perception but requires what Ehrenzweig calls 'undifferentiated perception' which is dependent on unconscious scanning of the work of art. In undifferentiated perception the Gestalt laws of organisation do not apply and there is no differentiation into figure and ground. Equal attention is given to all that is presented in the visual field. This type of perception is an unconscious process. Undifferentiated perception is primary in every individual but the need for biological adaptation causes it to be replaced by differentiated perception in which 'an interest in pattern is suppressed, in the interests of visual efficiency in the scanning' of the outside world. This argument parallels in many respects the evolution of the geometric-technical mode of (adult) perception from the physiognomic mode which characterises the perception of children and primitive peoples (Werner 1956). Ehrenzweig rejects the orthodox psychoanalytic view that the Unconscious is chaotic and unstructured. He argues that it is only in terms of conscious analytical perception that it is seen as such. The importance of unconscious perception for art is summed up in the statement that there are in the work of art 'complex relationships that refuse to be caught in the stable and neat grid of common-sense visualisation. Art forms may arise from an undifferentiated matrix underlying all conscious imagery and image-making, where all the nonsensical contradictions and distortions of the primary process are resolved'. This view represents a marked departure from orthodox Freudian theory.

Ehrenzweig's approach is interesting in that his starting-point is psycho-analytic theory, though he sees it as in need of revision. The evidence he draws together for his argument come from a variety of sources, viz. anecdote, artists introspections, examination of paintings, the studies of blind people who recover their sight, and experimental studies in perception. However it is difficult to see exactly what is meant by undifferentiated perception. Ideally it would be helpful to test empirically whether such a process exists at all and if it does, to determine its characteristics. Kline (1972) has argued that as it is a process that exists in the Unconscious it is not amenable to scientific testing. However, Ehrenzweig's notion of undifferentiated perception is similar to the concept of 'pre-attention' developed by Neisser (1964, 1967). The idea has been speculatively applied to aesthetic perception by Hochberg (1972). Similar ideas on focussing attention to ground and texture rather than figural qualities have also been developed by Gardner (1972b). The notion could be defined in information-processing terms and subjected to empirical test, without having to stipulate the existence of an Unconscious.

Ehrenzweig is even more vague on aesthetic experience per se. He develops a notion of 'oceanic feeling' not dissimilar to that discussed by Freud. Even so 'Ehrenzweig's interpretation is a stimulating one, and it should not be rejected out of hand because we lack the necessary techniques for testing it. His utilisation of a wide variety of information sources should be encouraged in the psychology of art. Perhaps the chief value of 'Ehrenzweig's theory is that it goes some way toward improving the acceptability of psycho-analytic theory to a psychology of art, and stands as an antidote to the over-simplified conceptions of psycho-analytic theory that are held by many experimental aestheticians.

Psycho-analytic Approaches Discussed

This exposition of the major psycho-analytic approaches to art has been fairly extensive. This is because of the strong association between Freud's own sublimation theory and all psycho-analytic theory of art. For example, Berlyne (1972a) has discussed Freud's sublimation theory as though it was representative of all psycho-analytic writing on art. Berlyne seems to imply that if Freud's theory is rejected then the rest is as well. In addition experimental aestheticians (particularly the tough-minded variety) tend to ignore or are totally unaware of post-Freudian psycho-analytic writing on art. In constructing an empirical psychology of art it is better to do so within a modified empirical frame-work, that is open to a variety of different influences, so that psycho-analytic concepts would be considered not only relevant but also worthy of investigation. Irvin Child and Machotka are currently the only empirical psychologists who are prepared to attempt empirical tests of psycho-analytic ideas on art but this is very small compared to the potential that exists.

The chief problem with psycho-analytic theories centres round the question of their scientific status. It has been argued that Psycho-analysis is a quasi-scientific psychology which gets away with a concept of truthfulness, the opposite of which is not a falsehood but another alternative 'truth' (Medawar 1969). Medawar sees it as a mythical structure which makes sense and is believable regardless of whether it is true or not. This kind of functional truth belongs to the world of imaginative literature, but not to science. Psycho-analytic theory lies at the extreme end of the humanistic type of psychology discussed in the previous chapter. For example, art is not scientifically investigated by means of analogues in laboratories, but as part and parcel of the human condition which is seen as the 'ever-existing possibility of suffering, the constant need for morally responsible decisions in

situations of confusing complexity, and the possibility of extreme situations that 'try mens souls', (Waelder 1965). Methods of analysis employed within this frame-work do not necessarily guarantee greater insight and truth, compared to scientific methods in the narrow sense. What is needed is the empirical checking of the ideas by suitable methods. It might be said that psycho-analytic writers are high on imagination but low critically, whereas experimental aestheticians are, on the whole, low on imagination and low on self-criticism, particularly in relation to art.

The scientific status of psycho-analytic theory in general has been discussed by Nagel (1959), Rapaport (1960), Popper (1963), Berlyne (1971), Eysenck (1972e) and many others. The criticisms are well known. A general point is that the terms and concepts employed are ambiguous, often metaphorical, low in operationism, and there are no rules of correspondence for linking the concepts to reality. It is also argued that psycho-analytic theory does not lead to clear-cut predictions, and it is immune to empirical refutation. Finally it is argued, particularly by Eysenck (1961) and Rachman (1971) that psycho-therapy, which is grounded in psycho-analytic theory, has not been proven to work.

This is a complex issue. Much of the criticism stems directly from an adherence to the natural science model of psychology which was rejected in chapter two. However there is really no need to get bogged down by discussions of the scientific status of psycho-analysis for, regardless of the conclusions, it is more important that the psychology of art is exposed to the ideas and concepts that psychoanalysis has to offer. So long as they are defined or redefined in an acceptable way, the ideas can be tested, regardless of the scientific status of the discipline that gave rise to them.¹

¹For example, Myers (1962) has constructed a test to measure Jungian personality types, and Child (1965) devised his own measure of Kris's notion of 'regression in the service of the ego'

It is most important that the psychology of art does not remain ignorant or intolerant of this very fertile source of ideas.

An important feature of the psycho-analytic approach to art is the interpretative strategy. This involves the analysis of unique works of art in a way that is not possible by the experimental approach because its emphasis is on finding general laws rather than unique insights to specific works of art. There is however a draw-back to the use of the interpretive strategy as there is no external check on the correctness of the interpretation. The lack of self-evaluation has led to a prolific outpouring of interpretive studies, particularly of painters who lend themselves well to Freudian and Jungian 'symbol spotting', viz. Bosch, Grunewald, Goya, Leonardo, the Surrealists. The most common symbols are of male and female genitalia, closely followed by the castration complex.¹ Painters like Corot or Constable or Cézanne are hardly if ever subjected to interpretation. There is a distinct likelihood that in the eyes of the average experimental aesthete it is better to reject such a reckless animal outright than to try to tame and assimilate it. The vast majority of papers published in the psychology of art have been psycho-analytic interpretations of this type; experimental studies are few by comparison. However, it would seem wasteful to discount such effort. Perhaps Farrell's (1963) compromise is the best answer when he suggests that the psycho-analytic interpretation is a 'narrative' that can provide insight, but no guarantee of its correctness. However, the correctness of the interpretation may be checked by empirical means outside the framework of the particular brand of psycho-analytic theory that generated it. One possible technique would be to compare interpretations

¹Confining himself to contemporary art, Kahman (1972) has given examples of all the sexual symbols Freud listed in his Introductory Lectures (1932). These include keys, rooms, flowers, rings, guns, bottles, wood, hats, coats, ties, machinery, landscapes and teeth. In much the same way the strangest things become archetypes (cf. Jaffé 1964).

given by different psycho-analysts (of both the same and different schools) under standard conditions. In this way a measure of consensus between and within schools of thought could be obtained.

In conclusion, the psycho-analytic approach to art is important in that it deals directly with art and not with artificial laboratory analogues. It also draws attention to what Gombrich (1965a) has called 'the consonance and dissonance of the multiple meanings that interlink in the structure of artistic meaning'. It is a useful and legitimate approach within a psychology of art, particularly if it is seen as an important source of ideas and hypotheses that can be empirically tested. In view of this, the debate concerning the scientific acceptability of psycho-analytic theory is irrelevant. Finally the interpretive strategy is considered a necessary technique especially if it is tied to empirical checks. The rich imagination of the psycho-analytic approach must not be rejected, though it should be tamed.

The Gestalt Approach

Neither Köhler nor Koffka wrote a systematic treatise on art, though both men made many references to aesthetics in their writings, especially in *Principles of Gestalt Psychology* (Koffka 1935), and Köhler's *The Place of Value in a World of Facts* (1938). In addition Koffka (1940) analysed some of the problems for a psychology of art in which he elaborated and developed some of the ideas referred to but not developed in the earlier works.

The impact of Gestalt psychology on psychology in general has been enormous, despite the fact that the Gestalt psychologists never developed a formal theory of perception (Allport 1962). Their chief contribution consisted in the formulation of a new way of looking at the facts of perception. The approach developed as a reaction against the molecular approaches of Introspectionism

and Behaviourism, by laying emphasis on higher-order stimulus characteristics, instead of the separate elements that made up the whole. The famous dictum that 'the whole is different from the sum of the parts' is the hallmark of the Gestalt approach.¹ Emphasis was placed on the configurations (the Gestalten) of behaviour and consciousness which cannot be equated with the sum of so many sensations of reflexes. Köhler used a tune as an example of a 'whole' whose structure cannot be explained either by the qualities of its single notes or by the relations between them. Such an approach appeared to have ready application to the problems of art.

Among the many contributions of Gestalt psychology only those aspects that are relevant to the psychology of art will be discussed here. The better-known examples of 'Gestalt' qualities are expressed in the Gestalt laws of perception (for examples see Wyburn, Pickford and Hirst 1964). Koffka (1935) formulated three basic laws of primitive organisation which characterised the psychological field, viz. (a) the psychological field will always divide into figure and ground;² (b) configurations always take the best possible form that conditions will allow, and (c) configurations are isomorphic to stimulus patterns. Wertheimer (1923) demonstrated with abstract geometric patterns how proximity, similarity, continuity, common fate, and closure are the organising features of perception.³

¹Fratt (1969) reminds us that Köhler did not say 'the whole is greater than the sum of the parts' as is commonly believed.

²Research on the psychology of perception has tended to concentrate on artificial molecular stimuli. It is strange that objects, pictures and works of art have not been used as stimuli as these have greater ecological validity (Gibson 1966a). Recently, Fischer (1967) has presented examples of reversible figure-ground relationship which he has discovered in paintings. He recommends them as stimuli in experimental research.

³This paper can be found in Ellis (1947).

Arnheim (1943) was perhaps the first to apply these laws to the study of works of art. He claimed that 'the artist by organising sensory facts according to the laws of Pragnanz, unity, segregation and balance, reveals harmony and order or stigmatises discord and disorder'. Arnheim argues that our perceptual mechanism strives towards balance and unity in order to assimilate stimuli within its own balanced and unified structure. The artists' striving for balance is seen as just one aspect of a universal tendency towards order in nature. In this view can be seen the almost metaphysical assumptions made by the Gestaltists about the nature of the universe and the place of psychology in it (see Köhler 1938). This is exemplified in the notion of isomorphism (i.e. the identity of form between physical and psychological processes) which provides the explanatory basis of the gestalt theory of expression, whereas Arnheim (1943) discussed the general significance of Gestalt ideas in their application to aesthetics, other writers have applied them directly to the interpretation of specific works of art. For instance Pepper (1949) has presented working examples of figure-ground and positive-negative space relationships, and the operation of sensory grouping, closure and sequence principles in actual paintings and sculptures. More recently Arnheim has used Gestalt principles as the basis for his influential book, *Art and Visual Perception* (1954).

A feature of the Gestalt approach to the psychology of art is that it attempted to provide a basis for distinguishing between good and bad works of art. The basic premise underlying this distinction is that there is a sense in which all perception is essentially artistic (Koffka 1940). By this Koffka meant that the perception of art is not different in kind from perception in general, and is therefore bound by the same laws of perception that apply to the perception of ordinary objects. Koffka argues for the identity of the work of art and the perfect Gestalt, by claiming that nothing in the work of art can be changed without

altering its beauty.¹ The Law of Pragnanz states that in day-to-day perception the perceptual system imposes as much order as possible on the physical stimulation. The work of art is specifically made with the idea of being a good Gestalt, and thus does not possess the limitations of ordinary perception. In 1935 Koffka listed the main characteristics of the good gestalt as regularity, simplicity and symmetry. Arnheim did not however subscribe to the equation of good Gestalt and good art for he stressed the importance of dynamic tension within the perceptual field as an important aesthetic quality (Arnheim 1954, 1958). Perhaps this change of opinion also reflects a change in the climate of artistic opinion in the intervening period.

We have seen that the notion of good Gestalt was used by the early gestalt psychologists as a criterion of good art. This readiness to face up to problems of value is a distinctive feature of Gestalt psychology. As Köhler (1938) argued, questions of value constitute some of the facts which science should investigate.

There are two major disadvantages to the notion of 'good form' as the criterion of good art which stem directly from weaknesses within the Gestalt approach itself. First of all the idea of good Gestalt is very vague, and not easy to specify. The vagueness of the concept of 'good form' led Rawlins (1939) to attempt a more specific formulation. He presented the formula, $E = E_c + E_i + E_f$, in which the total energy in a system (E), was the sum of the creative energy in the artist (E_c), the intrinsic energy in the system (E_i), and the free energy (E_f) that remains in the completed work. In this view the amount of E_f in great art is equal to zero,

¹This has been experimentally investigated by Pronko et al (1963) who rejected the notion. This experiment was not however conducted within a Gestalt frame-work.

which amounts to saying no more than Koffka (1940). However the attempt by Eysenck (1942) to bring more precision to the notion of good Gestalt as the basis of art deserves more serious attention. He reviews his own and other experimental evaluations of Birkhoff's (1933) study which revealed that artists prefer simple, ordered forms to more complex irregular shapes. Eysenck attempted to integrate the findings of Birkhoff, and the general aesthetic factor¹ by interpreting the latter as the embodiment of good Gestalt. On this basis he formulated a law of Aesthetic Appreciation, viz. 'The pleasure derived from a percept is directly proportional to the decrease of energy capable of doing work in the total nervous system, as compared with the original state of the whole system'. Functionally, this is almost identical to Rawlins' (1939) interpretation. There does not appear to be a more recent attempt to systematically refine the notion of Good Gestalt as the basis of good art, except for Arnheim's work which is discussed below.

The second major disadvantage which is related to the first is the absence of quantification of the concepts. This means empirical testing of the ideas is difficult. Hochberg (1972) has pointed out the Gestalt laws of perceptions have never been quantified nor empirically tested. Attneave (1959a) suggested that one of the applications of Information Theory could be to quantify and test the Gestalt laws. This has been done on a small scale by Attneave (1954) and Hochberg and McAlister (1953), though it has not been systematically followed up. Gregory (1973) has argued that there is no evidence that the laws of organisation hold for the perception of the world of objects, even though they may hold for the perception of geometric shapes. There is however some circumstantial evidence from Arnheim (1969) and Pickford (1972) that the Gestalt laws are relevant to the perception of the flat surface plane of paintings, even when three dimensional space is

¹See chapter six of this thesis.

seen, though this would need empirical confirmation. Firenne (1970) and Polanyi (1970) have both argued that a 'subsidiary awareness of surface' is a critical feature of pictorial perception. The Gestalt laws may have relevance to this awareness.

The difficulties involved in quantifying the figural goodness of paintings can be seen in a study by Kellet (1939). He attempted to determine whether the laws of perceptual organisation were relevant to the perception of paintings, and whether 'good form' determined effective reactions. He asked a panel of judges to rate paintings and photographs (which were paired with the paintings by content) on the various aspects of good form such as whole-part relationships, closure, continuation etc. When viewed under normal (30 sec) and tachistoscopic conditions (.24) the photographs were generally better liked, even though the paintings had been judged by experts as having better form. Overall there was no relation between a picture's gestalt rating and the effective responses to it. Even with the short exposure, there was no relation, despite the fact that the better form of the paintings ought to have enhanced perception under these restricted viewing conditions. Kellet concluded from the lack of relation between good gestalt and preference judgements that gestalt unity of figure is not objectively specifiable, as it is an experiential rather than an objective phenomenon. This conclusion is biased because it is based on the premise that figural unity is actually a determinant of aesthetic reactions and this has not been demonstrated. The second part of the conclusion is, however, sound as there is a real difference between the objective specification of a stimulus, and its phenomenal significance (Brunswick 1956; Heckhausen 1964; Attneave 1959). Ironically it seems that Kellet may have reached the right conclusion for the wrong reasons. He only concludes that gestalt unity is not objectively specifiable because his measurements did not reveal the expected relation to aesthetic preference. This experiment, though interesting is methodologically

too weak to provide evidence on the relation of Gestalt configurations to aesthetic preferences. There does not appear to have been a systematic test of this relationship.

The application of Gestalt ideas and concepts to art have inevitably resulted in an over-emphasis on the formal features of paintings. It has been noted already (Gombrich 1965) that form and content are inseparable. With regard to form, the laws of perceptual organisation, if they can be applied to works of art (as yet unproven), are likely only to be relevant to the art of Classical Greece, the Renaissance, and the Academic tradition in Europe (See Plate II). The notions of balance, harmony, good proportion are essential features of this type of art. However primitive, medieval, oriental and much modern art does not have aesthetic standards which approximate the ideals of good Gestalt (Osborne 1968a) (See Fig.3-3)

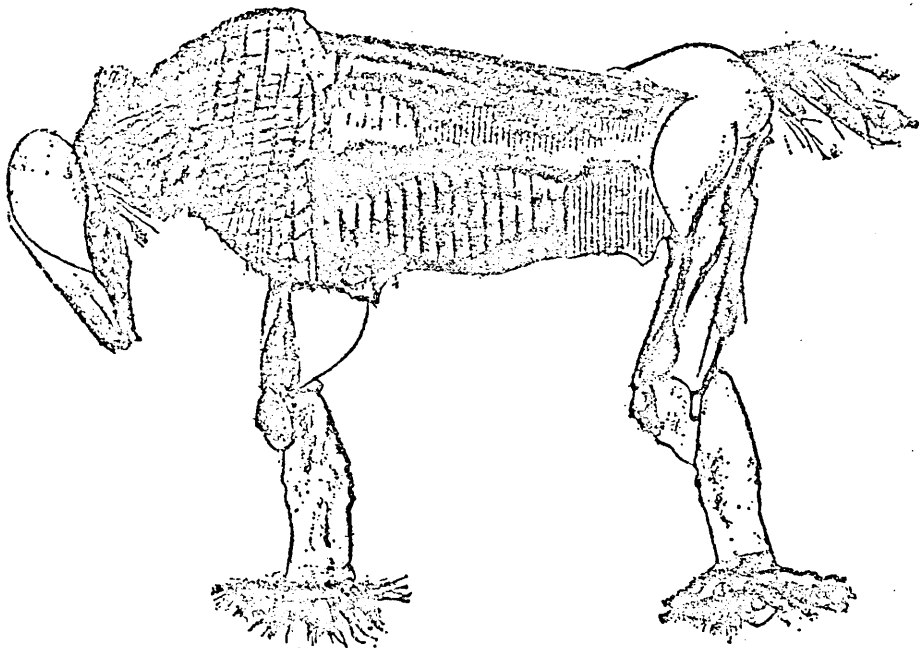


Fig.3-3. Max Ernst, *The Beautiful Season*, 1925. Frottage on paper, reproduced in the surrealist portfolio *Natural History*.

Even within the Western tradition there are notable exceptions to

the general trend (Bosch, Rembrandt, El Greco) who have deviated from the Classical (or Gestalt) ideal. Pickford (1972) has pointed out that the Impressionists deliberately destroyed the relationship between figure and ground, which was considered by Chaplin and Krawiec (1968) to be one of the few immutable laws of perception. It would appear that the laws of perceptual organisation, and good Gestalt, if they are relevant to paintings are only selectively so. For example, the paintings of Piero della Francesca (Florence 1416-92) are noted for their static, stable calm. Whereas this is intuitively perceivable it is doubtful whether the notion of good gestalt does anything more than substitute one phrase for another without any gain in meaning. The danger is that the use of the phrase 'good Gestalt' might give a spurious impression that the painting has been 'explained'. Good gestalt has limited applicability to art and practically no explanatory power.

The other major contribution of gestalt psychology to the psychology of art is the theory of expression. The gestalt position was one which insisted that 'in explaining psychological phenomena no appeal should be made to past experience until every other possibility has been exhausted' (Pratt 1969). The gestalt theory of expression was developed by Koffka (1935), and Köhler (1947) to counteract the associationist theory of empathy (e.g. Lipps 1903) which in one form or another had been dominant for over fifty years. The theory was developed and applied to aesthetic expression by Koffka (1940) and Arnheim (1949), which Pratt (1964) considers to be the most important contribution of Gestalt psychology to aesthetics. In brief this theory states that shapes, patterns and configurations are intrinsically expressive. The expressiveness of an object or configuration lies in its tertiary qualities (denoted by words for moods, e.g. sad, tense, gay). These tertiary qualities are not associated by learning, experience, or memory as they are directly perceived in the object. The principle of isomorphism was used to explain how this is achieved. It is because

the structure of mental states in the brain are the same as the perceived structure of expressive stimuli (lines, curves, etc.) that meaning is perceived directly (Arnheim 1949). The whole question of meaning and expression in art is treated separately in chapter nine. Consequently the Gestalt theory of expression will not be discussed in detail here.

The physiological speculations by the Gestalt psychologists in support of the notion of isomorphism, have not been upheld by subsequent physiological research (Hochbeg 1957)¹. Arnheim in his later writings dropped the physiological explanation of isomorphism. Despite this the notion of isomorphic correspondence between physical and mental events is still regarded as the means by which meaning is expressed directly in the formal aspects of art (Arnheim 1969).

Before concluding this section on the Gestalt psychology of art it is necessary to discuss in more detail the work of Rudolf Arnheim. He has certainly been the most productive of Gestalt psychologists writing on art, and has been actively contributing to the subject for over fifty years. Apart from his development of the Gestalt theory of expression (Arnheim 1949, 1958), his most influential work is *Art and Visual Perception* (1954a) which has had an enormous impact on educationalists, though little on psychology in general. It represents a fairly orthodox Gestalt interpretation of form, shape, colour, harmony etc. as determinants of aesthetic experience. The book lays great stress on the perceptual determination of reactions and tends to ignore the possible mediation of culture, learning, and personality. Like most Gestalt works on art it is speculative rather than testing,

¹The idea of structural or isomorphic similarity between works of art and emotional reactions to them has strongly influenced the eminent philosopher of art, S. K. Langer (1942, 1957)

theoretical rather than empirical. Arnheim's collected writings of art (Arnheim 1967) and two other books (1969, 1971) reveal that Arnheim lays a great deal of stress on meaning in art which is expressed in the formal qualities of a painting. This is particularly developed in *Visual Thinking* (1969). In this book Arnheim argues that the isomorphic characteristics of thinking and perceiving mirror each other; they can be regarded as twin aspects of the same thing, viz. visual thinking. Arnheim's interpretation in its basic features bears a strong resemblance to the information-processing approach to perception (Forgus 1966; Gibson 1966a; Neisser 1967; Haber 1973) except that Arnheim's analysis is qualitative and non-experimental. The traditional distinction between the separate processes of perception and cognition are broken down. Forgive, Gibson and Neisser are all concerned to study cognitive processes in an active organism rather than to investigate the senses in isolation. However, Arnheim differs from them in his use of isomorphism as an explanatory principle. The significance of this is fully developed in Arnheim (1971). Here he argues that the 'good' Gestalt is a feature not only of art and perception, but of all the phenomena in the universe.¹ Arnheim regards it as a reflection of the fundamental order that exists in the universe. He argues that man's striving for order, of which art is but one manifestation, derives from a universal tendency throughout the organic world. It is also paralleled by, and perhaps derived from, the striving towards the state of simplest structure in physical systems (*Art and Entropy* 1971). Because entropy theory is concerned with the unmeasurable, global macro-state it does not reduce the order and harmony of good Gestalt to 'redundancy' and 'no information'. Arnheim asserts the superiority of the molar approach to the study

¹This argument was first propounded by Köhler (1938) and adhered to by him for the rest of his life (Köhler 1969).

of aesthetics, as of everything else.

Conclusions

The most obvious contribution of Gestalt psychology to art is the formulation of the laws of perceptual organisation. However it is doubtful if these have any explanatory value as it is not possible to apply the rules to complex works of art, though the systematic testing of phenomenal measures has not yet been attempted. In addition the rules, even if measurable may not be applicable at all to many kinds of art. Through lack of clear definition, and quantification the laws have not been tested, a state of affairs which has led to intuitive interpretive analyses of works of art with no guarantee of validity, beyond superficial plausibility. The Gestalt theory of expression has immediate relevance to art and stands as an important rival to the empathy theory of expression which is discussed in chapter nine. The physiological speculations have been abandoned, though isomorphism is still used as an explanatory concept, though now based on a more metaphoric, rather than a literal, interpretation.

The Gestalt approach differs from the psycho-analytic approach in that it does not attempt to explain why people look at art in the first place. Whereas the psycho-analytic writers place most emphasis on motivational aspects the Gestalists laid most stress on perception. Similarly the psycho-analysts stressed content, whilst the Gestalists stressed formal structure. Perhaps the most important point of emphasis for the Gestalt psychology of art, which separates it from all the other approaches, is the attempt to define what constitutes good art. The notion of good Gestalt as a criterion of the aesthetic is not too vague to be tested, and so this attempt to embrace the problem of aesthetic value has not yet been empirically evaluated.

The methodological advantages of the Gestalt, approach consisted in the careful use of introspection, an emphasis on the molar qualities in art, and a close contact with real works of art at least in Arnheim's work. Introspection permitted sensitive, flexible awareness of the complexity of the processes involved, though the absence of experimental testing led to acceptance of ideas whose validity was not checked. Finally the direct contact with art by way of illustration, argument and interpretation has almost certainly given Gestalt ideas on art greater acceptability to others interested in art. Paradoxically it has had less impact on the psychology of art than on other fields concerned with art, (e.g. art education and art criticism). This is not necessarily a bad thing. Experimental aesthetics has impressed few psychologists and virtually no art experts.

Experimental Aesthetics

The umbrella term experimental aesthetics covers a great variety of methods and approaches ranging all the way from the molecular behaviourism of Eysenck and Berlyne to the correlational, humanistic approach of Eurt, Bulley and Child. The only thing they have in common is the fact that they all employ empirical techniques of investigation of one kind or another. As a result they all use some form of measurement. As this is an extremely complex problem, especially in aesthetics, it will be discussed separately in the following chapter. However, many of the assumptions underlying the choice of experimental method have implications for the type of measurement employed. Where this occurs the general significance will be discussed in this chapter and a more detailed analysis will be given in the following chapter.

The chief advantage of experimental techniques seems to lie in the approximation of objectivity that is made possible through the control of variance by means of appropriate quantification

and designs of experiments. According to Marx and Hillix (1963) the 'principle of control' is the one distinguishing feature of science, for it is by this means that the scientist is able to identify the sources of variance in his observations. The classical experiment entails the manipulation of one or more (independent) variables by the experimenter who can then observe and measure the variation this causes in the other (dependent) variables under study. In other words the experiment must be designed in such a way that variation in the dependent variable can only be attributed to variation in the independent variable, and not to any other source of variation. Ideally the experimenter controls and manipulates the independent variable and observes or measures the effects of this on the dependent variable. This is the ideal experiment of the 'tough-minded' experimental aestheticians, among whom Berlyne is most prominent.

The need for internal validity often conflicts with the representativeness or naturalism of the experiment, or what Campbell refers to as 'external validity' (Campbell 1957). If an experiment lacks this it is not possible to generalise the results beyond the exact laboratory conditions. The 'tender-minded' approach to aesthetics sacrifices a degree of internal validity in order to make the study more realistic. They stress individual differences and tend to use correlational techniques, rather than to artificially control and manipulate variables. In general tender-minded aestheticians put most emphasis on the need for external validity, whereas the tough-minded aestheticians place most emphasis on internal validity.

I. Tough-minded experimental aesthetics

It may seem a little arbitrary to call Fechner who was actively interested in aesthetics between 1865 and 1876, the founding father of the tough-minded school of experimental aesthetics. However he belongs to this camp because he is claimed as the spiritual father

of those modern experimental aestheticians who fall into the tough-minded category. For instance Berlyne (1972a) has described Fechner's three-fold contribution to experimental aesthetics. First, he carried out some experiments that set an important precedent. In one experiment he investigated experimentally the significance of the Golden Section which was the first ever empirical test of this centuries-old notion. In the other study he conducted the first ever opinion poll concerning the aesthetic merits of two paintings.¹ As Berlyne correctly points out the significance of these experiments lies in the measurement of the preference of a sample of people instead of regarding one's own preferences to be either typical or exceptionally authoritative.

Fechner's second main contribution places him strongly in the tough-minded camp. He advocated an attack on 'aesthetics from below' which concerns itself with simple stimuli like rectangles and polygons and simple responses such as liking and disliking. By concentrating on simple phenomena rather than complex works of art and aesthetic experience, Fechner assumed that the relationship between stimulus characteristics and associated response is more easily investigated. The use of molecular stimuli is one of the hall-marks of the tough-minded approach. In advocating 'aesthetics from below' Fechner also described three methods for the experimental study of aesthetics. His 'method of choice' is the forerunner of modern preference methods (ranking, rating, paired comparison etc); the 'method of application' foreshadowed modern content analysis; and the 'method of production', required the subject to manipulate a variable stimulus according to a set of instructions. Only the first method has been widely used in experimental aesthetics (see chapter seven) while the other methods have not been much used despite their enormous potential

¹For details of Fechner's opinion poll see Boring (1950)

(see chapter 4).

Fechner's third major contribution consisted in his fifteen psychological principles of aesthetics. The principles are speculative and were not even stated in a formal way. They represent the various aesthetic hypotheses which seemed relevant to Fechner and were formulated from suitable sentences in the text of 'Vorschule der Ästhetik' (1876) by Lillian Martin (1906). She reformulated each hypothesis, one by one, and subjected it to some kind of empirical test. Her methods would not now be acceptable by modern standards, but the approach is exemplary. It represents an attempt to empirically test ideas coming from a fertile but non-empirical source.

This epistemological aspect of Fechner's work would also place him in the tender-minded camp though this aspect of his work is not generally well known. There can however be no doubt about the work of the Harvard mathematician, Birkhoff (1931, 1933). He attempted to reduce aesthetic experience to a mathematical formula. He argued that there were three elements of aesthetic experience viz. the perceptual effort which increases with the complexity (C) of the object; the feeling of value or aesthetic appreciation (M), and finally the awareness of harmony, symmetry or order (O) in the object. Birkhoff's aim was clearly stated; 'Within each class of aesthetic objects to define the order (O) and the complexity (C) so that their ratio $M = O/C$ yields the aesthetic measure of any object in the class'. The relationship of M to O and C was intuitively established. Birkhoff devoted much effort to the operational specification of features of objects that contribute to their O and C components respectively in order to compute their aesthetic value which he claimed predicted preference judgements. For one reason or another¹

¹See chapter four, page 119.

the formula did not work, but it remains as an important attempt to quantify aesthetic stimuli and measure aesthetic value. The exclusive emphasis on quantification and aesthetic value meant that individual differences, the effects of culture, learning and past experience were all considered irrelevant extraneous variables which conceal the essential mathematical relationship between stimulus characteristics and response. This is a feature of the tough-minded school who try to concentrate on what they consider the essentials of aesthetic experience and disregard what they regard as contaminating factors. This is most clearly seen in the work of Eysenck.

Eysenck has been working in the field of experimental aesthetics off and on for the past thirty-five years (see Eysenck 1939). He has vigorously defended the molecular approach as the first stage in the natural progression of science from the simple to the complex (Eysenck 1957). In this article he attempts to forestall the obvious criticism that experimental findings with the simplest possible stimuli viz. simple colours and colour combinations, simple proportions of lines (cf. Eysenck 1941b, 1941c) are not applicable to more complex situations. He does this not by reference to natural aesthetic reactions to real works of art but by showing how preferences for combinations of colours can be predicted from a knowledge of preferences for single colours and their respective positions on the colour circle. This may be a step forward from the simple to the complex but it is a negligible gain. It is quite meaningless to say that this justifies the molecular approach.

Another feature of the tough-minded approach is the pre-occupation with objectivity. Eysenck tries to argue that beauty as a characteristic of a stimulus is no more subjective than the colour green because both these characteristics can be specified

by agreement between observers. A little later in the discussion Eysenck in a single sentence turns this into an objective criterion of the aesthetic: 'If in accordance with our definition of the term 'objective' we call this average order of preferences the 'objective' or 'true' order, then we can perhaps call those who agree with it most the 'best' judges and those who disagree with it most the poorest judges'. We are, of course, as Eysenck admits free to reject this definition as it has no logical necessity. However the mere statement of the assumption is sufficient for his purposes. It represents an example of the conceptual naïveté that can be concealed beneath the technical sophistication of the experimental techniques used by the tough-minded school. Much of Eysenck's recent work has been based on preferences for the polygons which Birkhoff (1933) used as aesthetic stimuli. His only measure of aesthetic reaction is rating scales or ranking for liking. The quest for objectivity in this manner may make the experiments internally valid, but externally invalid as it is impossible to generalise the results to natural aesthetic experience in response to great works of art that have appealed to men for centuries, or even more humble works of art.

Finally we come to the most prominent contemporary experimental aesthetician. Berlyne's work has all the features of the tough-minded approach viz. molecular stimuli, vigorous experimental techniques, elaborate quantification, and a positivist attitude to aesthetic experience. His main emphasis has been on the exploration of why people look at some patterns in preference to others, as well as why people choose to look at them at all. From his experimental work he has developed an elaborate theory of aesthetic motivation which will be discussed below. In this section only Berlyne's methodology will be discussed.

He is unashamedly behaviourist for in the introductory chapter of *Aesthetics and Psychobiology* (1971) he declares that,

'Nowadays it is widely acknowledged that psychologists must study human and animal behaviour. What goes on in the mind can be subjected to scientific inquiry only insofar as it is reflected in observable behaviour'. He also believes that behaviour is not fully explained until it is put in a biological perspective, which is a view he shares with Eysenck.

In justifying his own approach Berlyne has been at pains to explain why the tender-minded aestheticians have failed. He feels (a) they have been cowed by the cultural mystification of art and artists; (b) they have failed to separate normative and factual questions; (c) they have treated art as a unique phenomenon and have therefore studied in isolation from other activities; (d) they have been over impressed by individual differences; and finally (e) they have relied too heavily on verbal measures. Berlyne's alternative is clear to him. If diagrammatic stimuli can be substituted for works of art, questions of value and meaning ignored, individual differences neglected, aesthetic experience replaced by behavioural and physiological measures, then given all this, experimental aesthetics can be regarded as scientific. Berlyne is clearly distorting (and possibly destroying) his subject-matter in order to make it fit into his chosen methodology.

Berlyne (1972a) stresses that the 'new experimental aesthetics', as exemplified in his own work, contrasts with the old style in three principle ways, viz. the use of collative stimuli, the employment of a variety of verbal and non-verbal behavioural measures, and a general link-up with the main body of psychology. Apart from the use of collative stimuli (see separate discussion below) it must be admitted that the remaining two, at least as ideals, are major steps forward which should do much to improve the general status of experimental aesthetics. It is paradoxical that these trends should arise in that brand of experimental aesthetics which in the long run has least to offer.

II Tender-minded experimental aesthetics

The tender-minded approach to experimental aesthetics has fewer adherents than the tough-minded approach. By far the larger amount of research in experimental aesthetics falls into the latter category. The major contemporary exponent of the tender approach is I. L. Child. We have already seen that he has argued for a rejection of the deterministic model of man and the type of experimentation which assumes that all the determinants of experience can be found in the physical environment. Child does not conduct experimental studies in which he manipulates stimuli and observes reactions. Rather he follows in the tradition of Burt (1933) and Bulley (1933) by exploring the correlates of good aesthetic judgement which he, and they, defined as agreement with expert opinion. Child has taken great trouble over the design and preparation of his test of aesthetic judgement, and has tested the relationship between aesthetic sensitivity and an enormous number of aesthetic and cognitive variables. He is thus able to produce a picture of the characteristics of people most likely to be sensitive to art. When most workers in the field concentrate on stimulus determination Child investigates organismic variables, and individual differences generally.

A major problem with the tender-minded approach is that it is easy to reject it on the grounds of poor experimental design particularly when the wrong criteria are applied. Hogg (1969a) has argued that most experimental work prior to 1960 is methodologically weak. This might give the impression that the exceptions to this are those studies that belong to the tough-minded camp. This is not true as Berlyne's criticisms of early work indicate. Berlyne would almost certainly reject Child's careful methodology as unscientific. There is a danger then that the methodological intolerance of the tough-minded experimentalist would lead to the

rejection of valuable work such as Child's, because it does not meet their unrealistic standards of what constitutes scientific method.

Closely linked with the tender-minded experimental approach is the acceptability of theoretical discussion and analysis. Notable for this kind of writing is Mace (1962, 1972) who has discussed the notion of art as a form of play activity, the aesthetic attitude, and works of art as innate releasing mechanisms. In a similar fashion, Foss (1962) has expanded the notion of innately determined responses, and IRM's in his speculative article on the biological basis of art. It is interesting to note that Foss's reference to pleasure-centres which are directly stimulated by the configurations of art anticipates in some respects Berlyne's explanation of the hedonic value of art (Berlyne 1967, 1971). The notion of art as metaphor, viz. the fusing of two realms of experience has been elaborated by Bruner (1962) and also by Koestler (1964). Finally the diverse ways in which aesthetic pleasure can be derived from perception are discussed and analysed by Chandler (1934) and Adcock (1962). These articles follow in the tradition of earlier introspectionist discussions (e.g. Hevner 1937; Mauron 1935), and contribute valuable ideas for empirical testing.

It is instructive to compare the extremely rare theoretical writings that arise from the tough-minded approach. Generally speaking theorisation or speculation is discouraged and so the rich source of inspiration and ideas for testing which can be derived from the papers quoted above is lost to the tough-minded approach. This is most clearly brought out in a paper by Lundin (1956) who rejects the notion that aesthetic experience is an internal state, an inner psychic state or even a conscious feeling. He prefers to use the concept of the 'aesthetic behavioural event', and to describe behavioural measures of the three components of aesthetic appreciation, viz. the attentional, perceptual and the affective. He argues that

psychology should not go beyond observable behaviour. A similar argument was put forward by Feibleman (1963) who attempted to analyse aesthetic experience in terms of need reduction, appetitive behaviour and the preparatory behaviour that leads to the consummatory response. In conclusion, the tender-minded approach has associated with it a body of creative, imaginative writing of a speculative nature that provides a fertile source of ideas for testing and elaboration which is absent from the tougher approach. The milder scientific techniques of the former permit the empirical examination of notions, and ideas that would not be considered by the tough experimentalists. The tender approach has a humanistic model of man, and its tolerance of alternative methods of approaching the psychology of art render it open and amenable to the examination of ideas from other non-experimental disciplines, such as psychoanalysis, the history of art and so on.

III Berlyne's Theory of Aesthetics

The theory has evolved over many years (Berlyne 1960, 1965, 1967) and has received its most detailed and comprehensive statement in *Aesthetics and Psychobiology* (1971). Although it rests on an extensive and systematic programme of experimental research it is not a complete theory for despite its foundation in rigorous experimental work it is largely speculative. Berlyne's work continues to develop (Berlyne 1972b, 1972c) so it might be more appropriate to regard it as a proto-theory.

Berlyne's uses the term 'psycho-biology' because he feels the term psychology is too ambiguous. He uses the term to refer to a highly scientific experimental approach which has close links with biology, evolutionary theory, genetics, embryology and physiology. He claims, as we have seen, that behaviour is not fully explained until it has been placed within a biological

perspective. In addition, Berlyne has set his theory tightly within the frame-work of stimulus-response learning theory and information theory. Consequently Berlyne's aim is to seek the biological origins of art or in other words, to explain why we derive pleasure from art.

The essential feature of the theory is the relation between physiological arousal and the experience of pleasure or displeasure. The argument is complex but clear. Different stimulus situations differ in their arousal potential, i.e. they vary in their capacity to cause increases or decreases in arousal in the perceiver. As a result of changes in arousal brought about by the stimuli, the perceiver experiences pleasure or displeasure which he attributes directly to the stimuli. Positive hedonic value is a property of the stimulus and is equated with its pleasure or intrinsic reward value, and negative hedonic value is equated with unpleasantness or punishment. In his detailed review of neurophysiological studies of pain and pleasure centres in the brain Berlyne (1967) reveals that pleasure (or reward) can occur in either of two ways, viz. a decrease in arousal from a higher level or an increase in arousal from a relatively low level. Neurophysiological work on the brain has revealed three separate pleasure centres in the brain. Berlyne refers to these as (a) a primary reward centre, direct stimulation of which produces pleasure; (b) an aversion centre stimulation of which inhibits the action of the primary reward centre; and (c) a secondary reward centre which inhibits the inhibiting action of the aversion centre on the primary reward centre. With these mechanisms Berlyne attempts to explain how variations in arousal (as indicated by physiological and behavioural measures) can produce the experience of pleasure and displeasure.

Berlyne begins with two basic assumptions which are necessary to his explanation. First, he assumes that there is a normal curve of thresholds operating in both systems, and secondly that the

average threshold for neurones in the aversion system is higher than in the reward system. The argument is most clearly illustrated with the aid of Berlyne's diagram (see Fig. 3-4)

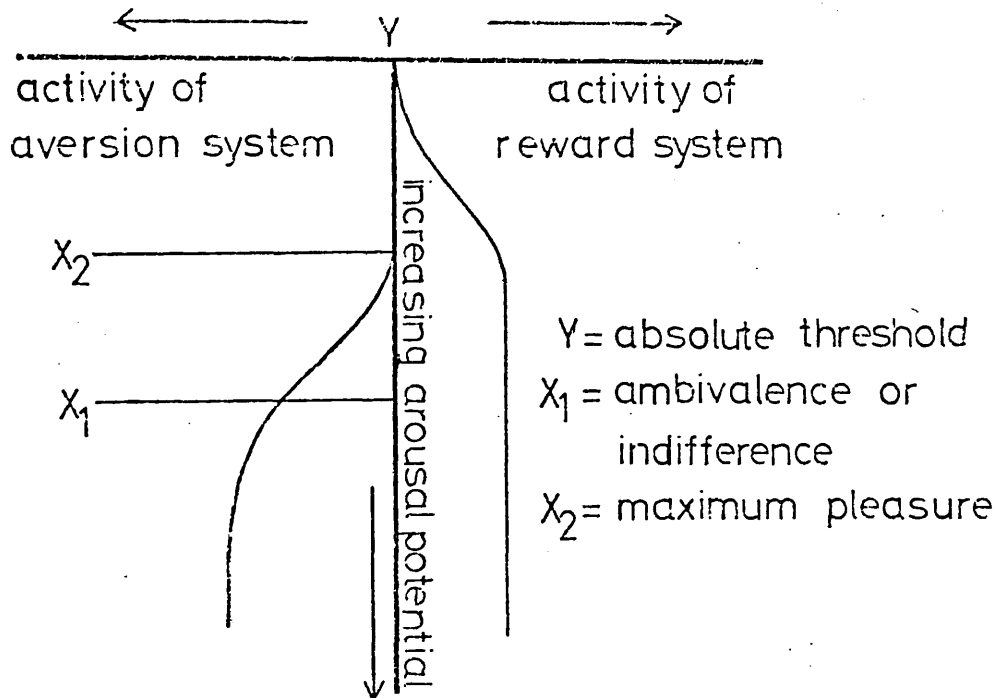


Fig. 3-4 Berlyne's model of arousal (from Berlyne 1971)

By this model the net effect of a given amount of arousal potential is equal to the algebraic sum of the two curves. Thus at low levels of increasing arousal only the primary reward system is activated, at a critical point along this continuum pleasure is at a maximum (X_2 in diagram). Any further increase in arousal potential brings the aversion system into operation thus reducing the amount of experienced pleasure. At a higher level of arousal the effects of the pleasure centres and the aversion centre balance each other (at X_1). This results in a state of ambivalence or indifference to the stimuli causing this level of arousal. With any further increase in arousal the activity of the aversion

system will exceed that of the primary reward centre, and displeasure or negative hedonic value results. The combined effects of the two systems reacting to different levels of arousal potential can also be clearly seen in the celebrated Wundt curve (see Fig. 3-5) which Berlyne appears to regard as confirming the correctness of his interpretation.

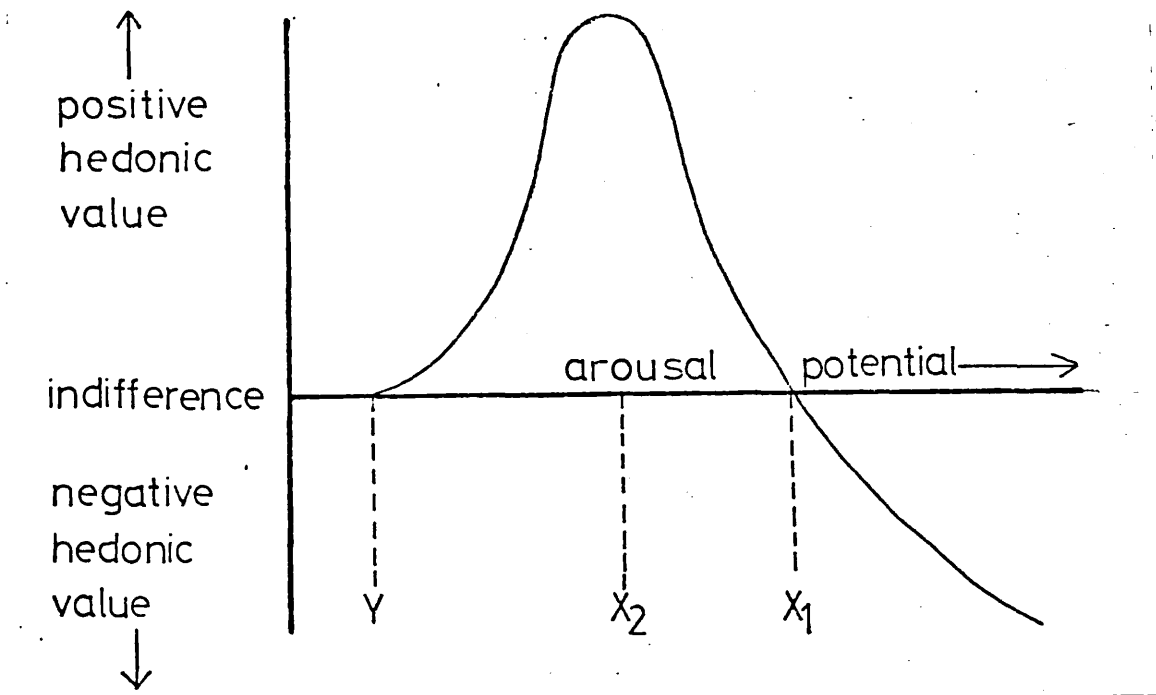


Fig.3-5 The relationship between hedonic value and arousal (from Berlyne 1971)

By this scheme any increase in arousal in A is pleasurable, but unpleasant in B or C. Any decrease in arousal is pleasurable in C and B but unpleasant in A. Berlyne sees this as the underlying mechanism of aesthetic reactions, which he has operationally defined as rated pleasingness on a seven-point scale.

This reductionist explanation fits the established facts well, but is nevertheless highly speculative, as Berlyne is ready to admit. For instance there is no reason why the activity of the

reward centre should form an asymptote. It is possible that the aversion centre could operate by reducing the activity of the point where it ceases to function, instead of remaining constant as arousal continues to increase.

However this piece of physiological speculation is not necessary to Berlyne's main contention that it is the function of art to create in the perceiver levels and changes of arousal that are pleasurable to the observer. Berlyne devoted much of his book to the description of arousal increasing devices, and arousal-moderating devices. Of the former the collative variables are most important. They are called collative because their ~~insignificance~~ rests in the contrast that exists between two or more stimuli, or in the information derived from other stimuli. The most important collative variable is complexity, though novelty, surprise, incongruity, conflict, ambiguity, multiple meaning, and instability are all important arousal increasing devices. By contrast the arousal-moderating devices are more familiar as psychological variables though Berlyne has not specifically investigated them. He discusses predictability, association of content, Freudian displacement, stimulus generalisation, familiarity, exemption from inhibition and exertion¹, and the grouping and patterning of stimuli. Berlyne also reviews theories of aesthetics and philosophies of beauty and concludes that the most common feature of all the attempts to define beauty as the notion of 'order in multiplicity' or 'unity in variety'. He speculates that multiplicity in art has an arousal-increasing function, whereas order has an arousal-moderating function.

¹This refers to Freud's theory of jokes (Freud 1905) in which the structure of the joke enables the id to by-pass the defence mechanisms of the ego, and discharge libidinal energy without threat to the ego.

According to Berlyne there are three ways in which pleasure can be derived from a change in arousal. The 'arousal jag' refers to the situation in which the 'organism'¹ seeks a temporary rise in arousal for the sake of the pleasurable relief that comes when the rise is reversed. Secondly the 'arousal boost' refers to the situation in which a moderate increase in arousal is sought because it is satisfying in itself (i.e. in section A on the arousal continuum, Fig. 3-5). Thirdly, there is the situation in which arousal moderating and raising are present simultaneously (arousal boost-jag) instead of sequentially (arousal jag).

The experimental evidence for these speculations comes from Berlyne's extensive and systematic investigation of the relation between collative variables, arousal and hedonic value. Most work seems to have concentrated on complexity based on his set of collative stimuli (Fig. 3-6) and to a lesser extent on novelty. This arises directly out of Berlyne's earlier work on exploratory behaviour. He concludes from his review of his own work and that of others that there is an inverted U relationship between pleasingness and complexity. Maximum pleasingness coincides with intermediate levels of complexity, which is consistent with Berlyne's interpretation in terms of the Wundt curve (Fig. 3-5). A fundamental assumption underlying this formulation is that arousal increases linearly with complexity. Berlyne has not demonstrated this directly with physiological measurement and his collative stimuli, though he did reveal a linear relationship between complexity and judged interestingness of the stimuli (Berlyne 1965). Berlyne attributes this to the interaction of arousal reduction and increase mechanisms operating at different levels, but stresses that it is difficult to generalise from his data where individual differences exist to some extent, to works of art where individual differences

¹This is Berlyne's preferred term.

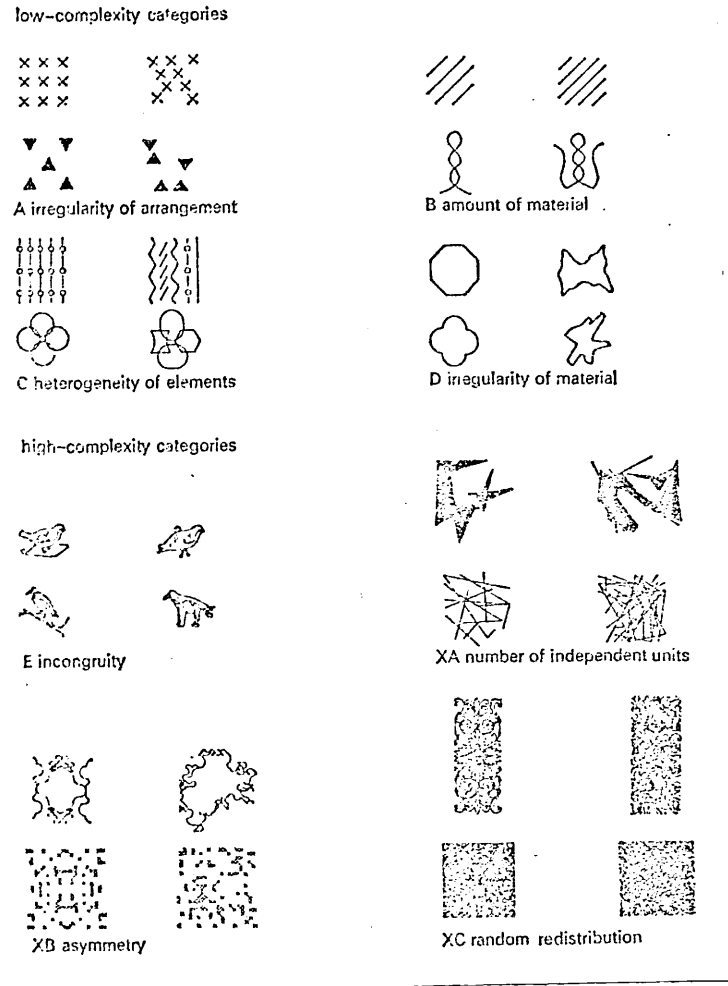


Fig. 3-6. Berlyne's collative stimuli. (From Berlyne 1963)

would be much greater, especially as ecological and semantic factors would also be very important. Despite this Berlyne attempts to interpret problems of proportion, balance, and rhythm, as well as artistic styles in terms of arousal increases and moderation. Despite the limitations of the experimental data he appears to have no qualms in concluding that the primary function of art lies in its intrinsically rewarding effects on the central nervous system.

In evaluating Berlyne's contribution to the psychology of art it is impossible to separate his findings from his methodology, as they are inextricably linked. Berlyne stays well within the limits of general psychology by confining his research to general features of perception rather than concentrating specifically on aesthetics, or including consideration of what may be distinctive to the arts. His collative properties are features of objects in general, and his 'hedonic value' is equivalent to pleasure in general. There is no systematic attempt to relate these to aesthetic experience. Berlyne relies entirely on experimental studies investigating reactions to molecular stimuli (collative stimuli etc.) which are supposed to function as analogues for works of art but cannot be equated with them. Consequently his findings have doubtful relevance to the perception of works of art. Berlyne certainly does not show how his findings can be tested in relation to works of art.

Serious doubt has been cast on Berlyne's inverted-U model of the relationship between pleasingness and complexity in a detailed study by Smets (1973). Using direct measures of physiological arousal she demonstrated that Berlyne's assumption of a linear relation between complexity and arousal only held for a restricted range of complexity where extremely simple and extremely complex stimuli were excluded. Berlyne can be criticised for not systematically varying his independent variable. As a result the inverted-U model

is valid only for an intermediate range of complexity. When a very large range of complexity is used then a different curve emerges. Berlyne's inverted-U relation is confirmed but only for a specified range of complexity.¹

Despite his stated concern to avoid 'pre-operationist and pre-behavioural assumptions' (Berlyne 1965) he falls into the trap of equating collative properties 'with some of the factors that underly 'form', 'structure' or 'composition' in works of art (cf Fig.3-6). This is weakly consistent with formalist theories of art (see Charlton 1970 ch.2) and does not take count of other theories viz. that art is expression, or the representation of the appearance of things. By concentrating on formal characteristics only, Berlyne's findings have no application to meaning in art whether this is in terms of its symbolic content, or the expressive quality of the structural organisation, or its semantic significance. The expressive power of African art, or Eskimo carvings, or even the juxtaposition of saddle and handle-bars that magically makes a bull's head for Picasso,² all lie outside the formalist position that is inherent in Berlyne's choice of experimental stimuli.

It is because Berlyne's rigorous experimental work was carried out with formalistic analogues that he finds difficulty in applying his findings to works of art. As an example of the crudeness of his method in relation to works of art we can take an isolated experiment by Berlyne (1970) in which he as experimenter classified paintings as more complex (filled with people) or less complex (portraits of single people) and used this distinction in a bivalent study of the effects of complexity on rated pleasingness. This use

¹The experiments by Smets (1973) on the relationship between arousal and aesthetic judgements are discussed in chapter seven in the section on complexity.

²For an illustration, see Penrose in Gregory and Gombrich (1973) p.244.

of real works of art represents an almost unique exception to his use of molecular stimuli. The application of his findings to the interpretation of style is particularly weak in view of his pretensions to the rigorous methods of operationalism. For example Berlyne explains variations in artistic style as the product of changing preferences for certain ways of intensifying arousal (e.g. Baroque art) or tempering it (e.g. Renaissance art). He argues that the function of artistic style is to distort the pictorial presentation of objects in ways that are neurologically acceptable. That notion of higher human meaning, on which Gombrich has put so much stress, has no place in Berlyne's behavioural scheme of things. Similarly the notion of unity-in-variety is reduced to the 'arousal jag-boost'.

In a more recent paper Berlyne (1972c) has defended his attempts to quantify aesthetic values. He argues that, since aesthetic value often hinges on where exactly a pattern is located along what he calls the goodness dimension, precise measures are necessary. This view stems directly from his equation between collative properties and art as form. As he cannot quantify aesthetic meaning or the semantic content, or the influence of cultural factors, etc. these are left out of count. As a behaviourist Berlyne is not entitled to see art as form only. It is only because this aspect is amenable to quantitative experimental study that Berlyne has concentrated on it. In his quest for high internal validity Berlyne sacrifices, almost totally, any notion of external validity. The psychobiology of aesthetics seeks to relate characteristics of aesthetic reactions to characteristics of aesthetic patterns. In looking for general psychological laws Berlyne gives scant attention to individual, social and cultural factors influencing aesthetic experience. There is no justification for assuming that these factors are logically independent of the characteristics of the stimulus in terms of its impact on the perceiver. Berlyne's findings may only relate to the collative

stimuli treated in isolation.

Perhaps the real issue is whether or not Berlyne's findings are relevant to the psychology of art, even if it were possible to disregard the methodological limitations of his approach. The answer depends on whether it is possible to equate Berlyne's notion of hedonic value with aesthetic value in general. Koestler (1964) has made the telling point that there is a world of difference between 'that unity in diversity that can be debased into a formula for the execution of paintings', and that which can be grasped intuitively 'as a peephole into eternity'. Read (1943) has also tried to separate the aesthetic from the hedonistic, by stressing that many things are agreeable which are not beautiful or artistic.

Finally, Arnheim (1971), though not specifically discussing Berlyne's work, has presented what might be taken as the ultimate objection to his findings, when he says 'We cannot content ourselves with the demand that the performance of the artist be sufficiently rich to fit the level of complexity at which our brains function. What is required is that the structural order reflects a genuine true profound view of life'. Berlyne would argue that this is outside the realm of scientific psychology. Rather it is the other way round. It is unscientific of Berlyne to ignore the essential character of art.

The achievements of the experimental approach to aesthetics has been summarised neatly by Munro (1963). 'What the laboratory psychologists have been able to achieve by exact methods, from Fechner to the present day, adds up to comparatively little from the standpoint of those who deal directly with the arts. As summarised in general surveys, it deals with the more marginal superficial aspects of art and aesthetic experience, with statistics on preference, optical illusions, verbal associations

and the like, and the more obvious aspects of form and technique in the arts. It never reaches those levels which artists and scholars in the arts regard as most central and important to the phenomena concerned'. This statement in the light of the detailed discussion of Berlyne's work above reveals the necessity for a broader more diversified approach in the context of an enlightened empiricism.

CHAPTER FOURProblems of Aesthetic Measurement

Psychology as a science must involve some form of measurement. In its turn the psychology of art must also utilise measures of aesthetic experience and behaviour. In the last two chapters it was argued that too rigid a conception of quantification and measurement can lead to the concentration of research effort on non-aesthetic qualities, or trivial aspects of form which have little to do with art and aesthetic experience. It will be the purpose of this chapter to explore the problem of measurement in the psychology of art, and to establish a conceptual basis for measurement which is both true to its subject-matter and at the same time useful to the psychologist. Unfortunately these two conditions rarely exist in the same technique or measurement device. It is perhaps this conflict between truth to aesthetic experience and psychological usefulness which has resulted in the number and diversity of different measures. It will be argued below that most of these techniques are widely used because of their practical usefulness and ease of operation, whilst their validity or meaningfulness is ignored or uncritically accepted. Thorough conceptual analysis of the assumptions underlying aesthetic measurement is needed if the fragmented, disjointed and often irrelevant character of much of the work done by experimental aestheticians is to be avoided in the future. Only after such an analysis can the next stage of empirical validation of specific measures be attempted.

I Assumptions about measurement in psychology

Measurement is here used in its widest sense, and can therefore range from head counts at the nominal level, through ordinal and interval measurement to the finest callibrations on a ratio scale

(cf. Stevens 1951). Measurement is accomplished whenever number meanings are assigned to characteristics of an object or event. The advantages of measurement are well known. Increased precision, avoidance of ambiguity, and universal meanings in description and explanation, all make for that objectivity of method which is held to be the hall-mark of scientific psychology and most clearly separates it from philosophy (Piaget 1973). The disadvantages of measurement in psychology are equally real, but they are too often ignored or forgotten. It is an easy matter to assign numbers to aspects of observed behaviour or experience but it is much more difficult to determine whether the numbers represent an adequate description of the behaviour or experience in question. In particular it is necessary to know whether the system of measurement used, and the subsequent mathematical manipulations of the numbers are actually isomorphic with the phenomena which are measured. To some extent this is a problem which is most serious when higher forms of measurement (interval and ratio) are used. It might well be taken as an argument in favour of confining aesthetic measurement to ordinal and nominal levels because the mathematical operations available are more limited and are in a sense 'closer' to the original phenomena measured, (cf. Hudson 1970, 1972). This point requires further elaboration.

Once numbers have been assigned to behaviour or experience they can then be analysed as pure number relations, i.e. as numerical abstractions which have been detached from the phenomena they describe. Torgerson (1958) has argued that in the social sciences there is a tendency for concepts to have either 'systematic' or 'operational' impact, but not both. A quantified and elaborately numerical construct e.g. 'intelligence' or Osgood's three-dimensional 'semantic space' (Osgood, Suci and Tannenbaum 1957), are almost impossible to locate in the real world. They are systematic constructs and only have meaning with reference to the particular system that gave rise to them. By comparison a construct with

high operational impact (e.g. aesthetic experience) is numerically unsophisticated, with the result that it is defined in many different ways, and usually in terms of the measure employed.

Brown and Ghiselli (1964) have highlighted three ways of interpreting the required correspondence between the meanings of number systems and the meaning of the observed psychological variables. They are particularly important in evaluating aesthetic measures. The first occurs when the experimenter ignores the meaning of the psychological variable and relies on mathematical operations instead, e.g. factor analysis of aesthetic preferences. Secondly, the experimenter may look only for meanings that are mathematically meaningful and manipulable. This may account for the tendency to lay stress on nomothetic or group characteristics, and to avoid introspective and other idiographic measures. Finally, the experimenter may generate hypotheses for testing which are mathematically defined and tested. The information analytic approaches to the study of aesthetic experience fall into this category. In each case the mathematical analysis has either meant a departure from the psychological facts or has imposed restrictions on them that are invalid. In general by confining measurement to the ordinal and nominal levels there is less danger that aesthetic experience is lost beneath the complexity of a numerical system that bears little relation to the phenomena being investigated. By striving for lower levels of measurement and simpler forms of analysis it becomes easier to detect false assumptions, and any lack of isomorphism between psychological phenomena and the number systems used to describe them.

II Assumptions about aesthetic measurement

Before describing the ideal characteristics of aesthetic measures it is necessary to determine whether they should have special qualities in view of the fact that they are supposed to

record behaviour and experience in relation to works of art.

(a) Perhaps a major problem of aesthetic measurement is that the psychologist is working in an area where he is not himself an expert. One of the chief features of works of art is that they are valued objects, i.e. they vary on a continuum of the aesthetically good to the aesthetically bad, or alternatively from masterpiece to trash. Questions of value traditionally lie outside the realm of psychology, but it is difficult to separate aesthetic experience from the fact that it is in response to a valued object. The real problem for the psychologist is that there is disagreement in the world of art concerning what is or is not a work of art, and also the aesthetic qualities and value of specific works. Hogg (1969a) has correctly argued that it is not necessary for the psychologist to make assumptions about the ultimate nature and function of art. On the other hand this must not lead him to ignore this aspect of aesthetics lest he studies aesthetic perception as a class of perception in general, and fails to study what is unique to art (cf. Zusne 1970).

(b) The fact that works of art are valued increases the difficulty of the psychologist's task. It is essential for him to distinguish facts from values. Facts can be tested for statements about facts either are, or are not, the case. Values cannot be tested; they can only be accepted or rejected according to one's own value system. Aesthetic measurement must accommodate for differences in individual's value systems, and must not assume that paintings are perceived in much the same way as everyday objects. It is because there are no strictly right or wrong responses, as there are in say intelligence tests, that the psychology of art has difficulty evaluating aesthetic reactions. Aesthetic measures, ideally should reflect and elicit the values adopted by individuals, rather than ignore them as irrelevant or inconvenient. Westland (1967) has argued that facts concerning

individual preferences between art objects can be collected independently of the values ascribed to those works of art. This is an unsatisfactory attempt to maintain objectivity in aesthetic measurement, because it ignores an intrinsic feature of aesthetic experience, viz. that a painting is responded to in a particular way partly because it is valued in a particular way.

(c) Another requirement of particular importance to aesthetic measurement is naturalism. When works of art are isolated from their actual or usual content, or the person is asked to record his reactions on the psychologist's measuring device, there is a danger that the persons responses and behaviour will be altered or distorted. The intrusion of measurement between an individual's response and the work responded to is a highly artificial situation. Campbell (1957) has highlighted the effects that testing can have on the testee's otherwise typical performance and reactions, and Harré and Secord (1972) have argued that traditional experimental designs distort the phenomena being studied by blocking out considerations that play a vital role in a naturalistic setting. This is particularly important in aesthetics. For instance Souriau (1955) has drawn attention to the fact that it is not sufficient that a work of art is presented to a person to call his response aesthetic. This is even more true when a laboratory analogue or geometric figure is presented as a substitute for a work of art. Equally it cannot be argued from non-reaction or failure to respond aesthetically in an experiment that the person is incapable of aesthetic appreciation. In the light of this, it is essential for the experimenter to establish the kind and range of stimuli in the presence of which the person comes up with distinctively aesthetic reactions. In addition the experimenter must determine to what degree stimuli presented to an individual in an experiment arouse in that individual phenomena analogous to those that would occur in

spontaneous aesthetic appreciation.

(d) All psychological measures must be both valid and reliable. There are many ways in which validity can be established. However, in order to be valid an aesthetic measure must take count of the points raised above. In addition there are many other specific points which will be raised in the discussions that follow. Reliability on the other hand raises a slightly different problem. Kelly (1955) has joked that reliability is a measure of what makes a test insensitive to change. This is in the context of his notion of personality which is 'ever in flux' so the notion of test-retest reliability has little meaning. It is difficult to determine whether measures of aesthetic reactions should be required to be stable in this sense or whether reliability is an irrelevant conception. The answer to this question depends upon the exact function of specific measures. It is at least a question that should be answered in relation to each of the many different forms of aesthetic measurement. As a general rule, in the absence of empirical evidence, it is unreasonable to assume that measured reactions should be stable and characteristic of a person. Experience of art is something that is constantly evolving and changing. On the other hand reactions to very simple stimuli in experiments (plain colours and simple geometric shapes) are likely to be stable and may well account for their all too common use as stimulus material in experimental studies.

III Characteristics of aesthetic measurement may be broken down as follows:

- A. Characteristics of the stimulus
 - 1. Molar or molecular
 - 2. Representative or specially grouped:
 - a) ad hoc tests
 - b) psychometric tests

3. Natural or modified stimuli
4. Originals or reproductions
5. Objectively or phenomenally defined

B. Characteristics of the task

1. S reacts normally
2. S is asked to react by:
 - a) giving free verbal responses
 - b) arranging stimuli in order (ranking)
 - c) assigning numbers to the stimuli (rating)
 - d) using other scaling techniques (ratio estimation)
 - e) grouping the stimuli (sorting)
 - f) miscellaneous techniques
3. S is asked to make a choice:
 - a) between pairs of stimuli
 - b) from a group of stimuli
4. S is asked to modify the stimulus

C. Characteristics of the analysis

1. The results may be studied at face value
2. They may be compared to a criterion
3. They may be correlated with other variables
4. They may be structured in some way

This classification is somewhat artificial, as the separate divisions are not mutually exclusive. They are presented in this form in order to assess the assumptions underlying each technique. Often these are glossed over in general discussions of the approaches of specific experimenters. There have only been two serious reviews of aesthetic measurement. Child (1964) concentrated on the problem of criterion, and McWhinnie (1968) discussed several approaches to aesthetic measurement but did not discuss the significance of the individual techniques comprising a particular approach, and the underlying assumptions.

IV Some definitions:

a) Aesthetic judgement refers to the attribution of aesthetic value to a work of art. Theoretically an individual should be able to grade a work of art as good or bad, independently of whether or not he likes it.

b) Aesthetic preference refers to an individual's liking or disliking a work of art.

c) Aesthetic sensitivity is the degree to which an individual's preferences and judgements correspond to some external standard.

These definitions correspond closely to those given by Child (1964) and as definitions accord well with common-sense. The interrelatedness of these concepts can be seen in Child's technique of evaluating preferences against a criterion (viz. expert opinion) so that simple preferences become a measure of artistic sensitivity. In other words Child is using an individual's likes and dislikes as a measure of his degree of agreement with the judgements of experts. In this case the judgement is implied by the preference. I shall use the term judgement to refer only to the direct attribution of value implied by the use of terms like beautiful, great, sublime, good, etc. In addition to the above it is necessary to distinguish between:

d) aesthetic reaction which refers to the totality of behavioural and experiential responses coordinated into a meaningful whole, and

e) aesthetic response which refers to the isolated response to a specific component of aesthetic measures.

Aesthetic reaction embraces the non-evaluative description of the way an individual sees or interprets or experiences a

a painting, and is in part composed of the measurable aesthetic responses, as well as all the thought and feelings which determine an individual's overall reaction to a work of art.

A. Characteristics of the Stimulus.

1. The choice between molar and molecular stimuli

This is perhaps the biggest choice facing the psychologist entering the field of experimental aesthetics for the first time. The choice is between using whole integral molar paintings as stimuli, or using laboratory analogues in the form of simple geometric (molecular) stimuli. It has already been noted that experimental aesthetics began at the molecular level with Fechner's (1876) study of preferences for rectangles. Since that date the molecular and molar approaches have existed side by side fluctuating in popularity (Valentine 1962). Today the use of molecular stimuli is most common, and is generally associated with the tough-minded approach to aesthetics.

By confining itself largely to objectively quantified parameters of colour and form, the molecular approach assumes that more rigorous control over the stimulus is achieved. In his rejection of molar stimuli Berlyne (1971) has put this point very strongly: 'It is impossible to say which, or which combination, of the many variables distinguishing two works of art may be responsible for any difference that may be discovered between reactions to them'. It could be due to anything from semantic content to social custom. Similar arguments have been put forward by Eysenck (1957) and Valentine (1962). Thus the use of molecular stimuli helps to eliminate these irrelevant factors. The experimenter is then free to systematically vary or manipulate the stimuli because they have been vigorously defined or quantified.¹

¹ Even the objective quantification of form in simple geometric stimuli is fraught with difficulties and disagreement. See the work of Hochberg and Brooks (1960), Stenson (1966, 1968); Brown and Andrews (1968); Brown and Owen (1967), Behrman and Brown (1968); Michels and Zusne (1965), discussed in chapter six.

In this way it becomes easier to measure the effects of the independent variable on dependent responses. Typically the variables manipulated have been simple lines and geometric shapes,¹ plane colours and colour combinations, complexity, and information levels, though Berlyne's collative stimuli have also added an elementary cognitive dimension in his use of variables like incongruity and novelty. For the most part it is argued that molar works of art are too complex to permit identification of the characteristics determining reactions to them.

The chief disadvantage of molecular stimuli is their low 'ecological validity' (Brunswik 1956; Gibson 1966). In other words the stimuli have not been drawn from, and are hence not representative of, the real situation to which generalisations must eventually be made. The molecular stimuli in order to have any degree of ecological validity must already possess the parameters that characterise the 'stimulus domain'.² As this has not been shown to be the case then the results of experiments with molecular stimuli may be spurious and irrelevant to the perception of art.

The Gestalt approach to perception has laid great emphasis on dependent-part qualities. In Köhler's (1959) words: 'Parts of molar perceptual units often have characteristics which they do not exhibit when separated from those units'. A related argument against the use of molecular analogues has been developed by Harré and Secord (1972). They reject the practice of treating the attributes of people as parameters which can be held constant or varied on the assumption that they are logically independent

¹The most commonly used shapes are the polygons which can be generated randomly according to Attneave and Arnoult's (1956) Method I. More recently it has become common to generate stimuli using computers (Noll 1972; Kawano 1972).

²In chapter three it was noted that Berlyne has assumed without empirical proof that his collative properties are the common features underlying all artistic form.

properties, which is a necessary assumption underlying the quest to relate independent variables to dependent ones. As Harré and Secord argue, the attributes of people are not logically independent but are interactive, and the most important ones of all may not exist in isolation. This argument could apply equally well to the use of molecular stimuli. Of necessity, most emphasis is on formal qualities, and there is no reference to meaning, content, feeling etc. which must interact with the way the form is perceived. Any of these variables when added to the molecular characteristics may nullify the effects observed in their interaction. On the whole there is a general reluctance to test hypotheses which have been formulated with molecular stimuli, on reactions to integral works of art.

It can also be argued that the control exercised over molecular stimuli is more apparent than real. Peters (1942) has pointed out the danger of committing what he calls the 'stimulus error'. This consists in the identification of stimulus variables independently of human reactions. Peters argues that qualities like complexity, unity, balance, and symmetry are not intrinsic characteristics of the stimulus themselves but are a function of the individual's reaction to them. The use of molecular stimuli does not entail that all the experimental subjects are responding to the same independent variable in the same way merely because the experimenter has embodied it in the stimuli.¹ This is a recurring problem in experimental aesthetics. Quantifiability is therefore not a specific advantage of using molecular stimuli, as it is much more realistic to specify aesthetic stimuli in phenomenal terms.

¹This is clearly revealed in a study by Barnhart (1940) who revealed that his subjects were less interested in the Order or Complexity of Birkhoff's polygons than in their intrinsic shape, their association value, and their potential for use in designs. Attneave (1959) and Zusne (1970) have also revealed the discrepancy between objective specification and phenomenal experience.

The molecular approach has led to an obsession with the response and the stimulus as separate categories. There is a tendency to ignore the true 'dynamical context' (Bloom 1961) in which the individual's past experiences, his anticipations and feelings all come to bear on his perception of a work of art. Consequently, the molecular approach suffers generally from a lack of naturalism. There is a real difference between affective responses, i.e. liking-disliking for simple shapes, and experience of that art which is 'expressive of the unfathomable mystery of pure being' (Huxley 1959). This point can also be made of experimental studies using molar stimuli, but at least it can be said that aesthetic reactions and experience are much more likely to occur in response to real paintings, than to Eysenck's polygons or Berlyne's collative stimuli.

In conclusion then, the disadvantages of the use of molecular stimuli seem to lie in the difficulties of generalisation to natural aesthetic experience in relation to real works of art. The neglect of meaning, even the 'set' that the stimuli are aesthetic stimuli, makes the interpretation of the results extremely hazardous. Experimental rigour is attained at the price of destroying or ignoring what is essential to the subject-matter. Even the degree of control over the stimulus is more apparent than real, as the applicability of phenomenal measures suggests.

This does not mean that the molecular approach should be abandoned altogether for there is a case for studying reactions to simple geometric stimuli and plain colours. Peters (1942) has noted, and recent studies (Vanderplas et al, 1965; Holt-Hansen 1971) have demonstrated, the great variability and complexity of reactions to simple stimuli. In addition Valentine (1962) and Osborne (1964) have argued that lines and colours have an appeal and beauty of their own which should be investigated. This is fair enough as an aim of the psychology of art, but it must be remembered that findings with such simple stimuli cannot be generalised to

the aesthetic experience of works of art without some form of test. Notable among the few ideas which have originated with molecular stimuli and have been successfully applied to real works of art are Bullough's perceptive 'types' (Bullough 1910) and the theory of empathy (Lipps 1903). Perhaps the opposite procedure would be more fruitful. Hypotheses derived from studies with molar stimuli could be rigorously tested with molecular stimuli, and finally be tested by transfer to new molar stimuli.¹

The argument against the exclusive emphasis on molecular stimuli is very strong. On the other hand the loss of experimental rigour in the use of molar stimuli also presents difficulties for the experimenter. In the course of the remaining part of this chapter attempts to maintain cogency will be discussed. Before doing so it is necessary to discuss briefly three approaches which have utilised molecular stimuli, and which represent the greater part of research effort of experimental aesthetics.

(a) Birkhoff's (1933) attempt to quantify the relationship between the order and complexity components of works of art to aesthetic value has already been discussed. Experimental evaluations of Birkhoff's formula have tended to provide partial confirmation, though the correlations between M (aesthetic value) and averaged rank orders for his polygons have tended to be well below Birkhoff's figures (Wilson 1939; Brighthouse 1939; Beebe-Center and Pratt 1932; Barnhart 1940) and one study found no relation at all (Davis 1936). Two investigators (Eysenck 1941c; Marsh, Beebe-Center and Beebe-Center 1939), recommended modifications to Birkhoff's formula which increased the size of the correlation between M and aesthetic ratings or rankings. Thereafter Birkhoff's method and polygons

¹In this context Hogarth's 'Line of Beauty', and the Golden Section are legitimate areas of investigation which can be tested with both molecular and molar stimuli.

seems to have lapsed into oblivion until it was raised again by Eysenck (1968). He factor analysed ratings of all Birkhoff's 90 polygons, and extracted thirteen interpretable factors, and a higher-order factor of order-complexity. In a later study he compared the ratings of the polygons by artists and non-artists, and established that non-artists tend to like more complex polygons than the artists though most of the polygons were equally liked, (Eysenck and Castle 1970b). Eysenck has argued that the order-complexity factor lies at the basis of preference judgements (Eysenck 1971a). Birkhoff's work has now been left far behind, though his set of 90 polygons survives as a measure of aesthetic preference widely used by Eysenck (1972b; 1972c; Eysenck and Saburo 1971; Eysenck and Iwawaki 1971) and others (Eisenman 1968a). There is no reason why this assortment of polygons should be taken as a standard set of aesthetic stimuli, and their exclusive use as aesthetic stimuli should be discouraged.

b) The work of Frank Barron holds a dual position in that the greater part of his work is concerned with molecular stimuli (Barron and Welsh 1952; Barron 1953) with an emphasis on preferences for complexity-asymmetry versus simplicity-symmetry as a personality variable. Barron is unusual in that he relates a dichotomy based on molecular stimuli to preferences for molar paintings (Barron 1952).¹ The widespread use of the Welsh Figure Preference Test (Welsh 1959) and Barron's book, *Creativity and Psychological Freedom* (1968) may have increased the acceptability of molecular stimuli in experimental aesthetics.

¹Two groups, defined by their preferences for complex or simple figures respectively showed consistently different preferences for paintings. The subjects preferring complex figures tended to like modern, experimental paintings as well as the primitive and the sensual whereas the subjects liking simple figures tended to like religious paintings, and pictures embodying authority, and aristocratic power

c) In visual aesthetics, at least, information-theoretic approaches tend to use molecular stimuli. This is because information levels have to be defined as objective parameters of the stimulus, e.g. number of corners (Munsinger and Kessen 1964), angle of rotation (Arnoult 1957), matrix grain (Dorfman and McKenna 1966), number of angles (Attneave 1957), number of elements (Rump 1968) and matrix grain (Kawano 1972). There has been no attempt to obtain technical measures of information from real works of art. Despite the apparent technical and numerical sophistication of the information measures, they are little more than metaphoric interpretations of the mathematical processes underlying the theory (cf. Shannon 1948; Miller 1956; Attneave 1959; Garner 1962). Emphasis is placed on quantifying the information contained in the stimulus. Unless he is asked there is no way of knowing whether for each individual the objective information corresponds to his phenomenal experience (Peters 1942). A recent study by Koll (1972) clarifies this. He generated computer patterns with different degrees of randomness. Although subjects tended not to distinguish between stimuli that were statistically equivalent, each individual had a preferred level of randomness. There was no evidence for a maximal level of information determining preferences of the group.

It is too dangerous and facile to identify some form of aesthetic information with information in the technical sense. Green and Courtis (1966) have argued that what should be measured is something in the process of perceiving itself and this necessarily embraces meaning. It is perhaps significant that the major book on information theory and aesthetics (Moles 1966) is concerned mainly with the studies of the information content of music, which by its sequential nature makes it more amenable to information measures. By contrast paintings present a vast and continuous range of possibilities which can be experienced in any order, unlike music. Recent work on eye-fixation studies in relation to pictorial perception (Yarbus 1967) has revealed two important

points of relevance. First the various parts of the picture are fixated in a virtually random sequence. Secondly, some parts of the picture never come into foveal vision, and at any one moment only a tiny part of the picture is clearly seen (= to 1.3° of visual angle). As Hochberg (1966) has argued the phenomenal picture is a construction in 'the mind's eye' and is only partly determined by its initial information content. Information theory is concerned with transition probabilities whereas perception is non-sequential. Information theory measures are appropriate to physical syntactic properties of the stimulus whereas perception embraces meaning (semantic) properties as well.

Broadbent has discussed the application of information theory to perception (Broadbent 1964) and concludes that the nature of the ensemble from which a particular stimulus is drawn has been proved beyond doubt to be an important variable.¹ On the other hand quantitative applications of information theory have proved less successful. Corcoran (1971) also rejects information theory as an artefact of the experimental procedures. The concept of redundancy cannot be applied to everyday situations because it is impossible to define the total population from which a stimulus is drawn. Berlyne (1971, 1972a) is enthusiastic about information theory but he also can only apply it to his approach and findings by analogy.² The use of such terms as redundancy, channel capacity, information transmission (see Berlyne 1971 ch.5) by way of post hoc explanation give a spurious sense of having explained phenomena when all that has happened is that technical jargon has been substituted for common sense descriptions.

Information theory approaches based on statistical specification

¹Broadbent does however note that detailed quantitative application of the theories of information theory has been more successful in reaction-time studies.

²See his discussion of information-theoretic aestheticians. Most of this work is published in French and German; as yet there are no English translations.

of and measurement of information and response should be distinguished from the information-processing approach to perception. This approach (cf. Neisser 1967; Haber and Hershenson 1973) lays stress on the processes by which the perceptual world is created out of the input to the senses. Unlike the information-theory model, the mind is not passive, single-minded, undistractable and unemotional as physical communication channels are. Seeing is an act of construction which makes more or less use of stimulus information depending on circumstances. The information-processing approach places emphasis on stages of processing e.g. iconic storage, short term memory etc., and the transformation of input into codes or forms of representation. In view of its great potential for the investigation of aesthetic perception, it is surprising that the information-processing approach has not been systematically applied to the study of aesthetic perception.

2. Representative or specially grouped stimuli

a) If the experimenter chooses to employ molar stimuli he is faced with a difficult decision concerning the range of stimuli used, and the manner in which they are presented. A major choice is between using a fully representative range of aesthetic stimuli or only using selected groups. The picture post-card test devised by Burt (1933) and Bulley (1933) was extremely comprehensive in the range of art objects used.¹ Eysenck's (1940) study of the general aesthetic factor utilised a whole range of items including portraits, landscapes, book-bindings, vases, mathematical curves, statues, and advertisements. More recently Cardinet (1958) and Bernard (1970) have constructed comprehensive tests of painting preference which were intended

¹The list included chairs, book-cases, wine-glasses, teapots and embroidery.

tobbe representative of all schools and types of art. Similarly Child (1962) attempted to be comprehensive in his selection of paintings in his test of aesthetic judgement. A problem with the attempt to be comprehensive is that it is almost impossible to achieve this and at the same time have a practical manageable test. Consequently, periods of art have to be excluded or single items represent a whole school, painter or period. This entails choice and value judgements on the part of the test constructor which could seriously influence the experimenter's findings and his ability to generalise from them.

It is probably more useful if the experimenter classifies the stimulus domain according to a set of rules. In this way he can concentrate on a selected number of categories. A common broad division is into abstract versus representational (Roubertoux, Carlier and Chaguiboff 1971; Lindauer 1969, 1970b; Knapp and Wullf 1963). A four-part classification was used by Knapp (1964) who divided his stimulus paintings into the realistic, the fantastic, the geometric, and the impressionistic, and Peel (1944) used only landscapes and still-lives. If the molecular approach can be seen as a reaction against stimulus-chaos, then attempts to categorise and control molar stimuli in the ways described above are essential for both control and the need to sample comprehensively. It is certainly something that should be more seriously and more systematically taken into account in experimental studies.

All the tests described above were designed as experimental measures, rather than as tests to be used outside the frame-work of the experimental set-up. The disadvantage of these ad hoc tests is that it is impossible to compare results between different experiments. Few of the tests are properly validated and tested for reliability, a notable exception being Child's test (1962). Many of the tests have been designed by the experimenter himself, often without the aid of art experts. There is a very real need

to develop with the help of art experts a standard set of stimulus paintings which can either be grouped in pre-determined art categories or taken as a comprehensive whole. If only these stimuli were used, under a range of standardised conditions, then comparison between studies would be possible and the confusion that exists in experimental aesthetics would be reduced.

b) Standardised tests¹ of art aptitude or art judgement would be the answer if they were more efficient (Anastasi 1961). Child (1964) has drawn attention to the low positive correlations that have been found between tests ostensibly measuring the same thing, and a review by Michael (1960) concludes that the tests are inefficient in predicting success in art schools. Recently a number of studies have factor analysed performances on the Barron Welsh Art Test (Eysenck and Castle 1970a; St. Clair-Penny 1937); and the Maitland Graves Design Judgement Test (Eysenck 1967). The analyses reveal that the single overall score on these tests conceals a complex interaction of separate factors which determine performance on the tests. Similar studies in which the test performance of artists has been compared with non-artists have been carried out using the Maitland Graves Test (Eysenck 1970b; Eysenck and Castle 1971; Child 1964), the Welsh test (St. Clair-Penny 1973), and the Meier test (Stallings and Anderson 1969; Blottenberg 1972). The general trend of these results indicates that the tests no longer discriminate effectively between artists and non-artists, though they were originally designed to do so. It is a feature of these tests that a high score is obtained if the testee chooses those items which were liked by artists rather than non-artists in the original standardisation sample. These studies suggest that both artists and laymen today have changed

¹Out of the 2126 tests listed in Tests in Print (Euros 1961) only 1.4%, or 29, are in the fine arts. Of these only 10 are concerned with visual art, three of which were first designed in the twenties or thirties.

their criteria for aesthetic preferences, and that the tests are no longer valid tools with which to measure aesthetic sensitivity, judgement or artistic aptitude. Michael (1960) concluded his review as follows: 'In probably no other area of testing is there a greater need for research and development than in the fields of music and visual art. It is to be hoped that during the coming decade systematic and novel efforts will be expended toward designing and validating new measures'. Regrettably fourteen years later his hope has not yet been realised though some interesting ideas have been proposed by Thomas (1965) and St. Clair-Penny (1973).

St. Clair-Penny (1973) has gone some way towards overcoming the problem of a static, out-dated criterion of correctness of response based on expert opinion by using the Welsh Figure Preference Test as a purely descriptive tool. He characterised groups of people in terms of the average rank order of preferences for each item on the test. In this way comparison between groups became possible through a purely descriptive measure, with no reference to the norms. A limitation of this technique is that it is highly test specific. It would be preferable to develop a standard set of representative molar (and molecular) stimuli and to use these in a purely descriptive way, to characterise the preferences of various groups. Thomas (1965) has criticised the fact that most tests are based on the assumption of a single correct criterion of good art. He recommends that separate norms be established and adjusted to different philosophies or 'schools' of art. In this way a testee could be classified according to which set of criteria he is using in making his judgements. Similarly he could be classified according to the type of art he liked most. Other sections of the standard art test could measure art knowledge (identification of painters, periods,) art analysis (identification of media, detecting balanced and unbalanced designs), style sensitivity (learning to discriminate between artistic styles) and so on. Ad hoc measures of art knowledge and

analysis have been designed by Eisner (1966) and Bernard (1970) and a measure of style sensitivity would be easy to design as the criterion of correct response is totally objective. The Allport-Vernon-Lindsey Scale of Values is not strictly speaking an art judgement/aptitude test, but rather a measure of attitudes to the political, economic, aesthetic etc. aspects of life. The test gives separate scale scores for the different domains and the aesthetic scale is often used as a measure of an individual's interest in art and related areas (Sisson and Sisson 1940; Knapp and Green 1959; Knapp 1964; Obst 1966; Hood 1972). In line with the argument above this test should not be used without empirical study of its current validity and its relation to other aesthetic measures.

3. Natural or modified stimuli

Another choice open to the experimenter is whether or not to present stimuli under natural viewing conditions. Meier's test (1942a) paired correct representations of painting and sculpture with modified versions, so that the latter represented a breach of some canon of art. By his choice the testee indicates his awareness of the basic canons of art. However, most studies using molar stimuli present normal paintings as stimuli under natural viewing conditions. There is however great potential for presenting paintings under degraded viewing conditions, as this is a well-tried technique for investigating perceptual processes generally. Tachistoscopic presentation is a little used technique in experimental aesthetics (cf. von Ritook in Valentine 1962, p.138-140; and Brighthouse 1939b; Kellet 1939). It would for instance be a useful tool for investigating the hypothesis that works of art facilitate perceptual processes in some way which enhances their apprehension as an object (Chandler 1934; Eysenck 1942; Valentine 1962). Other useful techniques for investigating aesthetic perception as process, but which have not

yet been tried out, include sequential part presentation, (McFarland 1965); successive aperture viewing, (Parks 1965); and stabilization of images on the retina, (reviewed by Heckenmueller 1965). All of these techniques, if systematically used, could provide interesting data on the perception of works of art. In a study of the perception^{of} the human face, Harmon (1973) has described two techniques for degrading the quality of the stimulus picture, viz. block portraits, and continuous smearing,¹ which would be useful for testing hypotheses in a precisely quantifiable way.

4. Real works of art, reproductions or specially prepared stimuli.

This is the final major choice concerning the stimuli that are to be used in experimental studies. Despite the fact that reproductions are rarely accurate enough to give a clear idea of what a painting is really like, real works of art are hardly ever used in experimental aesthetics. Notable exceptions are studies by Munro, Lark-Horowitz and Barnhart (1942); Gordon (1955); and Lindauer (1969, 1970a, 1970b). Reproductions, usually in the form of picture-postcards, photographs and colour slides are smaller in scale, give no indication of the actual size of the original, lack a frame or any texture, and it is rare for the colour

¹To produce a block-portrait the image is divided into $n \times n$ grid so that each cell is given the average brightness value of the area contained in it. For continuous smearing the image is divided into a 256×256 grid, so that the brightness level in a given cell is the average of $n \times n$ cells surrounding it. This would be a suitable technique for testing Gombrich's demonstration that you can improve the aesthetic appeal of a poor academic painting (in this case a Bonnencontre) by breaking up the image. Gombrich used rolled glass to achieve this effect (see Gombrich 1963b, p.40).

to be highly accurate.¹ Above all, as Berger 1972 has argued, the reproduction is simply not the same thing as the original work of art. Essentially it is a mass produced image of something other than itself. The reproduction is valueless, expendable and replaceable. By contrast the original is unique, often highly valued and has a mystique which is not associated with its reproduction. Reproductions are therefore surrogates of the paintings they stand for, so that results obtained with them should potentially be generalisable to the original works. In doing this the experimenter is handicapped by the lack of naturalism entailed in the use of reproductions. The practical advantages of using reproductions in a laboratory setting are however very great. On the other hand the use of real works may be essential if too much verissimilitude is lost.²

The practice of using reproductions in place of original works has never been properly validated. This is surprising in view of the fact that responses to reproductions must be functionally equivalent to reactions to the works of art they represent in order for generalisation to be possible. There have only been two tests of this correspondence. Grimes and Bordin (1940) have demonstrated that originals and reproductions are discriminable when people are asked to detect which is which,

¹The National Gallery London currently sell a small post-card reproduction of the Leonardo cartoon which is brown in tone, as well as a larger version which is definitely green in tone (see Plates III and IV).

²Lindauer (1973) has proposed the use of real abstract paintings as stimulus material because this avoids contamination of responses though attention to the theme or depicted content of representational works (cf. Gordon 1955; Helson and Mouton 1964). Also dominant colour and tonal values can be controlled and to some extent manipulated. Consequently Lindauer's work has dealt solely with real abstract paintings (Lindauer 1969, 1970b, 1971). This seems to be an excellent compromise but has the disadvantage that reactions to abstract art may not be typical of all art especially among laymen (Tucker 1955).

but that they do not appear to notice the difference when they are not 'set' to. A more recent study by Dreher (1968) comparing reactions to coloured and monochrome reproductions and the real works found distinct differences in reactions and concluded that the psychology of art should be based upon interactions with real art objects, and not just reproductions. There is a serious need for more systematic investigations of the functional equivalence of originals and reproductions as stimuli in experimental aesthetics.

There is however one sense in which this problem may not be so serious. Most art appreciation classes, and most experience of art (especially great art), and that located in other countries, is attained through the medium of photographic reproductions in books, and also from colour slides, postcard reproductions and to a lesser extent from film (cf. Kenneth Clark's television series 'Civilization'). In this sense it is certainly more naturalistic to use reproductions of molar paintings than it is to use molecular stimuli. A reproduction does at least possess some perceptual similarities, and some of the associations which are linked with the original, though as Malraux (1965) has argued so well, photographs can easily change the impact and significance of a work of art. It would, however, seem sensible to investigate the functional equivalence of reproductions and originals before much further research is carried out.

An alternative approach is to use paintings and drawings which have been specially executed for the purposes of a specific experiment. This procedure has been used by Klein (1968), as well as by Getzels and Csiksentmihalyi (1969). In this way real paintings can be used, and it is possible to exercise some control over them. For example, a wide range of artists or art students could be asked to draw the same object. Artists could also be asked to draw the same objects in a variety of ways to convey

different moods, interpretations etc. Alternatively the same artist could draw a great variety of objects to suit the requirements of the experimenter. It is surprising that this rich source of stimulus manipulation has not been tapped in experimental aesthetics. This is one symptom of the general reluctance of the psychology of art to utilise the special skills and knowledge of artists and art experts, who are at least on home ground.

B. Characteristics of the Task

In this section the choices open to the experimenter, concerning the experimental task, are discussed.

1. S reacts normally (or the 'just looks' approach). This is the purely behavioural solution to the problem of aesthetic measurement. The experimental subject is asked to look at the stimuli while various behavioural and physiological measures are made. The subject is not asked to 'give' any response while measures are made of his physiological arousal (GSR, eeg patterns), eye-fixations or the amount of time he spends looking at particular stimuli.

The first two measures (of arousal) have not been widely used outside the general frame-work of Berlyne's theory of aesthetic motivation though an important exception is a study by Smets (1973) who obtained direct physiological measures of arousal while subjects were actually observing molecular stimuli varying in complexity and colour. By comparison with arousal measures, eye-fixation studies are more common, though most of them have not been directly concerned with the psychology of art. A very early study by Stratton (1903) used photographs of the eye. He claimed that his results disproved the 'muscular sensation theory' viz. that the pleasure of seeing a graceful curve or vase

results from the ease with which the eye follows the line of the curve (see Fig.4-1)¹ Stratton's measurements were probably not very

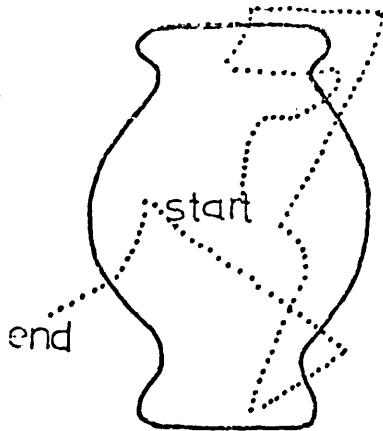


Fig.4-1. Vase, Stimulus and the pattern of recorded eye-fixations, (from Stratton, 1903, p.242).

accurate, but considerable improvements were made with the equipment designed and used by Buswell (1935) for his extensive study of the perception of pictures. However even this is inaccurate compared to the methods and techniques described in detail by Yarbus (1967) and Mackworth (1967). Bearing in mind the relative crudeness of Buswell's techniques his study is exemplary for its systematic investigations of topics of great relevance to the psychology of art.

Although this study produced a large amount of data (discussed in chapter nine) it was marred by poor stimulus sampling (e.g. some generalisations were based on only one picture seen by one or two people), and also by poor statistical treatment. Buswell tended to present typical fixation patterns of a given individual rather than to reveal actual group trends. However, another criticism of Buswell's work also holds for recent eye-fixation studies of picture perception, (Mackworth and Morandi 1966; Yarbus 1967; Loftus 1972). This is that they do not attempt to relate behavioural measurements to phenomenal experience. The person is regarded as a machine with moveable eyes rather than as an individual whose evaluation, preferences, feelings and expectations might be reflected in the way he moves his eyes in response to a given work of art. The studies mentioned above are important contributions to the general information-processing approach to

¹It is interesting to note that the 'muscular sensation theory' was a basic premise utilised by Birkhoff (1933) in his aesthetic formula.

perception (particularly pictorial perception). There has not, as yet, been a study which investigates the relationship between eye-fixations and the aesthetic experience and evaluation of works of art. Such a study could contribute much to an understanding of the processes of aesthetic perception particularly if it were linked to phenomenal measures of the type to be discussed below.

The time spent looking at a stimulus is a common independent variable in psychology.¹ In the psychology of art there have been a number of studies which permitted very short viewing periods (tachistoscopically), while others have investigated the effects of spending a very long time looking at a painting. Martin (1906) asked her subjects to look at a painting for forty-five minutes, and Erighouse (1939a) has used similar techniques. Alternatively, looking-time can be used as a dependent variable, in order to determine how long a person chooses to look at a given stimulus (Gilmore 1968; Lindauer 1971). Other investigators have investigated the changing evaluation of works of art over a period of weeks or even months (Littlejohns and Needham 1932). The chief idea underlying these studies is that the phenomenal object (in contrast to the physical object) changes over time. This has been very neatly demonstrated in an experiment by Harding (1968) who showed that complex, difficult poems were at first disliked but progressively became more liked as a function of increasing familiarity. By contrast the simpler more superficial poems were liked at first, but with increased familiarity they became less liked. Harding interprets this by regarding aesthetic appreciation as a skill which is improved as a function of practice. Studies involving looking-time as a dependent variable in both continuous and repeated sessions would provide very valuable

¹For a review see Leckart and Faw (1968).

information on the development of aesthetic experience, particularly if it is related to phenomenal measures.

The advantages of these behavioural measures are clear. They are totally objective, and there are often no measuring instruments intruding between an individual and his natural response to works of art. However they have little value to a psychology of art, if used in isolation from other measures, particularly of the individual and his experience. This type of investigation should be incorporated within a larger theoretical frame-work of research. As Deutsch (1964) has pointed out the collection of too much factual detail can conceal the essential structural relationships existing within complex behaviour and experience. Exclusive concentration on purely behavioural measures can lead to the accumulation of data on a large scale without a corresponding increase in our understanding of aesthetic experience.

2. (a) S may be asked to give free verbal reactions. A large number of the experimental studies reviewed by Valentine (1962) had no other measure than verbal reactions and introspections in the presence of aesthetic stimuli. It has already been noted in chapter two that modern scientific psychology is very reluctant to use such methods, particularly since the overthrow of methodological Introspection of the Wurzburg school by Watsonian Behaviourism. The reaction has swung too far, for now it is thought that the collection of free verbal reactions is subjective and therefore unscientific. For example, Berlyne (1971) in a chapter entitled 'Impediments to Progress' includes the emphasis on verbal reactions as one of the reasons for the failure of experimental aesthetics. In chapter two of this thesis it was argued that the rejection of introspection as a source of data which could be used to generate hypotheses for empirical testing, was itself unscientific.

One of the main advantages of free verbal reactions consists

in reminding the experimenter of the sheer complexity and subtlety of the phenomena he is dealing with. It is all too easy to forget when analysing the averages of seven-point scales, that for many people their response to great works of art are among the most important experiences in their lives, on a level with love for others, and religious experience. Introspection can give insight to the nature of this experience and how it feels for others. It also has the advantage of making each person an individual instead of merely a number, the psychological significance of which can easily be divorced from its quite different mathematical meaning (Gregson 1964a). Introspection confirms the complexity, variability and meaningfulness of aesthetic experience. The argument for the relevance of introspection has been strongly put by Harré and Secord (1972) who claim that 'the things that people say about themselves ... should be taken as reports of data that are relevant to phenomena that really exist and which are relevant to the explanation of behaviour.' This contrasts with the behavioural view of verbal statements as the phenomena themselves (cf. Berlyne 1972c, Eysenck 1972d, ch.7). The studies by Valentine (1962, p.123) and by Mortimer-Tanner and Naylor (1965) are rare exceptions to the general rejection of introspectionist measures.

There are serious difficulties with introspection as a measure of experience. Much has been written on the subjectivity and intrinsic biases of introspective data. Souriau (1955) has stressed that aesthetic appreciation when spontaneous, normal and direct is tacit, a point which was also made by Moles (1966). Language is extraneous to aesthetic experience, despite the fact that countless books and countless discussions on art have taken place through the medium of language almost from the beginning of history.¹ Thus to ask a person to verbalise his responses and

¹There is a nice anecdote quoted in de Saussure (1969) about Ben Nicholson's mother, who was also a painter, feeling the urge to go and scrub the kitchen table after hearing too much 'art-talk'.

reactions is to impose on him a special exercise which is quite different from natural appreciation. As such they should only be interpreted in relation to other measures of the individual's overall reactions. Verbalising may activate categories of response which are different from those of silent appreciation. Two studies by Alexander (1960) and by Mirels and Efland (1970) both using multidimensional scaling techniques, have provided evidence which suggests that people can sort stimuli into categories which they cannot describe. Finally, verbalization of reactions could be influenced by degree of verbal fluency, rather than an individual's actual experience and appreciation. This is an important limitation when making comparisons, e.g. between artists and non-artists, between social-economic classes, the sexes, etc.

An alternative approach is to restrict the use of words available to the subject by asking him to choose from an adjective check-list (Israeli 1928), a technique which is commonly used in studies of interpersonal perception (cf. review by Taguiri 1968). The difficulties of this technique lie in the choice and pre-classification of adjectives, and the possibility that an individual's use of an adjective is influenced by the restricted choice open to him, or that he might use the word in an unconventional way. The technique may give a spurious impression of objectivity, and give the experimenter a false sense of confidence in the meaningfulness of the data he collects.

(1 overleaf continued)

With reference to the value of artists talking about art, Bodkin (1954) has quoted the well-known dictum: 'Don't talk painter, paint!' Further examples of the superiority of images over words are the non-verbal pictorial essays to be found in the series of books edited by Kepes (1965a, b; 1966a, b) and also in Berger (1972). The photographic essay was always an exciting feature of LIFE magazine (see *The Best of Life*, 1973, Time-Life Books, N.Y.). The work of photographers like Bill Brandt or Cartier-Bresson all illustrate the way in which images can speak louder than words.

In general the use of introspection and free verbal reactions should not be discouraged. It is a legitimate source of data for generating hypotheses and for providing background material. Of particular importance are the introspections of artists, either about particular works of art, or art in general. Collections of artists' writings on art such as Goldwater and Treves (1945) and Herbert (1964), and the writings of the verbally fluent painters such as Leonardo da Vinci, Joshua Reynolds, Kandinsky, Paul Klee and Henry Moore, are highly relevant sources for a psychology of art.¹ The three volumes edited by Holt (1957, 1958, 1956) presenting documentary material on art from the Middle Ages to the Nineteenth Century provide invaluable source material for the art psychologist. So long as it is not the only technique employed, introspection is an extremely important tool in the psychology of art.

2. (b) S may be asked to rank-order the stimuli: the subject can be asked to rank stimuli for overall preference or liking (e.g. Burt 1933; Eysenck 1940, 1941a) on the basis of specified dimensions like colour, content, composition, mood etc. (e.g. Feal 1944; Hickford 1948; Helson and Mouton 1964); or pleasingness and interestingness (Berlyne, Olgivie and Parham 1968) or novelty (Berlyne and Parham 1968). There are two basic assumptions

¹An important distinction is drawn between what artists say or write about their work or art in general, and what art critics and theorists say about the artists. Whereas the artists account may be considered as primary data for the psychology of art, the writings of theorists etc. provide no more than auxilliary background material, unless their interpretations are being empirically investigated in their own right. It is essential for the art psychologist to be familiar with art theory, and the various interpretations of a given artists work, but he should not rely on them exclusively for generating hypotheses about aesthetic experience. Gombrich has provided a very useful bibliography of artists writings on art and theories of art in *The Story of Art* (Eleventh Edition, 1966, pp. 471-475).

underlying ranking as an aesthetic measure, viz. that subjects can meaningfully order stimulus paintings from most-of-X to least-of-X, and that differences in ranking reflect genuine differences in overall reactions between subjects. On an a priori basis it is difficult to justify either of these assumptions. In view of the complexity of works of art it has to be demonstrated empirically that the stimuli can be meaningfully ranked on single dimensions (e.g. content or realism) while ignoring others (e.g. colour, mood, period, style, technique and so on). As a measure, ranking on pre-determined dimensions is a gross simplification of aesthetic reactions because it does not reveal why and on what bases the paintings are really being ranked. This is likely to vary between and within individuals and is likely to vary with each painting used. The main practical advantage of ranking is that it produces large amounts of quantitative data with great facility. The analysis of ranked data, especially correlations and factor analysis rests on the assumption that the criteria being used by each individual are stable throughout ranking, and that they do not change during ranking. Unless each person is asked there can be no guarantee that this is happening. There is strong evidence (Gibson 1963, 1969) that perceptual learning can take place with mere exposure to complex stimuli in the absence of extrinsic feed-back. Consequently familiarity alone may alter the individual's capacity to perceive the stimuli and bring about changes in his criteria of judgement (cf. Harding 1968).

This point is particularly important when the stimuli used are both large in number and heterogeneous. Burt (1933) asked subjects to rank over 50 picture post-cards ranging from reproductions of classical master-pieces right down to 'the most flashy birthday cards', and Eysenck (1940a) asked his subjects to rank 18 sets of picture material of various kinds making a total of 231 elements for ranking. In later studies (e.g. Eysenck

1968) subjects have been asked to rank Birkhoff's 90 monochromatic polygons. Some doubt has been thrown on the validity of these extensive ranking tasks by West and Bendig (1956) who found that test-retest reliability of rankings declined as a function of the amount of intervening ranking activities. With large quantities of ranking significant amounts of random error appeared in the final rankings. The authors called this phenomenon 'aesthetic fatigue' in ranking. Similarly the absence of anchors, or the nature of the anchors themselves have been shown to produce distorted reactions as a result of changes in adaptation level (Fillenbaum 1963). In addition it can be argued that presenting a set of criteria for respective rankings limits the freedom of the subject to react and forces him to respond even when he has no real responses to make. This is a feature of all techniques which structure the kind and type of response the subject can make by providing dimensions and categories to structure the individual's responses.

2. (c) S may be asked to rate the stimuli. The subject may be asked to indicate his responses to stimulus paintings by assigning numbers to them on scales presented to him by the experimenter. The widely used 5 or 7 point scale is probably the most popular measuring device in experimental aesthetics, both within and outside the frame-work of Osgood's theory of Semantic Space (Osgood et al. 1957) which has contributed greatly to its popularity as an aesthetic measure. As a technique rating is highly adaptable and generates a large quantity of numerical data easily and quickly. The main underlying assumption is that assigning a number on a scale in response to a painting is equivalent to (or isomorphic with) the persons reaction to the work of art or aspects of it. As with ranking the superficial appearance of objectivity in such a technique, and its ease of generating results amenable to sophisticated analysis has led to its adoption and wide use with insufficient critical and conceptual

analysis. It cannot reasonably be argued that assigning numbers on a scale represents an individual's total aesthetic reaction. Usually the individual is asked to record ratings on a small number of scales, without any other attempt to obtain additional information from him. In addition there is a tendency for users of rating methods to analyse averages of the ratings and to regard these as typical of a group.

Gregson (1964a, 1968) has demonstrated that the same stimulus painting can be rated differently according to its position in a series. For example, a given painting was more highly rated at the end of a series than the same painting when it appeared at the beginning of a series. Similar data, throwing doubt on the stability of aesthetic ratings has been presented by Dornic and Kuric (1970) and Ferguson (1972). It appears that with successive presentations of the paintings the subjects' frame of reference shifts. This is probably a function of changes in adaptation-level (Helson 1964). Dornic and Kuric (1970) argue that direct methods of measurement (viz. rating and ranking) should be abandoned.

Thurstone (1959) has argued that the aesthetic value of an object is entirely determined by what goes on in the mind of the percipient, and it is almost impossible to find exact stimulus correlates. On the other hand Saw (1973) has argued: 'To fail to insist on the correlation¹ between reaction and qualities of the object is to risk falling into the modern heresy that it is the state that is important and that it does not matter how you got those'. Thurstone's argument is too extreme but it is at least in the right direction. The use of rating techniques is an inadequate attempt to externalise what goes on in the mind of

¹Ruth Saw is a philosopher and is not here using 'correlation' in a technical sense.

the percipient. Rating as a measure is probably more suited for use with stimuli of great simplicity, (e.g. Birkhoff polygons). It is surely only the convenience and ease of use of the technique that accounts for its continued use.

2. (d) S may be asked to scale the stimulus-painting by other methods. Systematic evaluations of techniques of scaling aesthetic value have been carried out by Ekman and Künnapas (1962a, 1962b) and by Dornic and Kuric (1967, 1970). The first pair of authors have compared paired-comparisons, ratio estimations, and category estimations of the same stimulus-paintings. From the derived scales they found that the interval and category scales are a logarithmic function of the ratio scale. They argue that a 'true' interval scale¹ can be derived from the indirect methods viz. paired comparisons.

A feature of many multidimensional scaling studies is that the experimental subjects are not asked to evaluate paintings for certain qualities like composition or colour or for their effects on the individual (e.g. pleasingness). Instead the judged similarity of stimulus paintings presented in pairs is being scaled (Klein 1968; Skager, Schultz and Klein 1966; Mirels and Elfland 1970; Goude 1972a, 1972b). Subsequent factor analyses provide descriptive bases for characterising both individuals and groups according to the criteria they have used themselves. As the task is based solely on similarity-disimilarity judgements the obtained results are not contaminated by the input (scale labels etc.). In addition the task is easy to perform and appears natural to the subjects. The most valuable and interesting results of factor analyses have emerged from studies using this technique.

¹This is based on the criterion of the ratio scale derived from the ratio estimations by Thurstone's Case V.

2. (e) S may be asked to sort the stimuli in some way. The subject can either be asked to successively sort the stimulus-paintings according to a single dimension thus producing a rank-order (e.g. Silver, Landis and Messick 1966), or he can be asked to sort them into categories which can either be of his own choice (Alexander 1960) or supplied by the experimenter. As an indirect method of ranking it has the advantage of placing less strain on the sorter, and maintains a degree of naturalism by the avoidance of numbers, and the fact that the individual can choose his own criteria. The latter need not even be verbalisable as they are implied in the sorts that an S makes. In their study Silver, Landis and Messick (1966) used the technique of successive interval sorting. Subsequent analysis revealed five different viewpoints for judged similarity none of which corresponded to analysis of averaged individual ratings. It is surprising that this technique has not been widely used in experimental aesthetics.

A variation of sorting is the repertory grid technique first developed by Kelly (1955) in the context of his Personal Construct Theory. The Repertory Grid assessments have been used in many experiments and have been used in many branches of psychology, both within and outside the frame-work of the theory (cf. Bannister and Mair 1968). Typically it involves presenting a range of stimuli (or elements) in triads. The subject is asked to describe how two of the elements are like each other and thereby different from the third. The verbal labels attached to the distinction represent the individual's construct. This process continues until the person cannot suggest any more constructs. Then all the elements are assessed (e.g. by ranking or rating) in relation to the elicited constructs. The task is simple and pleasant to perform. Although it provides essentially idiographic measurement, nomothetic measures are possible (Bannister and Mair, 1968). The technique is highly flexible, and adaptable to a great variety of experimental conditions.

The Repertory Grid technique has not been widely used in the psychology of art. Davisson (1971) in an exploratory study investigated the structure of individuals' evaluations of paintings and found that the technique revealed reliable differences between people. Pope and Thomas (1972) have used the grid as an aid to self-expression in art, and Carver (1969) successfully assessed the value-structure of reactions to films by critics and teenagers. Although this technique has the great advantage of eliciting the individuals' or groups' construct structure, it does have the limitation of relying on verbal ability in eliciting and naming of constructs. Alexander (1960) has noted that multidimensional scaling (in this case bivalent sorts of molecular stimuli) revealed certain dimensions along which the stimuli ranged. The subjects' efforts to verbalise the basis for their judgements (using a grid technique) bore little relation to these dimensions. Alexander warns of the danger of forcing individuals to group stimuli only in ways that they happen to have words for. With this warning always in mind, the Repertory Grid can still function as a useful aesthetic measure.

2. (f) Miscellaneous measures. These include a biographical index to predict aptitude or sensitivity to art (Lawrence Ellison, Fox, and Taylor 1972); measures of how much money people spend on art (paintings, books, reproductions, etc.) (Bernard 1970); frequency of visits to galleries, and exhibitions (Roubertoux 1970); knowledge of art (Eisner 1966); and even a device which records the footsteps of museum visitors without their knowledge (Bechtel 1967). When these are used within a framework of other measures, they all have a useful role to play. It is only when they are used in isolation that they become less meaningful. They are also important in helping to meet the 'naturalism' requirements discussed in an earlier section.

3. (a) S is asked to make a choice between members of a pair. This was the method used by Bulley (1934, 1951) and by Child (1962), and characterises the majority of standardised art aptitude tests. It seems to be a feature of this approach that the choices made by subjects are evaluated against a criterion. In terms of the test there is a correct and an incorrect choice for each item. The problem of using a criterion in aesthetic measurement is discussed separately below.

Alternatively every stimulus can be paired with every other one systematically (i.e. the method of paired-comparisons). Ekman and Künnapas (1962a) and Dornic and Kuric (1970), have argued that the paired comparison method is an ideal aesthetic measure, especially with untrained people, since it only involves either-or decisions. This is more natural and easier than rating or ranking. At the same time the paired-comparison method can yield sophisticated measurement at the interval level. However, even this technique is not without its difficulties. Kennedy (1961) has demonstrated a 'central tendency' effect in aesthetic judgements in that subjects tend to prefer stimuli towards the centre of the range presented to them, even though they were presented in pairs. The same figure was the least preferred in one series of small triangles and the most preferred in a series of medium sized triangles. Kennedy attributes this to the fact that subjects are expressing preferences even when they have none. They resolve the dilemma by simply choosing the least extreme of the stimuli presented to them. This experiment has serious consequences as most paired-comparisons studies involve molecular stimuli. It would be interesting to repeat this experiment with molar stimuli in order to see whether a similar central tendency effect is found in judgements of paintings. The paired-comparison method using molar stimuli, linked to multidimensional scaling would seem to be a useful technique, especially when this is associated with verbal measures and introspections.

3. (b) S is asked to make a choice from an array. An interesting technique has been developed by Gardner (1970a, 1970b, 1971a). It is a match-to-sample task in which each individual is presented with a stimulus painting, and is asked to select from an array of four, a painting by the same artist. Gardner claims (1971a) that the task can be used to measure 'sensitivity to style'. It is fairly natural, non-verbal, and highly adaptable to experimental conditions (see Gardner 1971a, 1972a). In addition it can provide a progressive record of each subject's performance. By careful arrangement and choice of stimuli in the array the experimenter can determine the basis for each subject's choice. It further has the advantage of engaging the attention and interest of the subject in a problem-solving task. With due care this technique could be widely used in experimental aesthetics. It is one of the few aesthetic measures where the criterion of correct choice is purely objective.

4. S is asked to modify the stimulus. This is essentially the 'method of production' (Fechner 1876) and has been used by a number of investigators: Pierce (1894) and Puffer (1903) asked subjects to arrange lines on a surface to give a pleasing effect, and Daniels (1933), and Whorley (1933) investigated the ability of children to arrange material to produce compositional balance, and unity. For the most part these studies have used very simple stimuli, e.g. wooden blocks, sticks in a frame, etc. (cf. Holt-Hansen (1971) for a rare recent study). A very interesting device was designed by M. Morris (1957). He chose to investigate some hypotheses in relation to a specific work of art, viz. Kenneth Martin's 'Composition: Black and Red' (1954) which consisted of a pattern of four plain black, and two plain red, rectangles on a white ground. A full-size model of the painting was made on which five of the rectangles could be moved in relation to a fixed rectangle by screw controls which were handled by the subjects who could arrange the rectangles as they chose. This technique has

enormous potential for investigating perception of balance, harmony etc. without necessitating any special skill on the part of the subject.¹ The technique could also be used to assess the effects of varying actual paintings by Mondrian, Ben Nicholson (see Plate V), Malevitch and other painters who manipulate plain colours and pure shape and painters like Soulages and Yves Klein. Morris's technique would not be suitable for non-abstract painting, or even the majority of abstract painting. However, it should be possible to apply this method to more complex and varied paintings with the aid of computer-generated visual images under the control of experimental subjects (Kawano 1972).

III Characteristics of the Analysis

1. The data derived from a variety of aesthetic measures can be treated at face value. Essentially, this occurs when verbal reactions and introspections are categorised by the experimenter (cf. Bullough 1908). It is also characteristic of the Psycho-analytic and Gestalt approaches to the psychology of art. This kind of data has two main advantages. It can lead to understanding and insight on the part of the art psychologist. This can be turned into hypotheses which can be empirically tested. Alternatively the data can be subjected to quantitative treatment. At this level the only possible analysis is at the nominal level, i.e. in terms of the number of people falling into different categories. Liam Hudson has argued for this approach (Hudson 1972) and has also demonstrated its potency (Hudson 1968). His method achieves considerable cogency, whilst preserving a large degree of naturalism and psychological meaningfulness, which is not distorted by statistical artefact.

¹Wallach (1959) has used a similar technique when he asked music students to complete specially developed 'unfinished' pieces of music.

Measuring scales are not essential requirements for accurate description as the latter is a pre-requisite of designing the scales in the first instance.

2. The obtained data can be evaluated against a criterion.

There have been two major approaches to the use of a criterion. Individual results are compared either with the average preferences of the group (Beebe-Center 1932; Eysenck 1939, 1940, 1957) or they may be compared to the judgements of art experts, (Child 1962, 1964; and most art judgement tests). It is difficult to determine exactly how and on what basis the consensus of a group can be held to be a criterion of what is aesthetic. Beebe-Center concerned himself with a search for the universalities of human nature upon which the idiosyncrasies of individuals were imposed. He argued that averaging across groups eliminated the idiosyncracies, leaving consensus as a measure of the true basic objective appeal of a stimulus. This argument (with more biological emphasis) has been explicitly adopted by Eysenck (1957). It is difficult using consensus as a criterion to separate universal aesthetic value from any agreement arising from group conformity, or the shared values arising from common cultural experience. It has been stressed several times already that individual differences in the way works of art are perceived, are the rule and not the exception. Child (1962) in support of his own position has argued that it doesn't make an individual insensitive to works of art if he doesn't agree with the majority opinion of a group. In this study he demonstrated a strong negative correlation between consensus and experts' opinion. Child goes further and says that aesthetic sensitivity is found only among a minority group in the population. Child locates this sensitive group by determining the degree to which they agree with expert opinion.¹

¹The Agreement ranged from +.69 to -.29 and is strongly correlated with personality and cognitive variables (Child 1964, 1965). See chapter seven.

By his present methods Child appears to be studying the experts indirectly by means of the preferences of ordinary people. In addition he cannot be sure that he is not measuring conformity to art standards rather than the processes which are genuine components of aesthetic reactions. Child's method would be more acceptable if he called his measure 'agreement with experts' instead of 'aesthetic sensitivity'. It is really a descriptive measure.

It would appear that consensus is a stable characteristic of a group. Gordon (1923) utilising rank order preference for Oriental rugs found that intra-group agreement averaged around $+0.15$, but the averaged rank order for the group correlated with another group very strongly ($+0.94$). In a similar study Child (1962) found an average intra-group correlation of $+0.23$ and an inter-group correlation of $+0.33$. This suggests that the agreement within a group, though small, is a stable characteristic. However there are no grounds for claiming that agreement with group consensus is an objective index of aesthetic sensitivity (Eysenck 1957). Degree of agreement with group consensus is also a descriptive measure.

The value of using a criterion (of either expert opinion or group consensus) as a standard of the aesthetic is questionable. Experimental aesthetics strives to be strictly factual in inquiry, and the notion of evaluating responses should not enter into the design of a study unless agreement with averaged values of the group or those of experts are specifically being investigated. Unless an individual's ability to distinguish poor art from good art is being investigated then the use of a criterion in experimental aesthetics is not a necessary requirement.

In conclusion, neither 'consensus' nor 'expert opinion' should be set up as objective standards of aesthetic value.

However agreement of an individual with the average judgements of a group, and the degree to which individuals agree with experts are important descriptive measures in the psychology of art.

3. The obtained data can be correlated with other variables.

In experimental aesthetics there have been a very large number of correlational studies in which picture preferences or evaluations are correlated with a large number of variables ranging from food preferences, attitudes, somato-types,¹ complexity preferences, socio-economic class, education, sex, intelligence, and almost all aspects of personality and cognitive behaviour (McWhinnie 1958; Child 1969; Fickford 1972). Despite this enormous effort experimental aesthetics does not possess an accumulated body of knowledge or experimental data which helps increase our understanding of behaviour and experience in relation to art. There is still no central body of facts which can be used by the art teacher or the art theorist. This is largely due to the great variety of stimuli, subjects, and measures employed and the emphasis on discrete variables. Vague unstructured correlational studies should be avoided unless they form a part of a systematic attack on a problem. The multifarious correlational studies which characterise the work of McWhinnie, Eisenmann, Knapp, Child and many others cannot be related to each other, and taken as a whole do not contribute greatly to the psychology of art. There is a very great need for systematic planning and standardisation of methods, particularly in the context of large scale programme research.

4. Finally, the data collected may be structured by factor analysis. The intention of factor analysing the results may

¹Sheldon (1940)

determine the manner in which the data are obtained. It is not surprising in view of the large number of correlational studies in experimental aesthetics that there should also be a large number of factor analytic studies. They are noteworthy chiefly for the lack of agreement which exists between the separate studies. Even factor analyses of a set of standard stimuli can produce different factor structures. Responses on the Welsh Figure Preference Test were factor analysed by Eysenck and Castle (1970a) who found four orthogonal higher-order factors (viz. simplicity and three different aspects of complexity: geometric, irregular, and representational). Using the Welsh Test (St. Clair-Penny 1973) revealed a single geometric factor corresponding to Eysenck's first factor, and in addition three orthogonal factors relating to different aspects of asymmetry, but which were too complex to be labelled.¹

The validity of a factor analysis depends largely on the validity of the measures used. Factor analysis utilises sophisticated statistical techniques which can be applied to numerical data regardless of the way in which the data were obtained, given that it is at an acceptable level of measurement. There is a risk that the analysis may be too sophisticated for the crude measuring devices being used. Once obtained it is easy to forget that the resultant factor structure was derived from data based, for example, on ratings which involve an enormous loss of relevant information, and also a distortion of what is obtained. In experimental aesthetics there is a tendency to measure and analyse phenomena merely because statistical techniques are available, rather than to base measurement on a criterion

¹It should be noted that Eysenck only allowed 15 seconds for looking at each design, whereas Penny did not impose a time restriction. Penny used the Revised Art Scale of the WFFT (Welsh 1959) and Eysenck used all the items which occur in either version (Barron and Welsh 1952; Welsh 1959).

of psychological meaningfulness. There is no point using levels of measurement and analysis higher than is required to be psychologically meaningful or to test a hypothesis.

This point is discussed in more detail in chapter six where it is argued that factor analysis has limited value in the psychology of art unless the factors can be tested for validity outside the frame-work of the stimuli and responses which gave rise to them. To some extent this point is also true of multidimensional scaling techniques, though they have the advantage of laying greater stress on individual differences rather than on the general structure.

D. Comparisons between measures. Before concluding this chapter reference must be made to a number of studies which compared different aesthetic measures. Berlyne (1965) has argued that 'It is not safe to assume that all so-called measures on aesthetic appreciation or preference are measuring the same thing, and assumptions about the ways the various measures are related cannot be trusted without empirical study.' A similar point has been made by Wallach (1959), Child (1964), McWhinnie (1968), and Hogg (1969a). For almost as long as standardised art tests have been in existence they have been intercorrelated with each other (cf. Carroll 1932; Dewar 1938). Child (1964) reviewed these studies and revealed 'the general finding that standardised tests of aesthetic sensitivity are not very highly related to each other'.¹ These are all tests which are designed to differentiate between artists and non-artists, but as we have seen the tests do not appear to do so with contemporary samples (cf. St. Clair-Fenny 1973). There has obviously been a change in aesthetic preferences since the tests were designed. It has also been argued that there is no advantage in using a criterion for

¹Correlations ranged between +.21 and +.51

evaluating aesthetic responses per se. It is preferable to use the tests as purely descriptive measures. In this way it should be possible to avoid anomalies such as the correlation of $-.32$ between two tests of aesthetic sensitivity, viz. Child's test (1962) and the revised Meier Art Judgement test¹, found by Stallings and Anderson (1969).

More interesting perhaps are several studies in which a greater variety of standardised and other tests of aesthetic reactions are compared. Child (1964) compared preferences for smells, colours, polygons, and painting reproductions with preferences on the MGDJT, the Bulley test (1951), and his own test (Child 1962). The last three tests utilise a criterion of expert opinion for assessing aesthetic sensitivity whilst the first four are purely descriptive. Child found a significant positive correlation between preferences for the various visual molecular stimuli, but they did not correlate with preferences for the smells, the paintings, nor with the sensitivity measures. The Bulley Test and the Child Test (both utilising molar stimuli) correlated highly with each other but not with the MGDJT (which utilises abstract designs). Eysenck (1972c) has recently thrown light on the relationship between different measures in two interesting studies. In the first, the aesthetic measures consisted of (a) 10 pairs of items which were highly loaded on factor I (i.e. symmetry-asymmetry) of the MGDJT;² (b) the ten most liked, and ten least liked of Birkhoff's polygons (from Eysenck 1968); and (c) the ten most and least liked of Hornung's (1932) designs from Eysenck (1971).

¹Meier (1963).

²Eysenck's factor analysis of the MGDJT (Eysenck 1967) revealed five separate factors which contributed to the overall score on the test, viz. (a) symmetry-asymmetry; (b) three-dimensional design; (c) complexity not included in (a); (d) simple, unbalanced, irregular design; and (e) an uninterpretable factor,

Factor analysis of preferences on the three tests based on a sample which was highly representative of the general population (N = 484) revealed separate, almost independent, factors representing performances on each of the three tests. Eysenck concluded that aesthetic sensitivity to stimuli of the kind used in the experiment is relatively specific and does not extend from one set of stimuli to another. In the other study Eysenck (1972b) compared the performances of artists and non-artists on the MGDJT, Child's test, and Birkhoff's polygons. Analysis revealed that the tests were measuring different things, and there was no evidence that one test was superior to the remaining two in differentiating between artist and non-artist. Eysenck's conclusion is consistent with the other study: 'Perhaps there is no unitary single ability called aesthetic sensitivity'. Instead he argues, there might be fragmented and partial sensitivities.

This finding highlights the need to use correlations of an individual's responses with expert opinion or with group consensus, not as criteria but as purely descriptive measures. There is a great need to evaluate and compare the different types of measure being used and to greatly extend the work of Dornic and Kuric (1967, 1970) and Ekman and Künnapas (1962a, 1962b) who have compared different methods of scaling aesthetic reactions. As yet little work has been conducted to investigate the relationship between verbal and non-verbal measures, though Berlyne has an article in press on this topic.¹ The comparison, and evaluation of aesthetic measures should be regarded as an absolute priority in the psychology of art. When descriptive measures with standardised stimuli and response mechanisms have been established hypotheses in aesthetics should be tested using 'converging

¹'Interrelations of verbal and non-verbal measures used in experimental aesthetics'. In press, but see Berlyne (1972c).

operations' (Garner, Hake and Eriksen 1956).¹ Although this is an essential technique for 'closing in on non-observable processes' in any experimental investigation, it is particularly important in experimental aesthetics when different measures appear to be measuring different kinds of sensitivity. Hypotheses cannot be tested using stimulus specific measures, unless this is required by the hypothesis being tested. There is a need for a set of standard descriptive measures which may be utilised in whole or in part according to the experimental requirements. If only part of the set of stimuli is used then the generalisability of the results is decreased and is limited to the types of stimuli sampled. Though low external validity is sometimes necessary for the first experimental explorations of a hypothesis, high ecological validity should always be the ultimate goal. All too often experiments utilise one or two aesthetic measures with selected unrepresentative stimuli without any attempt to test the applicability of their findings with other measures and other stimuli.

¹The authors define converging operations as 'any set of experimental operations which eliminate alternative hypotheses and which can lead to a concept which is not uniquely identified with any one of the original operations, but is defined by the results of all the operations performed'.

CHAPTER FIVEAn Integrated Approach to the Psychology
of Art

'Concepts lead us to make investigations; they are the expression of our interest and they direct our interest'.

Wittgenstein.

Except for the blind we all look at objects, though we do not scrutinise them unless that is our specific purpose. For the most part it is sufficient to obtain enough information from an object to avoid bumping into it or to identify it in order to do something with or to it. This applies to all objects, including people and paintings. However, all objects can be looked at more closely either for the greater information this gives (e.g. the year and make of car) or for the effects of taking a closer look (e.g. the pleasure derived from what is seen). Every object can be looked at in three different ways. The numismatist looks at coins differently when he is asking as collector and when he is using money to buy a bar of chocolate. In the latter case the coins are familiar to him and it is only necessary for him to distinguish different denominations on the basis of shape, size and colour. In the former case the numismatist is seeking information from the coins themselves which will tell him its denomination, date, country, mint, condition. When he uses money to buy things then he sees the coins functionally. When he seeks to derive information from them he is adopting a theoretical viewpoint. Finally the same person could look at some coins purely because of qualities inherent in the coin e.g. its patina, modelling, proportions etc. In this sense he is looking at the coin aesthetically.

The three ways of looking at coins described above correspond somewhat crudely to the three modes of perception described by Vernon Lee (1913). They are not presented here in an explanatory capacity but rather as a starting point for determining whether

aesthetic perception and the perception of art are to be treated as classes of perception in general or whether there is some important sense in which they should be regarded as special types of perception. For the sake of clarity aesthetic perception refers to the perception of any object which is apprehended for its own sake whether it be a pattern of telephone wires on the horizon, a beautiful woman, a flower or any object which is not being looked at functionally or theoretically. The perception of art is a subcategory of aesthetic perception in which the object is a work of art. Not all art perception is aesthetic. For example the valuer or restorer must regard the art object in functional and theoretical ways, though this does not prevent him from regarding the same object aesthetically. Mace (1972) has recently explored Lee's three types of perception in an attempt to elucidate the notion of the 'aesthetic attitude'.¹ The word notion is used deliberately for at one level there is fairly general agreement among aestheticians that aesthetic experience^{or} perception involves a distinctive kind of contemplative object (viz. a work of art), as well as a distinctive kind of contemplative attitude² on the part of the observer (Osborne 1970). If it is possible to draw the many differing interpretations together (e.g. Hungerland 1954; Osborne 1970), and to ignore different degrees of emphasis, and the different aims of the theorists then some general degree of consensus appears to emerge. In general aesthetic experience involves

¹ See also chapter 9 of this thesis.

² Attitude in this context really refers to a distinctive mode of attentional state which is often regarded as a necessary and sufficient condition of aesthetic experience. The term is not to be confused with the conventional psychological definition of an attitude, e.g. as an enduring disposition characterising a person's feelings, beliefs, behaviours towards a object or class of objects. There is of course a sense in which a person could possess attitudes to art (e.g. as measured by the Allport-Vernon-Lindsey 'Scale of Values'). Consequently the 'aesthetic attitude' is to be distinguished from attitudes to art.

some degree of heightened awareness (either of the object or of the observer) which may or may not involve a feeling of pleasure. This is most easily achieved through a sustained observation of a work of art which involves a certain kind of attention to the intrinsic properties of the object and its depicted content (if it has any) with no reference to its function, ^{economic} value, information content, or any other extraneous factor. Perhaps to say this is not very much and to a philosopher it might seem outrageously naive. However, it has two distinct advantages. First, it gives the psychologist a starting point. He does not have to accept this as an accurate description of aesthetic experience, but it does at least give him an idea of what he is looking for. Secondly, and this is related to the first, it should remind him, among other things, that ratings of 'pleasingness', liking, beauty, are responses only and not the totality of aesthetic reaction or aesthetic experience in general.

It has already been accepted that the psychologist must try to avoid assumptions that are not supported by empirical data. His chief objective is to obtain an accurate reliable description of aesthetic experience before he can attempt to explain it. Before elaborating a frame work which may help the psychologist in this task, it is helpful to note the origins of the notion of aesthetic experience. The notion of regarding something aesthetically is a fairly modern conception¹ which has arisen from our increased exposure to art of all kinds, from all countries and all historical periods. Seen out of context, separated from the purpose for which they were made, art objects of the past have come to be judged by criteria which are intrinsic to themselves (Malraux 1954). In this sense objects, once functional in their own cultures, have become aesthetic objects in ours. Now the modern emphasis

¹The term 'aesthetics' was first used by Alexander Baumgarten (1714-62). It derives from the Greek word for perception.

is to produce objects purely for aesthetic contemplation (Osborne 1968, ch.10) rather than solely to fulfill religious, social or ideological functions, though some writers cling to some of these ideals.¹

The art psychologist is entering a world where disagreement and philosophical debate are pursued partly in the interests of determining the truth and partly because such debate is enjoyable in its own right. This suggests that whereas answers and certain conclusions will not necessarily be found in their writings, clues of great value will be. For example Aiken (1955), in his discussion of aesthetic perception, has distinguished three different approaches which separately or in combination may have some bearing on the psychological study of aesthetic perception. The first school of thought Aiken calls 'aesthetic sensationalism'. This is the view that the aesthetic is given immediately in sensation, for example, in Bell's (1914) words: 'You only need a sense of form and colour to appreciate a work of art'. This school of thought has argued that aesthetic or symbolic meaning is irrelevant to the appreciation of art. A slightly less restrictive theory is that of 'aesthetic perceptualism' which lays emphasis on the self-motivated, self-gratifying exercise of perception for its own sake. Any cognitive function, such as thinking or information seeking, is regarded as a distraction from the exercise of pure aesthetic perception. Finally the 'aesthetic attitude' is defined as that disposition or set of dispositions that is involved in the contemplation of beauty, in which questions concerning ontological status, correspondence to reality, utility, etc. are irrelevant. This conception does not involve the satisfaction of a need which is the case with aesthetic perceptualism. There is both agreement and disagreement expressed in these views. They will probably

¹cf. Berger (1960) who defends the Social Realism of 'official' Communist art.

sustain philosophical discourse for centuries to come.

It is into this framework of thinking and writing on aesthetic experience that the experimental psychologist brings his own methods and techniques of analysis. Although the psychologist's function is primarily empirical it is necessary for him to analyse the problem first. It is the aim of this section to lay a groundwork for the psychological investigation of aesthetic experience, in the narrow sense of pure aesthetic perception of works of art. Consequently there will be less emphasis on the behaviour surrounding the production and appreciation of works of art. This is also the concern of experimental aesthetics but I shall argue that most work to date has concentrated on peripheral areas such as the correlates of preferences for paintings instead of investigating aesthetic experience in response to the paintings themselves. To use an analogy from archery, much empirical and experimental work has been done around the edges of the target but virtually none has been aimed at the 'bull's-eye'.

As Mace (1972) succinctly put it, 'An object must be recognised and identified before it can become an object of aesthetic perception. The crucial question is, what more?' In the first instance it is obvious that aesthetic perception is a special class of the perception of objects in general. Paintings are often perceived merely as illustrations which are approximations of visually perceived reality. Many studies have demonstrated that this is the main criterion by which artistically naive adults, and children in general, judge paintings. In this sense, psychology has already made a major contribution to the perception of paintings even though seen as non-aesthetic objects.

The main problem seems to be the 'what more' quoted from Mace. X Perhaps it is this quintessential component which makes aesthetic experience qualitatively different from perception in general and

which causes artists and philosophers alike to reject or ignore the crude and seemingly irrelevant findings of psychologists. Perhaps they believe as Braque did that 'You can say everything about a painting except the bit that really matters'. Perhaps it is this failure to appreciate the significance of the 'what more' of aesthetic perception that has led to the arid banality of so much work in experimental aesthetics in which most work has concentrated on establishing the determinants and correlates of preference for paintings. This tangential approach to experimental aesthetics reflects both the lack of reliable guidance from philosophical aesthetics and the inappropriateness of traditional techniques and methods in psychology. Kennick (1958) has argued that there is no single set of criteria by which we can recognise aesthetic judgements (and by implication) aesthetic experience. This lack of guidance has forced most psychologists into unimaginative operationalism which ignores aesthetic experience in the true sense, and which conceals the crudity and inappropriateness of the methods and techniques employed under the general label, 'scientific'.

The experimental study of person perception has much in common with the experimental study of aesthetic perception. I propose to explore the similarities and differences, both as processes and as experimental investigations, of person perception and aesthetic perception respectively. In this way I hope to show how the psychological investigation of aesthetic perception can be improved and made more relevant. This does not imply that the study of person perception has succeeded whereas experimental aesthetics has failed. It means only that experimental aesthetics can benefit from an analysis of the process and investigation of person perception, which is an area more familiar to most psychologists as a field of enquiry.

I The Perception of Objects, People and Paintings:

Some Definitions:

(a) Object Perception here refers to the normal perception¹ of everything in our environment which in a philosophical or practical sense can be said to be an object.² This includes books, houses, trees and mountains but excludes ideas, abstractions, relations, states of mind, etc.

(b) Person Perception has been neatly defined by Taguiri (1968) as the process by which we perceive and know the characteristics of other persons. In the sense that this involves perceiving the facial and bodily appearance of another person it corresponds to the perception of objects generally. However, in the sense that the process of person perception involves an assessment of another person's personality, mood, intentions, etc. it is essentially person perception and not object perception. Person perception is also referred to as interpersonal or social perception.

(c) Aesthetic Perception is here referred to as the process involved when an aesthetic attitude is taken toward a painting, in the sense outlined above. It does not embrace reactions to paintings which are not aesthetic in the sense defined. These non-aesthetic reactions although relevant to experimental aesthetics should not be confused with aesthetic perception per se.³

¹An exact definition of perception is not required here. However it is perhaps useful to note that it is taken to mean something in accord with Gregory's interpretation of perception as the process of 'making remarkably efficient use of strictly inadequate, and so ambiguous, information for selecting internally stored hypotheses of the current state of the external world' (Gregory 1970). Differences in the interpretation of perception as a process should not seriously affect the discussions which follow.

²cf. Gibson's (1951) definition of an object as 'a closed physical surface enveloping a substance of some kind'.

³This highlights the weakness of the operational definition of

(continued..)

A Comparison of Object, Person and Aesthetic Perception

(a) Variation in Reference. The definitions given above embody the differences in the subject-matter of the three classes of perception. Person Perception only refers to people whether physically present to the observer (direct perception) or mediated by surrogate stimulation (photographs, television or paintings) in which case it is indirect perception. Reactions to surrogates are only classed as person perception when the observer is judging the characteristics of the person portrayed. On the whole aesthetic perception refers only to works of art or objects which are functionally regarded as such (e.g. objets trouvés). The aesthetic appreciation of nature deserves separate treatment.¹ Since paintings and people are objects within the visual environment the findings of the psychology of object perception are relevant to the extent that people and paintings share the defining characteristics of objects generally.² Although psychophysical considerations of shape discrimination, identification thresholds etc. are of great importance we also 'need to understand how the process of perception is affected by other concurrent mental functions', (e.g. set, mood, past learning, predispositions, deprivations), and how these functions are themselves affected by the operation of the perceptual processes, (Eruner and Goodman 1947).

(from overleaf)

aesthetic perception (and experience) as reactions in the presence of a work of art. There is no basis for distinguishing reactions to the painting as illustration or object, and reactions to the painting as illustration or object, and reactions to the painting as aesthetic object.

¹For instance, see the discussion by Saw (1973).

²Gombrich (1960) in *Art and Illusion* drew heavily on the work on Ames and the Transactionalist School to illustrate the role of expectation and mental set in the perception of pictures.

These determinants of the perception of objects generally are vitally important to the understanding of aesthetic perception.

(b) Variation in Complexity. All objects vary in their degree of complexity, i.e. the amount and/or variety of constituent elements. Today the trend is to call this 'information' in the technical sense. Some objects are very simple in perceptual terms (e.g. cricket-balls, bus-stops, balloons), while others are very complex (buildings, trees, landscapes, people and paintings). Running across this distinction of complexity is one of meaningfulness. Regarded as a physical stimulus (e.g. using Gibson's (1950) notion of the transitional probabilities between parts) many paintings are simple (e.g. the Suprematist paintings of Malevich (1878-1935) or the Neo-Plasticism of Mondrian (1872-1944) or the drawings of Paul Klee (1879-1940). Despite this these works are rich in meaning and connotation.¹ The cognitive processes involved in responding aesthetically to these paintings must be high level in nature. Brunswick (1956) has made much the same point with regard to the perception of people: 'Human appearance and especially the face constitute as tight a package of innumerable contributing variables as might be found anywhere in psychological research'. Regardless of the degree of physical complexity of the stimulus, person and aesthetic perception both involve high level cognitive processes. Until there is empirical data on this point there are no a priori grounds for determining whether high level cognitive processes are sufficient or necessary conditions of aesthetic experience.

¹See Malevich , Mondrian and Klee on their own work in Herbert (1964).

(c) Variation in dynamic qualities. Some objects are static, some can move and others have moving parts. All paintings are physically static so the psychological study of space and movement perception of objects is not relevant to the aesthetic perception of paintings, unless they fall into the category of Op or Kinetic art. Viewed as a physical object, or illustration, studies of pictorial depth perception are extremely important. Similarly the perception of depth and movement is particularly relevant to the perception of Film, Dance and Drama. Arnheim (1933) in *Film as Art* argued that it was the very inability of the cinematic form to reproduce reality perfectly that gave scope for the expression of artistic qualities by making effective use of the limitations of the medium, and has recently reaffirmed this point in relation to painting (Arnheim 1972). By contrast people are always moving except in photographs. This movement must facilitate our perception of others because it gives more information, the ambiguity of which is reduced by contextual cues (cf. Gombrich 1972d). A photograph or a painting represents an instant in time in which antecedent and subsequent events can only be suggested, and not depicted.¹ It is not surprising that it is often impossible to tell whether a photograph depicts a smile or a grimace, or that a person may look unfamiliar or not like his real self, or alternatively a painting or photograph can look more like the person than the person himself.

However, there is an important sense in which paintings are not static. The observer may perceive what Langer (1957) has called 'virtual movement', viz. the impression that the form and masses in a painting seem to move, or are about to move in relation to

¹This does not, of course, apply to medieval and early Renaissance paintings where events separated in time are simultaneously presented on the same canvas, e.g. Masaccio's 'The Tribute Money', c.1427, in the Brancacci Chapel, Sta. Maria del Carmine, Florence.

each other. The galloping horses portrayed by Degas¹ look as though they really are racing along even though the pigment is totally static; wrestlers in bronze by Pollaiuolo (1429-98) really look as though they are in the middle of a fight.² By contrast both styles (e.g. Ancient Egypt) and particular painters (e.g. Louis Le Nain, 1593-1648, Plate VI) are noted for their static qualities and lack of 'virtual movement'. A different interpretation of dynamic qualities has been given by Arnheim (1951, 1954) who lays emphasis on the patterns of stress and tension which result from the formal compositional organisation of the painting and the intrinsic expressiveness of the elements of painting. He argues that a painting's aesthetic qualities derive directly from the dynamic qualities of the stimulus pattern.

There is however a third sense in which a painting may be dynamic. This is the change in the perception of a painting which develops over time as a result of increasing familiarity. This idea has been expounded by Roman Ingarden (1962) and by Osborne (1970), who refer to the gradual changes that occur over time in 'the areas of indeterminacy' that exist in a painting. It is these changes which progressively transform the painting from an ordinary neutral object of perception into an aesthetically perceived object. To use Ingarden's term the work of art is 'actualised' from the physical object by the person who perceives it, becoming for him something that is unique and private. This dynamic actualization of the aesthetic object is another feature which adds to the difficulty of studying aesthetic perception. It is interesting that the concept of actualization may correspond to a similar process in person perception when a person originally perceived as a stranger becomes an acquaintance and is eventually

¹The Races at Longchamp, 1872, Paris.

²Hercules and Antaeus, c.1475. National Museum, Florence.

perceived and treated as a friend or loved one, i.e. the progression from stereotype to a unique individual. Consequently in this important sense the perception of people and paintings may be regarded as dynamic.

(d) Variation in Function. People with sight need to see objects in order to go about their day-to-day lives.¹ In this sense, object perception is vital. Similarly judging the intentions, moods etc. of other people is essential if we are to engage in smooth social encounters with them. Argyle (1969) has laid great stress on the importance of accurate person perception as a major component of social skills. He argued that serious deficiencies in this ability could lead to psychotic withdrawal, or in a less serious form to anxiety, because of clashes with other people which would result from not perceiving them accurately enough. Aesthetic perception is entirely different. It is not essential for day-to-day living in the practical sense. It is essentially a minority activity indulged in by a relatively small number of people. Most people live in sublime ignorance of the claimed value of aesthetic experience, though many writers have argued that there is an increasing need to develop aesthetic sensitivities in us all to improve or maintain the quality of life. Bodkin (1954) claimed that the aesthetic experience of paintings help to 'ennoble and fortify our human nature', though others have claimed more practical advantages which would accrue from a greater emphasis on aesthetic education (Read 1943, Arnheim 1969; Reid 1969). If their ideas were adopted on a large scale, aesthetic perception could play a role in our lives at least as important as person perception though on quite a different plane.

¹Gregory (1966) noted that 90% of the information from our environment reaches us through the eyes.

(e) Variation in frequency of occurrence. Consciously or unconsciously we see objects all the time our eyes are open, even though we may not be attending to them. Although we only see people when they are present (apart from hallucinations) we only indulge in person perception when we need to form some opinion about the mood, personality or intentions of another person. People are part of our daily lives, works of art are not, unless we specifically seek them out. Given that an individual is aesthetically sensitive and is in the right mood, and there are no distractions, whether or not he responds aesthetically is not a matter of choice for him. There is a sense in which the aesthetic reaction is triggered by the stimulus painting (Foss 1952; Mace 1962) possibly by some form of innate releasing mechanism (IRM) or a learned equivalent. Typically, time and energy is spent seeking out aesthetic stimulation. The observer chooses how, when, where and for how long he will look at a painting. He can come back time and time again. His reaction is not determined by physical change in the painting, though in person perception reactions are contingent on the behaviour as well as the appearance of the stimulus person. Usually the aesthetic observer contemplates the stimulus at his leisure. When perceiving another person he is constrained by many factors including social etiquette, time, unfolding events, and the necessity for concentrating on other matters at the same time. Person perception is functional and is practiced when required. Aesthetic perception is contemplative and determined by the observer, though it can be triggered by a work of art.

(f) Variation in expertise and authority. There are no human experts on the perception of objects, though mechanical aids (e.g. telescopes, and microscopes) are used to extend human perceptual powers. Equally, no one is taught to see objects, though fine discriminations and other perceptual skills are taught especially for industrial skills (Gibson 1969; Annett 1969). Children are not

taught to see objects per se, nor are they specifically trained in the art of person perception. It is largely a question of trial and error learning rather than formal teaching. Although attempts are made to improve an individual's ability to perceive and judge others (Argyle 1969) there are no experts in the skill itself. By contrast aesthetic perception receives formal training at schools and universities in a variety of forms (art appreciation, history of art, practical art, etc.). Although widely taught at school, very few children carry their lessons in art on into adult life (Peel 1954; Valentine 1960) which suggests, among other possibilities, that the teaching is not very effective.¹ A number of those who do carry their interest on into adult life eventually become art experts, the connoisseurs and arbiters of taste, (viz. painters, critics, art historians, aestheticians, philosophers). It is a major function of the experts to judge, interpret, explain, or expound art and works of art and to render them more comprehensible to the layman. They also provide guidance on matters of taste; they tell us how we ought to react. As a result, the study of differences between experts and non-experts in their reactions to art is a major field of enquiry in the psychology of art.

(g) Variation in the range of acceptable reactions. Closely related to the existence of experts in the field is the fact that only a circumscribed range of experience and responses are considered proper when experiencing works of art. In other words there is a right reaction which is relative to the prescriptions laid down by the experts. Aesthetic experience is value-laden. Some reactions may be considered cheap, trivial, misguided, whereas others are profound, moving, mystical. When regarding physical objects most people agree most of the time. When there is a disagreement this can usually be attributed to a causal factor such

¹See Chapter eight of this thesis.

as a mistake or a hallucination. When there is disagreement over a work of art it could mean that one person lacks aesthetic judgement or sensitivity, or they have different value systems, (i.e. belong to different schools of thought). In person perception differences in judgements about the same stimulus person are very common and often very large (Taquiri 1968). Despite this most people get along well enough. However, there is still an objectively true judgement corresponding to the characteristics of the stimulus person.

When looking at paintings there are considerable individual differences both in preference judgements and aesthetic evaluations. There are no objectively true evaluations. There are only the opinions of the experts and the non-experts. The experts agree among themselves to some degree. Burt (1933) has noted that when a wide range of stimuli are presented to experts covering a wide range of aesthetic quality there is a high degree of consensus between experts. This however reduces as the quality of the paintings becomes more homogeneous. Despite this there is suggestive evidence that non-experts disagree among themselves more than the experts (Valentine 1962). Pratt (1956) has argued that differences of opinion in regard to paintings result from the fact that people see different things when they look at the same painting. It is more likely that everybody sees the same thing in a painting but that they attend to different aspects of it, and give different weights to its various characteristics. The position is made even more complex by the fact that there are no hard and fast rules for identifying a work of art, or knowing that what one is actually experiencing is aesthetic in nature.

In art there are experts, but there is no reason why laymen should defer to one expert rather than another. This curious situation contrasts with person perception where everyone is his own expert and defers to no-one. In person perception differences

of opinion about a given person reflect a wide range of error-making. In aesthetic perception a similarly wide range of reactions reflects differences in value rather than error. In this sense aesthetic perception is more like ethical judgements than the perception of the internal states of other people.

(h) Variation in assumptions about reference objects. Person perception is largely a matter of inference. It is a question of making judgements about the unobservable characteristics of other people. Implied in this process is the assumption that the other person is a conscious organism, which is capable of thought, and can generate behaviour in the ways similar to the observer (Taquiri 1968). In aesthetic perception the object is an inanimate, complex, often revered object. In person perception the object is another person, which has the distinction of being more like the perceiver himself than any other object of perception. This gives the observer a unique opportunity to generalise from knowledge and experience of himself as a person to his perception of others. Paintings are a special class of objects in general which have an aura of mystique and subtlety, which does not permit the comfortable sense of being well-qualified to make judgements about them which is associated with person perception. This may explain the well-worn phrase: 'I know nothing about art but I know what I like'.

(i) Variation in the mediacy of perception. Gibson (1954) has postulated a theory of pictorial perception which is extremely important for experimental aesthetics.¹ He makes the distinction between direct perception which is a process of 'becoming aware of an object', and pictorial perception which is the process of 'being made aware of an object'. Representational works form the

¹Gibson has since modified this theory (Gibson 1966, 1971), but his analysis of pictorial perception is still valid and relevant to this discussion. For a discussion of the later theory see chapter nine.

substantial majority of all paintings. (Indeed the number of purely abstract painting must be very small (cf. Read 1960). The pure abstract painting is not relevant to this section.) Gibson described representational paintings as surrogates for real objects whether they be ideas, moods, events, ideals, or physical objects. Perception of a painting involves seeing it in a frame, or as a square of canvas which isolates it from the rest of the visual field. The perceiver must look at it as an entity in itself. Responses which are appropriate to the depicted object are not necessarily appropriate when perceiving a picture of the object. Consequently a special frame of mind or set is required not only to see the distal stimulus as a picture but also as a work of art. Gibson (1954) goes on to say that the same object can be perceived both as a flat object (a 2-dimensional surface) or as three dimensional space (virtual space). The ability of the perceiver to see the same distal stimulus either as paint on canvas or as a depiction and the relation this has to aesthetic experience is an interesting phenomenon which must be explained by experimental aesthetics. Finally, Gibson discussed the manner in which the painter can produce a painting which is the product of his own perceptual processes (of distortion, selection, etc.) which are characteristic of normal perception. Consequently, an observer can see a depicted object in a way that has already been processed by another perceiver (viz. the painter) and which he might process again. This is a feature of aesthetic perception which might account for the sense of heightened awareness that is sometimes experienced in perceiving a painting (cf. Koestler 1964).

Just as there can be pictures of objects there can also be pictures of people. Gombrich (1972a) has recently asked how it is that a picture of a person can seem more like the person than the person himself, and Hochberg (1972) has attempted to explain how we can distinguish good likenesses from bad, and distinguish

temporary expression from permanent facial structure in a portrait. It would be interesting to see whether personality judgements of a person depicted in a portrait would show greater concensus among observers than judgements made of the real person. The study of pictorial perception is of very great relevance to the perception of paintings.

II The Empirical Study of Aesthetic Perception and Person Perception

Both aesthetic perception and person perception are very complex processes. They are both important and can both involve questions of value, albeit in different ways. This makes empirical investigation very difficult. It is not therefore very surprising that both fields of investigation should be in a state of confusion. Large numbers of studies are reported annually but there seems to be no guiding structure, no order, and very little progress. As Taguiri (1968) put it, the study of person perception has been 'hindered by an excess of empirical enthusiasm and a deficit of theoretical surmise'. There is a general lack of theories that span the data available, which at the same time retain contact with neighbouring or more general fields in psychology. In chapter two of this thesis it was argued that the psychology of art is in much the same position, regarding aesthetic perception. The biggest problem of both aesthetic perception and person perception is that of achieving accurate, naturalistic and valid descriptions. In the light of this I propose to discuss a model of aesthetic perception which is directly derived from a model of person perception developed by Warr and Knapper (1968). The description of the model will be followed by a discussion of its potential contribution to the psychology of art.

It is essentially a qualitative relational model similar to the explanatory models developed by Deutsch (1964). The model

relates only to present perception as it has no temporal or developmental dimensions (see Fig. 5-1). There are three categories of input, viz. present stimulus information, present context information and stored stimulus information, and there are two categories of perceiver variables, viz. current state of perceiver and stable characteristics of the perceiver. All three input categories and the two perceiver categories act directly on an input selector which operates both peripherally and centrally. to a processing-centre which generates three different types of output or response categories viz. evaluative, attributive and affective responses. The elaborate network of interaction and feedback loops existing between cells in the model can be seen in the diagram.¹

For the purposes of this discussion only the cells will be described in detail, for the interconnections can best be determined by empirical research. It is hoped that by allocating research in experimental aesthetics to the categories contained in the model the structure of the field will emerge and areas of neglect or too much emphasis will be revealed.

¹If fig. 5-1 is compared with Marr and Knapper's (1968) model (see appendix B) certain modifications will be noticed. First, it has been streamlined a little to facilitate comprehension. Secondly, the direct feed-back loop from responses to present stimulus information has been removed. This is because the stimulus is inanimate and cannot change itself in the light of the observer's reaction, as a person might. Thirdly, for similar reasons the expectancy response category has been dropped because the physical painting is not likely to generate expectancies about its behaviour etc. in the future. This has been replaced with evaluative responses to embrace aesthetic judgements, as well as the more neutral aesthetic reactions. Fourthly, the direct link between stored stimulus information and present stimulus information has been removed, again because of the fact that paintings are inanimate. Finally, a new direct link between attributive responses and the processing centre has been formed (see discussion below).

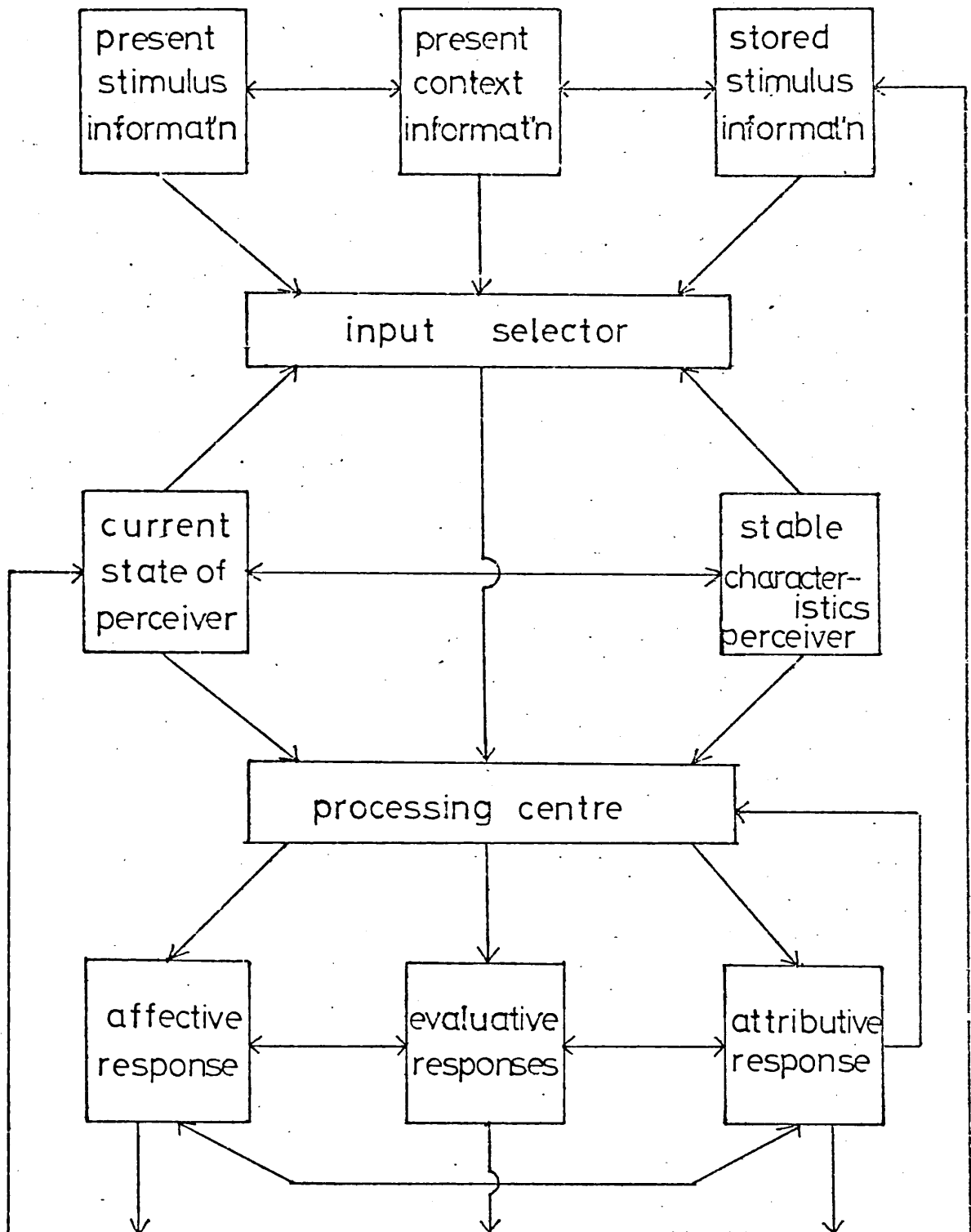


Fig. 5-1. A model of aesthetic perception. (Adapted from Warr and Knapper 1968)

The Stimulus Variables.

(a) Present Stimulus Information. This refers to the distal stimulus as a concrete physical object. It contrasts with present context information in the relation of figure to ground. In the study of person perception the independent variables studied include the observed person's appearance, posture, facial expression, apparent status, clothes, presence or absence of spectacles, etc. (Marr and Knapper 1968, Taguiri 1968). In experimental aesthetics there has been considerable emphasis on present stimulus information but usually in the form of molecular stimuli (simple colours and shapes or combinations of these). When molar paintings (or reproductions) have been used it is not usually as an independent variable, but rather as a set of stimuli which will reveal differences of reaction in the observer. Thus paintings are often presented to determine whether people are more influenced by the depicted content than more formal aesthetic qualities. This is particularly common in studies with children. Psychoanalytic studies have also put a great deal of emphasis on the depicted content. The methodological difficulties of using molar stimuli as independent variables has already been discussed in chapter four. It is not therefore surprising that most studies investigating formal and compositional features (symmetry, balance, unity-in-variety, etc.) as an independent variable tend to utilise simple geometric stimuli, though as we shall see in chapter six several researchers have made realistic attempts to study these in molar paintings by using multidimensional scaling techniques.

An aspect of the present stimulus information that has not been seriously investigated is the effect on preference and evaluation of different artists, schools, periods of painting as well as different types of visual art (painting, sculpture, architecture, film, drama, dance, furniture, etc.). There have been one or two isolated small-scale attempts in highly restricted areas. In order to be valuable, such studies would have to be large

scale, well sampled and extremely well thought out.

There is no sense at present in which the psychology of art is an applied discipline. There is considerable scope for development here. Single artists could be studied. For instance, if Henry Moore's work were subjected to psychological study it would also be possible to study the artist's personality, attitudes, etc.¹ It would be possible to compare psychological measures of his own work by other people and by himself. Using every available suitable psychological measurement technique, and designing experiments to test hypotheses, an invaluable aid to understanding both the artist and his work would be established. After his death, a complete psychological record would survive to help later generations understand and appreciate the man and his work. A comprehensive, empirical psychological study of a single artist and his work has not yet been made, though Gestalt or psychoanalytic speculative interpretations are common.

Other variables that fall into this category which have not seriously been investigated include the effects of medium, size of work, and reproductions on overall reactions. In conclusion, there has been a considerable amount of work on the present stimulus information, but much of it has been peripheral methodologically weak, or lacking in naturalism. This is an area of research that is extremely important to our understanding of aesthetic

¹I have chosen Henry Moore as an example for several reasons. Foremost among these is the fact that he is among the greatest living artists today, and I personally have a great interest in his work. He is eighty years old, and the opportunity to record a great living artist might soon be lost. In addition Henry Moore is highly articulate about his own work and art in general (see 'Henry Moore on Sculpture', edited by James 1966) and it might be possible to empirically check his ideas, and see whether they accord with the way people actually see his work. Finally it is appropriate in the context of this thesis in view of the fact that Freudian, Jungian, and Gestalt interpretations have already been made of his work.

experience.

(b) Present Context Information. By contrast with the above this area has been more extensively studied in the field of person perception than in aesthetics. This is probably due to the fact that context is regarded by writers on art as a factor that is largely irrelevant or at least extraneous to the appreciation of art which should be judged on its intrinsic merits. In person perception the effects of context are extremely important. Variables include social setting (school, work, home); perceived role (father, manager, husband), group membership (student, hippie, socio-economic class); ongoing action, etc. Although it is argued that corresponding variables of context in the perception of paintings should not affect the observer (e.g. Read 1950; Osborne 1970), the fact is that they probably do (cf. Bruner 1957). This area has been almost totally neglected in psychological aesthetics. There is an important need to investigate the effects of judging aesthetically poor paintings in a group of good or well-known paintings, the effects of a room's decor on reactions; seeing a painting alone or in a group of people; the false attribution of a work to a painter, etc.

(c) Stored Stimulus Information. In both person perception and aesthetic perception this is an important area of investigation. It represents all that an observer knows, feels, or believes about a work of art prior to encountering it, whether it is for the first time or not. In person perception stored stimulus information is subdivided under two main headings, viz. knowledge of the 'other' as an individual and knowledge of the 'other' as a type (stereotype formation). In aesthetic perception this can be paralleled by knowledge of or familiarity with specific work, in contrast to knowledge and familiarity with the type of work at one or more of three levels, viz. the individual painter, his 'school' or the period of art to which he belongs. In a more general sense the

observer may bring with him knowledge, familiarity and attitudes to art in general. All these can affect how an individual appraises a given work of art. Bruner and the Perceptual Functionalists (Brunswick 1956) have laid great stress on the mediation of central processes which interact with the physical stimulus to produce the phenomenal object. The central processes affect perception as a result of motivational states, predispositions, expectations, past learning, satisfactions, deprivations, and set. Bruner and Postman (1949) have noted that the less the structuredness or univocality of the stimulus input, the more striking the role of the directive non-sensory input will be in determining perceptual experience. The tremendous diversity of art both within and between cultures, (e.g. European, Chinese, Columbian, Oceanic, African) and the subtlety of individual works, permits considerable scope for the influence of stored stimulus information on present perception.

There have been a small number of studies which investigated the effects of familiarity (e.g. Frumkin 1963; Ross 1966). Unfortunately however, knowledge of and familiarity with art is usually partialled out as an extraneous factor (e.g. Child 1965) rather than studied in its own right. A rare exception to this is a study by Bernard (1970) who specifically measured familiarity with, and knowledge of, paintings as an independent variable. In addition to his conscious knowledge, each individual possesses an undifferentiated accumulation of views, opinions, and judgements, which are derived from other people, in addition to his own assumptions, views and prejudices about art in general and specific works. This corresponds to Bruner and Taguiri's (1954) notion of the 'implicit personality theory'. This would embrace an individual's criteria of what an object has to be like in order to be liked by him, or regarded as a good as opposed to a poor work of art. For example this could mean that it must be a representational painting in the classical manner which idealises man and nature

particularly if hung in an elaborate gilt frame in a museum. Alternatively, another person might be less specific about means, but place more emphasis on the aims of the painter, e.g. that the painting should possess, in the words of Matisse: 'Luxe, Calme, et Volupte'.¹

In addition to criteria of classification and evaluation 'the implicit aesthetic theory' embraces the kind of knowledge that a person feels he needs to have in order to appreciate the work of art. Gombrich (1960, 1962) has argued that the expressive power of a painting can only be properly interpreted in relation (or by contrast) to the artist's characteristic style, or the prevailing style of a period. He illustrates this with two paintings by Van Gogh², one of which was intended by the artist to embody a feeling of calm and tranquility, the other tension and anguish. Both are painted with Van Gogh's characteristically turbulent, vigorous brush-work, and it is only by seeing them in relation to each other that it is possible to determine that one is more peaceful than the other. Gombrich stresses that all meaning and expression in art depends on a priori knowledge of possibilities. Knowledge of the conventions of a given genre or painter allows us to enter into the framework of possibilities, and so to evaluate any given work against this framework (Gombrich 1973). Consequently an individual's knowledge of art is a very important determinant influencing his overall reactions and experience of a work of art.

Similarly a single item of information may change the mental set with which one looks at a painting. In *Ways of Seeing*, John Berger (1972) invites the reader to look at Van Gogh's 'Wheat Field

¹See Introduction to Catalogue of Matisse Exhibition by Lawrence Gowing (Arts Council of Great Britain, 1968)

²In Gombrich (1972d)

with Crows' (1890)¹, and having done so, he invites the reader to look again, this time with the information that it was the last painting executed by Van Gogh before he committed suicide. Berger is obviously predicting a change in reaction. It would be easy to test this idea empirically. A further aspect of stored stimulus information is brought out in a discussion of the aesthetics of snobbery by Koestler (1964) who claims that antiquarian snobbery, susceptibility to famous names, an obsession with authenticity (as opposed to the perfect forgery), and the commercial value of art all affect the way a painting is perceived, though none of these actually affect it as a physical stimulus. Koestler does not regard this as a trivial phenomenon, but rather as the result of a serious confusion of values. These factors could well form important criteria in an individual's implicit aesthetic theory.

An individual's implicit aesthetic theory functions in the context of a prevailing cultural aesthetic theory. The modern view is that an aesthetic attitude can be adopted toward any object, and that a work of art has no other function than being a work of art (Malraux 1953, Hungerland 1957). In Classical times and the Renaissance, naturalism was the order of the day and in medieval aesthetics art was used to teach orthodox religious doctrine to the illiterate. Today the prevailing cultural aesthetic theory is that almost anything is art; anything can be justified as art. Within this context individuals can be characterised according to the value system they have adopted whether this can be traditional academic painting, the avant-garde generally, or selected aspects of various schools of thought.

As a global description of what people expect of art, and the effects it has on them, the implicit aesthetic theory (at the

¹In the collection of V. W. Van Gogh.

individual and the cultural level) can function as an integrating frame-work in the psychology of art, drawing together the diverse variables and influences that ultimately determine an individual's or group's reaction to art. The implicit theory also reflects an individual's personality and other stable characteristics, and therefore has an impact well beyond the category of stored stimulus information. Perhaps it is better conceived as the central feature of the processing centre; a state of readiness to respond to different aspects of works of art according to a set of assumptions, values, expectations, and decision-making processes.

(d) Current State of the Perceiver. This area has received thorough and extensive attention in both the psychology of art and in the study of person perception. In this context attentional and emotional states are particularly important in relation to the aesthetic attitude discussed above. Unfortunately this has not been explicitly investigated in the psychology of art. In experimental aesthetics generally there has been too much emphasis on the easily measurable determinants and correlates of aesthetic responses (ratings, rankings, etc.) rather than in terms of real aesthetic experience or appreciation of a work of art. Physiological arousal is an important variable in this category, and plays a very dominant part in Berlyne's theory of aesthetics. Unfortunately, apart from a study by Smets (1973) there has been no attempt to measure or record arousal levels during the process of perceiving something aesthetically. Smets used matrix grids as stimuli, so there has been no attempt to record arousal during aesthetic experience of a great and loved work of art, or while someone is introspecting in front of a great work of art. The closest parallel in person perception would be to measure arousal levels as a function of attraction and perceived beauty in another loved person.

(e) Stable characteristics of the perceiver. This is probably the busiest area in experimental aesthetics. The perceiver's

personality, intelligence, age, education, socio-economic class, sex, culture, life-style, cognitive style, etc. has been correlated with his aesthetic judgement and preferences, with a disturbing degree of wasted effort due to partial overlap between studies, and the use of different measures. With an almost infinite range of stimuli to sample, and innumerable ways of measuring the perceiver variables, experimental aesthetics could continue 'spinning its wheels in the mud' (McWhinnie 1971) for years to come. It is however an important field which should be treated systematically with a standard set of representative stimulus and adequate response sampling. At the same time it represents only a small part of the total research effort that should be devoted to the psychology of art. This should be clear from examination of the model of aesthetic perception. It is in this area particularly that the psychology of art faces the greatest danger of going astray. Hudson has eloquently argued against sole reliance on the hard facts: 'age, sex, social class, educational achievement, marriage and divorce rates, fertility, the incidence of disease and crime, central values and what have you... There is a profound pleasure to be had in hitching interpretations to data such as these. They form our anchor in times of need. But in isolation they are meaningless; and we tend, in any case, to absorb ourselves in playing statistical tunes on them. Worse, if we are not scrupulous, we find ourselves edging round to the view that such simple facts are in some important sense basic; that people are reducible to the forms of evidence about them that we find it easiest to collect' (Hudson 1972 p.155).

III The Response Categories

It may seem too rigid and somewhat arbitrary to classify all responses and reactions into attributive, affective, and evaluative categories. On an a priori basis it is reasonable to divide reactions to aesthetic objects into categories, if only to assist the researcher to plan and conduct his work. Affective responses

include all reactions of a more or less emotional type, which can be elicited through introspection and other measures of liking-disliking, associations, etc. These responses are essentially passive and private. By contrast attributive responses involve some form of cognition (thinking, problem-solving, categorising, interpreting) which results from a decision to do any of these, e.g. dating the work, detecting influences, etc. The affective responses is less the result of a decision than the experienced impact of the stimulus painting itself. The third response category can, but needn't, be dependent on the affective and/or the attributive reactions. An individual's decision to rate the painting as a work of art need not be influenced by his liking it, nor by its attribution to a particular artist. In this sense it could be regarded as an independent process.

As a reminder that aesthetic and artistic perception is being investigated, it would perhaps be a good thing if another box, labelled 'pure aesthetic experience' were added to separate the perceptual responses to art from the mildly pleasant perception of everyday objects. Bearing in mind that the concept of aesthetic experience is not distinct even in the minds of philosophers, and is even less clear in the eyes of psychologists, the box must remain empty so long as experimental aesthetics continues to concentrate on peripheral and trivial aspects of aesthetic perception. The chief aim of the box would be to remind psychologists that the mere collection of ratings, rankings, groupings, etc. in response to works of art does not in itself guarantee that the subjects have been responding aesthetically or that the measures are genuinely aesthetic. There is a grave need for detailed accurate descriptions of how people react to and experience works of art. Until this is done the significance of previous research cannot really be assessed.

II Processing Centre and Input Selector.

It is because of the emphasis of experimental aesthetics on the determinants and correlates of aesthetic responses that these boxes in the model are empty. This is disturbing in view of the sheer quantity of time and effort that has been devoted to the psychology of art. There are two important aspects relevant to the process of aesthetic perception and the related experience. First, there are the mechanics of the process in information-processing terms (see chapter nine), and secondly, the contents of the process. It is in this latter respect that the notion of an implicit aesthetic theory is most relevant.

We have already noted that people attend to different things when looking at the same object. Hungerland (1954) has illustrated how two art critics gave dramatically opposite interpretations of Cézanne's paintings. One said that Cézanne's space and volume are based structurally on line drawing, and the other claimed that Cézanne relies less than any other painter on line drawing. Both critics agreed on the aesthetic value of Cézanne's paintings, though their interpretations must have been distorted by their respective commitment to different theoretical positions. Another famous clash of interpretation, by Walter Pater and Bernhard Berenson respectively, concerned Leonardo's Mona Lisa (see Osborne 1970, pp.257-260)¹. There can be no doubt that 'what we see when

¹By way of illustration, Walter Pater wrote, among other things, that 'She is older than the rocks among which she sits; like the vampire she has been dead many times, and learned the secrets of the grave; and has been a diver in deep seas, and keeps their fallen day about her; and trafficked for strange webs with Eastern merchants.' (Studies in the History of the Renaissance, 1873). Berenson is not nearly so entranced: 'What I really saw in the figure of the Mona Lisa was theestranging image of a woman beyond the reach of my sympathies or the ken of my interests, distastefully unlike the women I had hitherto known or dreamt of, a foreigner with a look I

(continued)

we look at a picture depends on the nature of the interest with which we approach it and the habits of appreciation which we have formed' (Osborne 1970). Consequently everyone who approaches a work of art with serious intent necessarily does so with a range of tacit beliefs about it, and tacit expectations about what he may find in it, and what he may get from it. On a purely descriptive basis it is possible to characterise people in terms of their implicit aesthetic theory. The art psychologist needs to know the conditions and criteria by which people characteristically appraise a work of art, as an aesthetic object or in any other way. Similarly he also needs to know the conditions under which people describe or refuse to describe an experience as aesthetic. In this way people could be classified according to the criteria they use in making aesthetic judgements, and the characteristics by which they define aesthetic experience.

A critical question is: how is the psychologist to go about obtaining these descriptions and forming appropriate taxonomies? One way of approaching this would be to determine whether an individual's implicit aesthetic theory corresponds to the prevailing art theories that have existed from Classical times to the present day. This could be established by simple preferences among a suitably selected range of stimuli. A taxonomy of Western art theories given by Osborne (1968) would assist the sampling of

(continued from overleaf)

could not fathom, watchful, sly, secure, with a smile of anticipated satisfaction, and a pervading air of hostile superiority'. (The Study and Criticism of Italian Art, 1916). Berenson does not like it as a work of art because it is too problematic, and thus prevents the mystic union between it and ourselves. See Osborne (1970, pp.250-269) for other comparisons between reactions of experts to the same works. As an example of one artist's intolerance of the work of another, Manet is reputed to have said of Renoir: 'Advise the poor fellow to give up painting.' In his turn Renoir said of the Venus de Milo, 'Nothing but a great policeman, not like the Venus d'Arles or Medici' (Kenneth Clark, The Nude, p.81).

stimulus paintings, and subjects could be asked for their reason for choosing particular works. Thus people could be divided into the following categories depending on whether they regarded art as:

- (a) pure craft or manufacture,
- (b) an instrument of education or improvement,
- (c) an instrument of religious or moral indoctrination,
- (d) an instrument for the expression or communication of emotion,

(e) an instrument for the vicarious expansion of experience, or combinations of (a) to (e). All these are instrumentalist theories of art in that the individual finds satisfaction if a work of art fulfills a particular function. Alternatively the individual could be interested in art as a reflection or copy of Nature. There are essentially three kinds of Naturalistic theory, which he could implicitly or explicitly adhere to, viz.

- (a) Realist, in which art is a reflection of the actual,
 - (b) Idealist, in which art is a reflection of the ideal,
- or, (c) Fictional, in which art is a reflection of imaginative actuality.

Finally, there are two kinds of Formalistic theories, in which art is seen as:

- (a) an autonomous creation, or
- (b) an organic unity.

These formalist theories lay most emphasis on the intrinsic perceptual qualities of the work of art and closely approximate the aesthetic attitude. It is quite possible for a person holding a formalist approach to link this to a naturalist and an instrumental approach at the same time. This taxonomy is crude. For example there are many different ways in which a work of art can be seen and appreciated as a thing in its own right. It does however provide a starting point for the psychologist in his attempt to characterise individuals' reactions to art.

Using this approach there are many things that he can discover. For example he can determine what kinds of people respond to the two kinds of art described by Koestler (1967), viz. the art that has a transcendental appeal and cathartic effect, and the kind of art that is a mildly pleasant pastime. The psychologist also needs to discover what kinds of art and under what conditions, can produce these differential effects in observers? In much the same way we need to know why and how people attribute beauty to objects. Are there, for instance, different kinds of beauty as suggested by Read (1950), viz. the Classical, the Oriental, the Byzantine, and the Primitive? Another feature of an individual's implicit aesthetic theory is the kind of experience that he regards as aesthetic, and therefore to be sought after. Kreitler and Kreitler (1972) have identified seven different psychological processes all of which they claim contribute to the overall aesthetic experience.¹ However the authors are not sure of the relative importance of the various processes in determining overall aesthetic experience. It is quite possible that individuals show different patterns of organisation among these processes which may effect qualitatively the kind of aesthetic experience they have. If stimuli could be chosen which strongly elicit the respective processes then it would be possible to classify people according to their dispositions towards certain kinds of experience. There is clearly a considerable amount of research to be done at the phenomenological descriptive level before meaningful tests of hypotheses can be conducted.

¹These include the arousal and relief of tension; a mental set enhancing attention to the spacial, structural and meaning qualities of the stimulus; a feeling of empathy; 'aesthetic distance'; sublimation of repressed wishes; symbolic processes; and expansion of cognitive capacities. According to Kreitler and Kreitler (1972) any stimuli which elicits all these processes is a work of art.

Conclusions

The model of aesthetic perception described here has highlighted the state of imbalance existing in current experimental aesthetics. It has revealed that some areas of research are well developed, and others hardly touched on at all. Moreover it has revealed that the inter-relationships between categories, e.g. the input or the output variables, have also been neglected in experimental aesthetics. The model also reveals a lack of attention to the essential processes involved in perceiving aesthetically. In specific terms the following points can be made:

(a) More emphasis should be placed on the relationships between the stimulus variables, the person variables, and aesthetic experience.

(b) In particular the 'current state of perceiver' should be studied in terms of attention, motivation and arousal in an attempt to throw light on the hitherto neglected 'aesthetic attitude'.

(c) Experiments should be designed specifically to elucidate the operating principles of the 'input-selector' and the 'Processing centre'.

(d) There should be less ad hoc work. Instead work should be planned to integrate with other research in an attempt to provide more systematic description and explanations.

(e) The 'implicit aesthetic theory' was presented as a conceptual frame-work for characterising an individual's expectations, beliefs, values, and criteria which determine and influence his encounters with art. As a conceptual frame-work it forms the basis of an integrated approach to the psychology of art, and emphasises the important need for systematic comprehensive research at the phenomenological descriptive level. Only when this has been done are explanations possible.

CHAPTER SIXThe Structure of Aesthetic Experience

In view of the complexity and subtlety of reactions to art any attempt to reduce aesthetic experience to a small number of graspable categories, components, elements or dimensions must be seen as a primary aim of the psychology of art as it is of science in general. There are two basic ways of doing this. The investigator may elicit or discover the structure that appears to underlie reactions of people looking at art objects. Alternatively he may impose some kind of a priori structure on their reactions. The first approach attempts to reveal order out of variability and the second imposes order to reduce the variability. The first approach can be subdivided into (a) the discovery of structure itself; and (b) the use of the discovered structure to impose order on the responses of people experiencing art. The second basic approach can be subdivided into studies which (c) impose an a priori order before the person responds, and studies in which (d) he is allowed to respond freely and the investigator imposes order by developing a post hoc classification of responses.

I The discovery of structure

This is usually achieved by utilising fairly complex statistical procedures such as factor analysis, and multidimensional scaling. Essentially factor analysis provides a measure of the proportion of common variance shared by a number of measures, or a number of people on the same measure.

In England at least, most work has centred round the notion of a general aesthetic factor, which is analogous to Spearman's general intelligence factor 'g'. This was discovered by Burt (1933) and his co-workers (Bulley 1933; Dewar 1938) as well as Williams et al (1938), Eysenck (1940a, 1940b, 1941a), Pickford (1948) and

Feel (1944). These studies have been extensively described by Valentine (1962) and by Fickford (1955, 1972) but seem to have aroused little attention outside England. They originally arose out of Burt's general work on personality (Burt 1939). Here he describes the basic finding that there is a 'large general factor for artistic ability which enters into every manifestation of aesthetic taste' (Burt 1939). Within this general artistic factor there are smaller general or group factors corresponding to the various types of art, viz. music, literature, painting, and also a factor for executive skill in visual art. As noted above, the general aesthetic factor corresponds to Spearman's general intelligence factor 'g', though Burt stresses the independence of these two general factors.

Burt's definition of the general factor is somewhat vague though in line with current aesthetic theory of the day. In effect he defines it as the appreciation of what amounts to 'significant form' (as expounded in the theories of Roger Fry (1920) and Clive Bell (1914)). This is essentially an appreciation of lines and colour which are combined in a particular way.¹

This factor underlies all aesthetic reactions and was used to explain the interpersonal agreement in ratings and rankings found by Burt and his associates.

Burt moved from revealing the structural organisation of personality to the correlation of personality factors with aesthetic judgement. Eysenck, by contrast, worked the other way round. He started by factor analysing aesthetic preferences and then correlating the aesthetic factors with Burt's personality dimensions.² In

¹Burt does not, however, subscribe to Bell's or Bulley's view (1951) that there is a unique aesthetic emotion experienced in response to significant form.

²For more detail of the correlations between aesthetic factors and personality see chapter seven of this thesis.

addition to revealing a general aesthetic factor Burt (1939) had speculated about the existence of two bi-polar factors which seemed to be related to preferences for, (a) classical as opposed to romantic art; and (b) realism as opposed to impressionism. Eysenck (1940a) set out to explicitly test this. He used an extremely varied range of visual stimuli and confirmed the finding of a general aesthetic factor. In addition Eysenck revealed a weak bipolar factor. In a later study Eysenck (1941a) controlled for the effects of the general factor by using only stimuli of acknowledged aesthetic merit in order to reveal the bipolar factor more clearly. The bipolar factor that emerged could easily be identified as a 'brightness' factor (labelled 'K') which differentiated preferences for modern, impressionistic, colourful art as opposed to older, sombre, more conventional works. Eysenck interpreted the general factor as one of 'aesthetic taste' (labelled 'T') which is independent of age, sex, artistic sophistication, race or nationality. Later studies extended the coverage of the 'K' factor to general complexity as opposed to simplicity of stimuli, as well as to other sense modalities (Eysenck 1940b, 1941c, 1942).¹

Eysenck had been critical of earlier studies because they had not selected stimuli which were free of 'irrelevant associations'.

¹It will be recalled from chapter four that Eysenck's criterion of correct aesthetic choice was agreement with the average judgement of a group. He used 18 different sets of stimuli which were analysed separately. Consequently an individual's loading on T (or his aesthetic taste) is a measure of whether or not a person who most agreed with the average judgement in one test also agreed most with the average judgement in the other tests. In that chapter I argued that this was really a measure of group consensus, rather than a measure of aesthetic taste based on external standard or value. As a measure of intragroup agreement across diverse sets of stimuli the general and type factors combined account for less than a third of the total variance. Individual non-group factors (e.g. response to content, or emotional reactions) were regarded by Eysenck as aesthetically irrelevant even though they accounted for about 50% of the variance, the remaining 15% being error

He accordingly chose stimuli that were generally equal in aesthetic merit; equal in representational accuracy; and finally equated for familiarity. The resulting general factor Eysenck attributed directly to the intrinsic qualities of the stimuli, and speculated about the operation of a fundamental biological tendency which is innately determined. This notion was directly tested by McElroy (1952) among aborigines in Australia. He found no evidence for a between-cultures factor of 'good taste', but did find evidence of a within cultures general factor which suggested the operation of cultural conditioning of perception rather than biological determination. Eysenck has presented further evidence for between-cultures agreement on the general factor (Souief and Eysenck 1971, 1972) though this is based solely on judgements of Birkhoff polygons. Eysenck still adheres to a biological explanation, which seems to be inconsistent with another finding of his (Eysenck 1972b) which showed that aesthetic sensitivity is stimulus-specific. Consequently he has no grounds for treating the Birkhoff polygons as a valid culture-free test of the general aesthetic factor. In addition, I have argued below that a high degree of concensus can be expected from reactions to polygons because there are so few ways in which they can vary.

Further support for the general aesthetic factor has come from Dewar (1938), Williams et al (1938), Pickford (1948, 1969a) and indirectly from Peel (1944), though interpretations of the factor varied slightly. For instance, Pickford (1948) characterised it by 'emotional expression and harmony of design'. He also described the bipolar factor as sentimentality and accuracy of representation as opposed to atmospheric effect and symbolic expression. A recent account of a study carried out in 1956 of the aesthetic preferences of schizophrenics (Green and Pickford 1968) also revealed a general aesthetic factor, though it had a stronger emotional and expressive significance than is the case with normal persons, who put more emphasis on formal qualities of colour and design harmony. Iliffe

(1960) also revealed a general factor of 'beauty' underlying the ratings of young women's faces, which is a somewhat predictable and uninteresting finding.

Research on the general aesthetic factor with its associated bi-polar factors seems to be a curiously British phenomenon. As such it is consistent with the Burt-Vernon model of the hierarchical structure of mental abilities which has so strongly influenced British work in the area (see Vernon 1950). This is partly the result of a commitment to a particular factor-analytic technique which was developed by Spearman and used by Burt and his associates. As Guilford (1954) has pointed out, the use of the summation technique necessitates the production of a general factor and subsidiary bi-polar factors, which is not the case with other techniques (e.g. principal axes, principal components and centroid methods) (Harman 1960). To some extent it would appear that the general aesthetic factor is a statistical artefact of the method being used. However, in a recent (1970) edition of *The Structure of Human Personality* (1953), Eysenck has defended the approach. Although he does not attack the specific statistical argument put forward by Guilford, he defends the general factor as an index of agreement existing in the reactions of individuals to a wide range of stimuli. Thus the summation technique reveals factors which characterise the reactions of people within sets of different stimuli. On the other hand, factor analysis of reactions to a limited range of stimuli, e.g. polygons, does not produce a general aesthetic factor, but factors which are more specifically related to the stimuli in question, e.g. in the case of polygons, factors of complexity. Thus they are general within a specific stimulus domain.

The factors revealed by Burt and his associates were not rotated to psychological meaning. Hence the factors they revealed

were unrotated, somewhat arbitrary reference axes and are not necessarily the ones yielding simplest structure. It would be an extremely interesting exercise to evaluate Burt's work by using his stimuli and more modern factor analytic techniques. As it is there is clearly no evidence that favours the notion of a general factor of aesthetic taste over the multiple factor approach and the goal of simple structure. As Butcher (1968) has put it: 'Whatever scheme is put forward it is statistically perfectly equivalent, but quite different in structure and nomenclature'. In this sense the old chestnut about factor analysis that you get out of the analysis whatever you put into it is true. This perhaps points up the need for empirical evidence outside the correlational factor analytic framework to justify the particular method adopted, and to test and validate the interpretations of the factors.

The Thurstone-type of analysis which reveals a range of separate specific factors, has characterised work in America, and also in England particularly in the last 20 years. It cannot produce a general factor, and studies using this type of technique have revealed a bewildering variety of factors, all of which are presumed to underly aesthetic experience. In an early attempt to find the reasons for overall liking of the backs of playing-cards Guilford and Holley (1949) asked the subjects to sort the cards on the basis of colour, form, and content, respectively as well as for overall liking. The five factors that emerged did not correspond to the categories that had been supplied for sorting. Four of the factors related to subject-matter, (romantic adventure, feminine interest, opulence, outdoor interest) and there was only one formal factor (simple, modern, stylised design). However, it is doubtful that the average range of playing-card designs would elicit any formal or aesthetic interest on the part of the students who acted as subjects in the experiment. Although characteristic of the layman's interest in painting, and also that

of children, these findings do not shed any light on the process of aesthetic perception, but only on the perception of objects or a special class of objects (viz. pictures on the backs of playing cards). Gordon (1952, 1955) got round this problem by using real paintings. His analysis revealed three main factors, viz. (a) acceptance or rejection of modern art; (b) interest in craftsmanship; and (c) interest in style and/or originality. Gordon's interest was mainly in the differential reactions of artists and non-artists.

In the context of Osgood's theory of 'Semantic Space' Tucker (1955) carried out a factor-analysis of ratings of paintings using forty scales derived mainly from observers' comments. He revealed three orthogonal factors corresponding very closely to the three dimensions of meaning revealed by Osgood, et al (1957), viz. Activity, Evaluative, Potency. These have since been widely used as a measure in experimental aesthetics. Tucker (1955) found that the factorial structure of representational paintings coincided closely with that of objects in general, though a different structure emerged for abstract paintings. This suggests that the representational paintings were being responded to as though they were substitutes for the depicted content, and not as autonomous works of art.

More recently a factor-analysis by Rouse (1964) revealed six stable factors, only one of which (viz. dynamic/static) differentiated between good and bad works of art.¹ In two other studies by Kay (1969) and Kloss and Dreger (1971) none of the factors revealed could be used to predict preferences between the stimuli used. In a factor analytic study McWhinnie (1970b) failed to find any relation between broad general behavioural variables (perceptual and cognitive styles) and aesthetic preferences

¹In this case literary passages.

(as measured by Welsh Figure Preference Test.) He concluded that concentration on characteristics of the art object would be a more fruitful avenue for further work. The same point had been made much earlier by Peel (1945, 1946) whose use of a priori categories for determining responses for subsequent factor analysis is discussed in the section below. However a realistic attempt to bring together characteristics both of the observer and of the stimulus can be seen in the work of Skager, Schultz and Klein (1966a). They started a programme of research with the premise that judged quality in art is a joint function of characteristics of the painting and what I have elsewhere called, the individual's 'implicit aesthetic theory'. Klein et al (1966a) argue that since dimensions of preference are likely to be a function of different characteristics of the drawings (used in the experiment) and viewpoints as to the importance, then an examination of the drawings characteristics may stimulate hypotheses about the psychological characteristics of the individual who produce or prefer the drawings.¹ They factor analysed quality ratings of 191 drawings which had been specially executed by art students under standard conditions for the experimental programs. The ratings were made by both art-experts and laymen. The analysis revealed three different points of view for the experts, and one for the laymen. At that stage the experimenters felt confident in identifying and labelling only one of these factors which they labelled as a viewpoint or factor of spontaneity-deliberateness.

In another paper published in the same year, Skager, Schultz and Klein (1966b) obtained ratings of preferences and similarity

¹It is this latter part of the argument which distinguishes this approach from that of Künnapas and Norman (1971) and also Loveless (1968) who confine their analyses to characteristics of the paintings and do not speculate about the psychological characteristics of people whose preferences are determined by certain features of the paintings.

estimates among 25 paintings. The three dimensions revealed by factor analysis were complexity v. simplicity; realistic v. formal composition, and deliberate v. impulsive treatment. The last dimension has been explored in more detail by Klein and Skager (1967) and Klein (1968). In these studies sponteneity - deliberate-ness was found to be a stable, reliable dimension which could be used to predict quality ratings of paintings by people who respectively held the two opposed view-points of what constitutes quality in painting. Klein (1968) correlated similarity judgements with preference ratings and found that ratings of quality clustered into three distinct view-points. The three separate viewpoints correspond to the two schools of art from which the art-experts were drawn, and the view-point of the laymen. The 'Professor I' view-point makes overall quality judgements based on a preference for spontaneous as opposed to deliberate handling. The 'Professor II' view-point put less emphasis on realism and preferred neat but spontaneous handling. Finally, the layman view-point stressed the importance of photographic realism combined with a slight preference for complexity rather than dynamism. Although these findings differentiate only crudely and possibly obvious differences in the view-point of different experts and differentiates not at all among laymen, it does at least stress individual differences and varying view-points in aesthetic perception.

Somewhat similar work has been conducted by Silver, Landis and Messick (1966) who used multidimensional scaling of similarity judgements to reveal individual differences in reactions to the geometric designs which they used as stimuli. Factor analysis revealed five different view-points none of which corresponded to the average ratings. Silver et al (1966) argued that single methods of measurement tend to conceal individual differences. The five different view-points revealed were not labelled by the author as they felt this would be premature, though the five viewpoints seem to correspond to different aspects of complexity.

Similar work using multidimensional scaling has been carried out with texture preferences (Christensen 1962; Ekman, Hösman and Lindstrom 1965). Using similar techniques Kay (1969) analysed the preferences of children (aged 11-14) for eight painting reproductions. He revealed eight different dimensions,¹ though none of them, either singly or in combination, could be used to predict the relative popularity of the paintings as measured by preference judgements.

Complexity as a major factor determining aesthetic reactions has emerged in a large number of studies. Early factor analytic evaluations of Birkhoff's aesthetic Measure (1933) revealed complexity as an important determining factor. Harsh, Beebe-Center and Beebe-Center (1939) using a Thurstone-type analysis revealed four different factors determining preferences among the polygons, viz. (a) smoothness of contour; (b) simple regular figures; (c) rotational and diagonal symmetry; and (d) irregularity. A later study by Eysenck (1941c), using the summation method, revealed a general aesthetic factor (explaining 31% of the variance) and a bipolar factor of simplicity-complexity (explaining 13% of the variance).² Using black and white molecular stimuli Barron and Welsh (1952) factor analysed preferences for polygons and revealed a dominant factor of complexity-asymmetry v. simplicity-symmetry, which subsequently became the basis of the Welsh Figure Preference Test

¹The dimensions identified were (a) turbulence - serenity, (b) depth effects - flatness, (c) sombre - bright colours, (d) movement - quiescence (depicted by content or by line), (e) puzzlement (non-obviousness of abstract paintings), and (f) antiquity (early painting style).

²It should be noted that Eysenck did not use the complete set of 90 polygons. He deliberately excluded 26 of them because of obvious associations, e.g. Star of David, Swastika, etc. He isolated 12 different aspects of shape or form which, when separately weighted, produced a formula for Birkhoff's 'M' which gave a correlation of -.91 with the rank order preference. In many respects this list corresponds closely to the factors revealed by Eysenck (1968) when he subjected preferences for the polygons to a Thurstone-type analysis.

(Welsh 1959). More recently, after a long absence, Eysenck has returned to experimental aesthetics. He revealed a factor of simplicity-complexity in four different factor analyses, using as stimuli (a) the Maitland Graves Design Judgement Test (Eysenck 1967); (b) Birkhoff's polygons (Eysenck 1968; Eysenck and Castle 1970b); the Barron-Welsh Art Scale (Eysenck and Castle 1970a); and black and white designs¹ (Eysenck 1971a). With reference to his work with Birkhoff polygons Eysenck still adheres to the notion of a general aesthetic factor ('T'). This is defined as the consensus (based on rank ordered preferences) that exists between art and non-art groups in their judgements of polygons. On the other hand the bipolar factor K, has been redefined as preferences for simple as opposed to complex polygons.

As a result of these factor analytic studies Eysenck (1972c) was able to devise three different tests of aesthetic sensitivity. A test of symmetry-assymetry derived from items on MGDJT (i.e. Factor I, Eysenck 1967), and two tests of 'T' derived from the factor analysis of Birkhoff Polygons, and Hornung designs respectively (Eysenck 1968, 1971a). Factor analysis of the preferences of 484 people revealed a factor structure with separate factors loading highly on the three tests with very small ^t interest correlations. Eysenck is forced to conclude that 'aesthetic sensitivity of the kind used in the experiment is relatively specific and does not extend from one set of stimuli to another'. The reasoning behind these tests is circular. The 'correct' items in each test were the most preferred items from the earlier studies, and the incorrect were the least preferred. Eysenck is once again assuming that agreement with group consensus is a measure of aesthetic sensitivity. However, even if the tests are regarded as measures of preference it is interesting to note that they have clearly distinguishable underlying factors. Perhaps it would be wiser to use the tests as

¹These were taken from Hornung (1932)

descriptive measures of an individual's preferences.

A recent study by Nias and Frith (1973), also using molecular stimuli, revealed a dominant factor of contour (amount of edge) which was regarded as distinct from complexity as this had been quantitatively controlled in the computer generation of the stimuli. Overall the subjects tended to prefer intermediate levels of complexity (measured in bits of information) but when items equal in amount of contour were presented, they tended to choose the simpler design. In a discussion of the problems of measuring visual form Michels and Zusne (1965), and Brown and Owen (1967) have noted that visual stimuli cannot be properly defined since the multidimensional structure of form is not known. Even crude measures of quantity were not possible until the introduction of information theory. However, a number of studies have attempted to specify and define physical shape. Stenson's (1966) factor analysis of similarity judgements of random polygons revealed four critical measures, viz. (a) the number of turns in the form; (b) the length of the perimeter; (c) the perimeter squared to area ratio; and (d) the variance of the internal angles of the form. Stenson speculates that these are the physical correlates of complexity. These findings coincide loosely with those of Silver, Landis and Messick (1966), and have been confirmed by Behrman and Brown (1968). However, more recent studies have revealed slightly different structures (Stenson 1968; Brown and Andrews 1968). In neither of these studies is complexity per se an important factor. Instead factors like curvature dispersion, jaggedness and compactness become important variables. There is a long way to go before these can be related to phenomenal experience of shape, and affective reactions to it. However, work of this nature is necessary before a descriptive measure of an individual's preferences among a fully representative sample of shapes and forms can be designed. Such a battery of stimuli each with a specified loading would correspond to standardised colour

stimuli, as in the Munsell system. In line with previous arguments this should not be taken as a measure of artistic sensitivity. It could however figure as one among many sets of stimuli in a battery of aesthetic measures.

Another line of development is to use factor analysis to characterise the stimulus paintings in a manner similar to that recommended by Michels and Zusne (1965). For example Knapp and Green (1959) used factor analysis to differentiate between geometric (rational) and non-geometric (expressive) abstract paintings. This classification was subsequently used in a study investigating the correlates of different types of painting (Knapp 1964). The broad dichotomy has since been confirmed by Kloss and Dreger (1971) though the same stimuli were used in both cases. A still rarer use of factor analysis is its application to the works of a single artist. Loveless (1968) has attempted this in his analysis of similarity judgements of paintings by Picasso. He found four main factors which a team of art experts labelled (a) structured realism; (b) synthetic cubism; (c) surrealism; and (d) expressionism. This is an interesting and potentially widely used application of factor analysis. It is perhaps disappointing that the factors correspond closely to pre-existing art-style categories which have been attained by the verbal methods of art criticism and art history. However, it is possible from this study to compare the differential factor loadings of a given painting. It is possible that the labelling of factors, at best intuitive and at worst arbitrary, was strongly influenced by the existing artistic style labels. This is an application of factor analysis that has great potential, subject to its being able to tell us more than we already know. In an interesting study of still-lives by Cézanne, Künnapas and Norman (1971) used multi-dimensional scaling of similarity judgements to reveal three major factors of formal composition, viz. (a) complex horizontally arranged motive; (b) vertical central figure; and, (c) central figure without

background. Differences in these factors could be used to predict differences in evaluations by artists and non-artists. In addition each individual could be characterised by loadings on the three factors.

Similar work on descriptive criteria has been carried out by Rouse (1964), Bernheim (1964) and by Goude (1972a, b) with very interesting results. In the first study Goude factor analysed the similarity ratings of artists and non-artists in response to eight paintings (4 landscapes and four crucifixions) presented in paired-comparisons (Goude 1972a).¹ Analysis revealed four factors which were common to both artists and non-artists, though their respective weightings differed in the two groups. In addition there was a fifth factor which was not common to both groups. The common factors revealed were depicted theme, lyric tranquillity of nature, static stylisation, and anguished drama. The non-artists fifth factor related to crucifixion dynamics, whereas the artists fifth factor related to colouristic lustre. In the second study Goude (1972b) investigated and revealed the effects of age, teaching and mental illness on the factor structure found in the first study. This method is clearly suitable as a system for classifying works of art on a purely descriptive basis, viz. similarity estimates. This technique would be an ideal tool for characterising people in terms of their implicit aesthetic theory, but only in terms of crude general criteria.

In the earlier discussion on aesthetic measurement, it was argued that the repertory grid technique devised by Kelly (1955) and developed by Bannister and Mair (1968) would be a suitable and flexible tool for eliciting aesthetic view-points. A study by Davisson (1971) has specifically evaluated the usefulness of

¹This study is unusual, perhaps almost unique, in carrying coloured illustrations of the stimuli used in the published account.

the technique. He concluded from the individuals that he tested that they possessed consistent personal dimensions of judgements which were reliable over time and could be used to make valid predictions about subsequent preference judgements. As a tool to assess idiographic characteristics, its use should be encouraged to refine and add to the more general dimensions that are revealed by the factor analysis of nomothetic data (Carver 1967; Fope and Thomas 1972).

II Applications of the results of Factor-Analysis

The application of the results of factor analytic studies to aid subsequent research is surprisingly rare in the psychology of art. The main body of research seems concerned merely to elicit factors with little attempt to test for reliability and validity, or even to determine whether the factor structure is useful in guiding further research or making sense of other findings.

There have been a large number of factor analytic studies associated with the Semantic Differential technique (Osgood et al 1957). Springbett (1960) used the Semantic Differential to determine whether abstract paintings have any connotative meaning as measured by inter-subject agreement on the respective scales. Although the results were complex, Springbett concluded that the semantic differential did measure connotative meaning in non-objective art.¹ In a later study Choynowski (1967) factor-analysed ratings on 72 SD scales. He revealed eight 'easily interpretable' factors, viz. (a) original-commonplace; (b) subjective-objective; (c) serene-gloomy; (d) dynamic-static; (e) warm-cold; (f) sketchy-

¹There has been a large amount of work using the Semantic Differential to measure affective responses to plain colours (e.g. Kansaku 1963; Wright and Rainwater 1962; Hogg 1969b, 1969c)

worked-out; (g) devoid of content-full of content; and (h) geometric-non-geometric. The eight factors explained 81% of the total variance. A somewhat similar study by Beittel (1963) revealed different factors from those found by Choynowski viz. good-bad as art; masculinity-femininity; spontaneity-deliberateness; feeling for nature; and finally, complexity-simplicity. Beittel's study is interesting in that he respectively analysed the characteristics of the paintings; the ways in which the judges rated the paintings; and the characteristics of the judges themselves. Thus he was able to isolate three factors characterising the different ways the paintings were judged. It appeared that the painting was evaluated either as a product or on the basis of the processes involved in producing it, e.g. intuitive-rational, informal-formal. A third approach was descriptive, and non-evaluative e.g. masculine-feminine. Finally the judges could be divided into the deliberative (authoritarian) and the spontaneous (non-authoritarian). This is an extremely interesting and fruitful use of the semantic differential which could generate many hypotheses for independent testing and evaluation.

Molecular stimuli have also been assessed using the semantic differential. Eisenman and Rapaport (1967) and Eisenman (1968c) used it to assess reactions to random polygons differing in degree of complexity, and Berlyne and Peckham (1966) used it to assess Berlyne's collative stimuli. In all three studies only one scale was used to represent each of the activity, potency and evaluation dimensions though Osgood et al (1957) recommend at least 3 scales to represent each dimension. Berlyne (1972c) has recently discussed a number of studies (some unpublished) using the Semantic Differential with a variety of visual stimuli which suggest a large amount of correspondence between Osgood's Evaluative factor and hedonic value; between the Activity factor and complexity/uncertainty; and finally between the Potency factor and cortical arousal. It is doubtful that such correspondence will strengthen

Berlyne's theory for two reasons. The first is the low esteem of Osgood's theory (cf. review in Bannister and Mair 1968) and the second is the looseness of the association between Osgood's factors and Berlyne's behavioural measures.

Nidorf and Argabrite (1970) have developed an interesting technique for measuring aesthetic communication. They compared the semantic differential ratings of artists in response to their own paintings and compared these to the ratings of the same works by other people. Any correlation between the ratings of artists and 'public' was treated as a measure of aesthetic communication mediated by the work. This technique should have considerable scope for exploring the role of artists' intentions in relation to the finished product and the way it is perceived.

The results of a previous factor analysis of preference judgements by Gordon (1952, 1955, 1956) were applied in a study by Getzels and Csikszentmihalyi (1969) who asked both artists and non-artists to rate paintings for craftsmanship, originality, and for overall liking. By systematically partialling out the effect of one variable on the remaining two, they discovered that the non-artist group was influenced by craftsmanship rather than originality in making their preference judgements. The artists, on the other hand, were more influenced by originality than craftsmanship. The average ratings of the artists and non-artists were similar, though the ratings by the non-artists were homogeneous compared to the artists. This suggested that the differences within the artists group were complimentary. This study is not only a clear and concise application of the findings of an earlier factor analysis, it is also methodologically interesting in its contrast of the reactions of artists and non-artists to help elucidate the complexities of aesthetic perception. The authors also speculate on the utility of contrasting paintings that are universally liked by artists and non-artists respectively.

Several of the studies discussed above have used the factors revealed in an attempt to predict preferences, evaluations or even to differentiate between groups. Some were successful (Künnapas and Norman 1971; Skager, Schultz and Klein 1966; Eysenck 1972c) and others were not successful (Kay 1969; Rouse 1966). The majority of factor analytic studies have been purely descriptive. There have been few attempts to check the validity of the factors, or even to establish whether they are useful as a classification system.

General Discussion and Conclusions

At present there appears to be little consensus on the structure of aesthetic experience as revealed by factor analysis and related techniques. To some extent this is a result of the need to quantify aesthetic experience and the obligatory assumptions about interval measurement. Although aesthetic measurement presents many difficulties these are not insurmountable. However, the emphasis on quantification means that only aesthetic responses are recorded and aesthetic experience is ignored. It is not sufficient to assume that asking someone to rank order a set of paintings for judged pleasingness is an adequate measure of his aesthetic reactions to these works. There is a danger of assuming that only what is measurable is relevant. This is perhaps more evident in factor analytic studies than in other areas of investigation.

One reason for the considerable differences between the results of the factorial studies discussed is adherence to a particular conception of the structure of mental abilities interpretation. It has been noted that there is no evidence to choose between these approaches except on a priori grounds. They result from the assumptions underlying the research from its inception. The general factor is far too important a notion to

be ignored. It is however regrettable that its only contemporary proponent is Eysenck (1972b) who only uses molecular stimuli, and has not attempted to investigate it in relation to works of art. The latest evidence suggests that the general factor is specific (Eysenck 1972c). There is no recent evidence of a general factor running through reactions to all visual stimuli, indeed all art as propounded by Burt (1933). There is a strong case for reassessing the original experimental data using modern statistical technique and adequate stimulus sampling.

Another problem in assessing factorial studies is the great variety of stimuli that have been used (playing-cards, polygons, abstract designs, geometric designs, slides of paintings, real paintings, specially prepared drawings, etc.). Taken in relation to the great variety of subjects used in the studies and the great variety of measures used, and varying experimental conditions, it is not surprising that there is so little agreement between studies. There is a serious need for preparing a standardised set of visual stimuli ranging all the way from simple forms representative of basic factors of shape to sets of paintings which are representative of schools and types of art. Only then can factor analyses be carried out on the respective sets of stimuli, or groups, or all of them together, using standardised procedures of measurement, procedure and analysis.

The use of molecular stimuli as a substitute for real works of art is strongly discouraged. Molecular stimuli can vary in only a limited number of ways (notably aspects of complexity). This contributes towards greater internal validity though the experimenter must sacrifice external validity, because he cannot be sure that his subjects are responding aesthetically and the generalizability of the findings is restricted. To some extent this is also true when molar stimuli are used, but it is more likely that they will respond aesthetically (if they are going to at all)

to objects that are culturally classified and known as aesthetic objects (Saw 1973). In addition the use of molecular stimuli eliminates subject-matter or theme as a determining variable. Non representational (or abstract) art is a subcategory of art in general so it should be studied separately and not taken to stand for all types of visual art. Only isolated movements in the history of art have argued that art has no semantic content of any kind whatever, (e.g. the Constructivists or the Suprematists, see Herbert 1964). There is a vast difference between these kinds of art and monochromatic polygons. It is hardly surprising that factor analysis of reactions to molecular stimuli do not reveal theme or emotion factors, whereas these are always revealed when molar stimuli are used.

Complexity has emerged as a factor determining reactions and aesthetic preferences in a large number of studies (Beebe-Center et al 1939; Harsh et al 1939; Barron and Welsh 1952; Silver, Landis and Messick 1966; Stenson 1968; Eysenck 1967, 1968, 1971a; Eysenck and Castle 1970a, 1971). In all of these studies molecular stimuli were used. In the majority of studies using molar stimuli complexity has not appeared as a factor determining reactions. In the two studies using molar stimuli where complexity did appear as a factor (Beittel 1963; Skager, Schultz and Klein 1966b) the stimuli had been specially prepared under standard conditions. In both studies students had executed drawings or paintings of the same scene or object, under certain constraints of size and media. Under these conditions the stimuli are standardised to the point where comparison along a dimension of simplicity-complexity becomes extremely likely, because of the similar features in all the paintings. In neither of these studies did complexity appear as a major factor. There are very few ways in which polygons can vary as there is no variation in meaning, mood, originality, intensity, realism, colour, etc. It is almost certain that a factor of simplicity-complexity will emerge from factor analysis of reactions to molecular stimuli.

The perception of form should not be equated with aesthetic perception per se. Unless the perception of form is being specifically studied the application of factor analysis to the perception of molecular stimuli, as a model of aesthetic perception, should be discouraged. The study of complexity as a determining factor of aesthetic reactions has gained a very strong foothold in experimental aesthetics, especially in the last ten years. This is due largely to the fact that it is already a familiar concept in general psychology and it is relatively easy to quantify and manipulate in experiments, if only in the form of polygons or other similar shapes. The widely known work of both Barron (1954, 1968) and Berlyne (1971, 1972a) has probably contributed to the importance of complexity as an aesthetic factor in experimental aesthetics. Due to the reluctance of present-day psychology to look in upon itself and examine its own assumptions and methods the relevance of complexity as an aesthetic factor is assumed without question. It is unlikely that the present reliance on molecular stimuli will cease unless there is a radical change of heart in experimental psychology as a whole.

There are other ways in which factor analysis can be profitably used. Loveless (1968) studied the stylistic features of paintings by Picasso by means of factor analysis, as did Künnapas and Norman (1971) with paintings by Cézanne. Though not concentrating on a single artist Klein et al (1968) have investigated the formal features of painting and used related viewpoints as to their aesthetic significance for different individuals. Factor analytic techniques can also be usefully used to investigate the underlying features or structure of the style of individual painters, schools of art, historical periods, countries, and other groups (cf. Goude 1972a, b). The features of the style could be elucidated as well as varying interpretations of the style (and content). It would be interesting to determine whether art-critics' or art-historians' interpretations matched what factor analysis would

reveal of their own reactions, as well as the reactions of non-experts. The application of factor analytic methods to specific works or artists might also provide an antidote to the vagaries and subjectivity of ad hoc psycho-analytic interpretations. The generally low esteem of much of experimental aesthetics could be due to the apparent reluctance to deal directly with works of art and problems in art. By concentrating on molar stimuli factor analysis has the potential of redressing that imbalance and restoring the status of experimental aesthetics, not just in psychology but also in the world of art.

In short, factor analysis and multidimensional scaling techniques must be regarded as tools for providing classifications within complex reactions and also within complex aesthetic stimuli. The factors cannot be accepted as anything more than statistical unities until they have been shown to work as psychologically meaningful entities, and other empirical evidence converges to add support to the psychological utility and meaningfulness of the factor. Factor analysis should be used to test hypotheses, as well as to characterise paintings, and reactions to them.

III Post hoc categorisation of elicited responses and reactions to art

In general, the elicitation of dimensions by factor analysis and multidimensional scaling typifies the American approach to the investigation of the structure of aesthetic perception. By comparison, the post hoc categorisation of elicited responses (particularly verbal) is more characteristically European. Perhaps the most famous and influential example of this method is the study by Bullough (1908, 1910). He asked the subjects in his experiment to give their reasons for liking the plain squares of colour that he used as stimuli. Despite the limitations in

the use of molecular stimuli, Bullough was able to extrapolate with a degree of imagination that is discouraged in present-day psychology. He differentiated four basic types of response. These have been described and discussed extensively by Burt (1933), Read (1943), and Pickford (1972). Valentine (1962) also described and discussed Bullough's work and presented the results of his own experiment using molar stimuli in which the four basic types of response described by Bullough were confirmed (Myers and Valentine 1914). In essence, the four types are: (a) 'associative' (i.e. influenced by associations aroused by the colour of the stimulus); (b) 'physiological' (influenced by the effect the stimulus has on the person, e.g. dazzling), (c) 'character' (influenced by empathetic projection); and (d) 'objective' (influenced by intellectual rather than emotional factors). Further introspective confirmations have been provided by Feasy (1922), Munroe (1925) and Dewar (1938). More recently Clements and Smith (1968) have subjected the classification to empirical test using factor analysis and confirmed Bullough's types. Bullough's ideas have had more influence in the world of art and art education (e.g. Read 1943) than they have had in psychology, of art or in general. This is regrettable because the psychology of art has generally failed to apply its findings to the problems which ostensibly gave rise to the psychological investigations in the first instance. Bullough's work has the charm of directness and relevance to art, despite his use of molecular stimuli. Again it is regrettable that imaginative extrapolation should be so unpopular in experimental aesthetics.

A recent example of post hoc categorisation is a study by Mortimer-Tanner and Naylor (1963). They published the results of the ranking of 12 reproductions of paintings by a total of 1332 subjects over a period of 7 years. Analysing the results they were able to classify the dimensions of preference into objective and subjective categories. The former group made references to

clarity, colour, composition, content, contrast, realism, stereopsis, technique and vitality, which are all characteristics of the paintings. The subjective category included references to associations, atmosphere, inspiration, interest, imagination and mood, which are all features of the individual's response. This experiment is lacking in control, but compensates for this by the fact that it is illuminating. Similar studies have been carried out by Francés (1968) and by Hussain (1966a). Francés classified the main reasons for liking paintings as realism, originality, beauty, colour, subjective impressions, and expressiveness. Hussain's classification was similar, but more general in nature. The two most commonly used categories were sensitive quality, and technical quality, which are almost too broad to be useful. The general nature of the classifications in this study reflect the wide range of art stimuli that were used, viz. paintings, sculpture, architecture, poems, etc. whereas Francés only used figurative drawings.

Although post hoc classifications tend to be lacking in experimental rigour, they have a useful contribution to make to the psychology of art by acting as a complement and antidote to the rigorous straight-jacket and aridity of experimental aesthetics at its most extreme. The chief advantage of these studies lies in their flexibility and the creative contribution of the experimenter who plays an active role in interpreting the results. Apart from the obvious danger of bias, there is also the limitation that the technique only records what each individual is capable of saying, i.e. the results reflect both verbal habits and the vocabulary of each individual. Alexander (1960) has demonstrated experimentally that shapes can be sorted into groups which cannot be labelled verbally, just as it is not always possible to identify clusters revealed by factor analysis (Skager, Schultz and Klein 1966). Consequently, post hoc classifications of verbal responses to paintings should not be discouraged, but this type of study is best used as a starting

point and guide for more rigorous and empirical checks of the reliability and validity of the categories by means of factor analysis. It appears to be a feature of post hoc classifications that they are not tested for validity and reliability. Gordon is exceptional in that he first classified the verbal reactions of artists and non-artists, and then factor analysed them (Gordon 1952, 1955). This link-up of the two methods would seem to be a most productive answer to the apparent conflict in the flexible but subjective classifications and the objective though less flexible factor analyses.

IV A Priori Classification of Aesthetic Reactions

Perhaps the most important a priori classification which also has the most far-reaching implications is the division of experimental stimuli into good or bad as works of art. This is a critical feature of Child's work on aesthetic sensitivity and also the work of Burt (1933) and Bulley (1933, 1951) on aesthetic judgement. Typically the aesthetic measure employed consisted of preference judgements within pairs of art objects. One member of the pair constituted an aesthetically good choice and the other represented an aesthetically bad choice. The criteria by which a painting was considered good or bad was either established by the experimenter himself (e.g. Bulley's test) or by a panel of experts (Child 1962). The methodological significance of this use of a criterion of quality is extremely important for experimental aesthetics, and has already been discussed in chapter four.

The use of a priori classifications to structure the responses made by subjects in experiments is a fairly common technique. By providing response categories the researcher limits the range of possibilities open to an individual by forcing his responses into a finite set of categories. The chief advantage of this is a reduction of variability, and the confinement of responses to

pre-established categories. In much the same way, psychometric tests of personality permit comparison between individuals by restricting their responses to a number of dimensions, enabling comparison between individuals. However, this technique could force a subject to make responses that he would not normally make either because he has no true preference or through sensitization by the category labels. In this way the a priori categories may prevent adequate sampling of an individual's responses or they may encourage him to respond artificially. This point is also relevant to the application of elicited factors to restrict the range of possible responses to aesthetic stimuli in an experiment. However, this is a less risky procedure as the elicited factors or dimensions are at least empirically derived, though there is a danger that factors which may characterise a group as a whole may not have any relevance to individuals within the group.

A priori response categories have been provided in a number of studies (Peel 1944; Pickford 1948; Guilford and Holley 1949; Haber 1958; Francés and Voillaume 1964; Helson and Mouton 1964), though the aims of the respective studies were different. Guilford supplied separate rating categories for form, colour and liking in order to determine the contributions of the first two categories on the third. Peel argued that too much emphasis had been placed on the characteristics of people with too little attention to the characteristics of paintings. Accordingly, he used experts to rank-order a set of landscapes on three criteria, viz. naturalism, composition and atmospheric light, and a set of still-lives on realism, technique, and spontaneity. Using the intercorrelations between an individual's rank order of preference and the selected criteria provided by the experts, he was able to estimate the influence of these criteria in determining each individual's preference. Realism and technique appeared as important determinants, with spontaneity bipolar to both these

factors. In a somewhat similar study, Pickford (1948) asked his subjects to rank-order paintings on eight different criteria which he supplied. His aim was to be comprehensive in his response sampling. A subsequent factor analysis revealed a general aesthetic factor, and a bi-polar technical factor. Haber (1958), Helson and Mouton (1964) and Francés and Voillaume (1964) all used the same technique as Pickford. They all obtained inter-correlations between measures of preference and rank-orders on a select number of criteria in order to determine the influence of the criteria on overall liking.

The dimensions of pleasingness and interestingness are the major response classifications used by Berlyne (cf. Berlyne, Ogilvie and Parham 1968; Berlyne and Boudewijns 1971). Rated pleasingness is regarded as an index of hedonic value and rated interestingness a measure of arousal, or rather presumed arousal (Berlyne 1960, 1965). There is no empirical justification for using these and only these two dimensions usually represented by one scale each. They are used purely on a priori grounds in the context of Berlyne's general work on the relation of collative properties to arousal.

An extremely detailed classificatory system has been devised by Cardinet (1958). He combined paintings in pairs for use in studies of the criteria determining aesthetic preferences. The classification is hierarchical. For example, the main categories are sub-divided; colour is sub-divided into warmth, saturation, clarity and light, there being one pair of paintings to represent each category. The members of each pair were equated (and tested for equivalence) on the basis of subject-matter, general style, historical period (a dichotomy of modern v. old) and general aesthetic value. Religious and purely abstract paintings were not used. In this way, Cardinet felt reasonably sure of adequate stimulus sampling in order to reveal subjective criteria by which

individuals chose between paintings. By use of this very comprehensive category system, Cardinet maximises the freedom of each individual to make natural and unrestricted preference judgements. He also avoids contamination of results through sensitisation from response category labels. Despite this, the validity of Cardinet's technique rests on the assumption that when a preference within a pair of paintings is made it is on the basis of the criterion by which they were originally paired. This assumption is unproven though it could be tested by asking each individual for the reason for his choice, though this has all the limitations of the verbal techniques discussed above. Although Cardinet's system is extremely comprehensive, it is still open to bias creeping in as a result of the experimenter's own preconceptions. It is arguable that idiosyncrasy in responding is an essential feature of aesthetic experience, which should be revealed by analysis, and not concealed because of the rigidity of a priori classification. Cardinet's technique has the advantage of high ecological validity with good stimulus sampling, and the avoidance of response sensitization but there is still room for bias occurring in the classificatory system employed. Perhaps the advantages of the technique can be maintained, and the danger of bias removed through factor analysis of the classificatory system as a first step to developing a test of aesthetic preference with an approximation to ideal stimulus sampling.

A number of investigators have classified the stimulus presented as an independent variable. Whereas Peel (1944) divided paintings into classes according to theme, Knapp (1964) presented stimulus paintings which were representative of four different compositional types, viz. geometric, representational, and expressionistic, and impressionistic. All the paintings were rated for liking and revealed some interesting findings e.g. liking for expressive art is negatively related to a liking for realistic and fantastic art, but is unrelated to liking for geometric. An

added feature of Knapp's study is that specific hypotheses were being tested. This is quite rare in experimental aesthetics.

Conclusions

The attempt to reduce the overall complexity of aesthetic reactions through imposing or eliciting structure has led to a bewildering array of factors, dimensions, types categories, etc. which in toto seem as complex and as variable as the phenomena which gave rise to them. The area is suffering from the Bruno and Sylvie syndrome who used ever larger maps to embrace ever more detail until they ended up with a map the same size as the country they were in. If structure is the order that underlies variability, then the psychology of art has made little progress towards finding order.

The general aesthetic factor appears to be no more than a measure of agreement within a group that is largely stimulus and culture specific. As such it is a valid concept if used as a descriptive tool. By contrast Thurstone-type factor analysis leads only to a proliferation of different factors emerging from studies differing widely in stimuli used, experimental procedure, response sampling and person sampling. Most of these studies are based on preference judgements in relation to characteristics of the stimuli. A more interesting development is the study of the perception of work of art based on similarity judgements within pairs. This has the advantage of being relatively objective, whilst at the same time being a relatively easy task to perform. Studies using this technique, (Klein 1968; Künnepas and Norman 1971; Loveless 1968; Goude 1972a, 1972b) have revealed interesting descriptive factors which have subsequently been proven to be psychologically meaningful in follow-up studies. As one among several techniques for characterising individual or groups in terms of their implicit aesthetic theories it is extremely valuable

if careful and representative stimulus sampling is also employed.

Factor analysis has also been nomothetic in emphasis. By contrast multi-dimensional scaling, as well as the repertory grid technique, permits more individual characterisation. This is an important advantage of these techniques, particularly when emphasis is placed on the interaction of stimulus characteristics, and the observer's attention to them. In this way there is less risk of bias intruding through sensitisation by response labels.

Post hoc classifications of verbal responses have many disadvantages, but are at least flexible and sensitive. They should however not be used in isolation but rather as a means of generating hypotheses which can be checked by means of converging operations with multivariate analysis, and experimental studies. It also appears to be a feature of classificatory studies that they are not checked for reliability and validity. Although this is difficult because no form of quantification is involved it would not be unreasonable to attempt.

Although multi-variate analysis based on similarity judgements can 'define' the stimulus as seen by an individual it does not give any indication of the nature of his experience. There appears to be no better index of this than an individual's own verbal introspections. When taken in the context of other so-called objective measures with the same individual, his verbal introspections become more meaningful and therefore less dangerous to use as empirical data in the study of aesthetic experience.

CHAPTER SEVENDeterminants and Correlates of Aesthetic Reactions

'There may be wrong reasons
for disliking a work of art,
but not wrong reasons for
liking it.'

E. H. Gombrich
The Story of Art (1950)

In this chapter emphasis is placed on studies which attempt to relate characteristics of stimuli with characteristics of observers in their joint influence on an individual's reactions. Essentially a determinant is an event or property which is causally related to some other event or property which is its effect. This is most clearly demonstrated in the classical experimental paradigm where changes in a dependent variable can be shown to be directly caused by variation in an independent variable. In the psychology of art it is extremely difficult to manipulate an independent variable for the stimulus is too complex and subtle to permit such systematic variation. This is true even when molecular stimuli are used. The factorial and multidimensional scaling studies discussed in the last chapter represent one attempt to locate and identify the characteristics of the stimuli which determine aesthetic reactions (whether they be simple preferences, evaluations or more complex emotional experiences). However, the discovered factors and, in other studies, the reasons given by individuals, only have the logical status of correlates, viz. something that varies with variation in the stimulus but may not in fact be causally related to it. In chapter two it was argued that an over-emphasis on finding causal relationships was misguided, and that more emphasis should be placed on discovering relationships that are more descriptive in nature.

A large number of separate studies have specifically investigated the determinants and correlates of aesthetic reactions. This is partly due to the almost limitless number of variables that could be investigated in conjunction with an equally large range of material which could be used as stimuli. The model of aesthetic perception described in chapter five will be used to bring order to the profusion of unrelated and unsystematic studies that seek to relate aspects of aesthetic reactions to other variables. The separate studies will be discussed under the categories appropriate to that model.

A. Stimulus Categories

I Present Stimulus Information

This is perhaps the most intensively studied group of variables. Here the emphasis is on the stimulus. Ideally it should be a work of art, but all too often it is a molecular substitute. In general, it is of great interest to know which characteristics of a stimulus are related to particular kinds of reactions. The characteristics include simple psychophysical variables like shape and colour which have been investigated from Fechner's (1876) pioneering days right up to the present. Also included under this heading are the effects of subject-matter, composition, style, painter, period, etc., which are traditional concepts of great importance to art critics and historians (Read 1950; Bodkin 1954; Gombrich 1960; Osborne 1970). Finally there are the more general variables such as complexity and dynamism which are more familiar to psychologists.

(i) Form

As Gibson (1951) has pointed out the meaning of the word 'form' is ambiguous. It can refer to shape, figure, structure, pattern, order, arrangement, configuration, plan, outline and contour, all of which are similar terms though lacking in distinct meaning.

These are all aspects of form as it is perceived in everyday perception (Zusne 1970). In addition there is the concept of artistic form which is equally ambiguous and every bit as hard to define (Gombrich 1963, pp.1-11).¹ There seem to be three general meanings of the word form viz. (a) the substantial shape of an object in three dimensions; (b) the projection of an object on a flat surface; and (c) abstract geometrical shapes composed of imaginary lines, planes or families of them. A work of art as an object is a form in sense (a); a representational painting is also a form in sense (b). The painting also has formal characteristics which include its properties of composition, conception, interpretation, meaning, stylistic characteristics, etc. The attempts of experimental aesthetics to grapple with such an indeterminate and complex topic have revealed most clearly the methodological weaknesses of psychology in its application to art.

(a) Experimental investigations of simple visual form or shape have usually taken the form of simple preference studies. They have been extensively reviewed by Chandler (1934), Valentine (1962), and Pickford (1972). Nearly all this work employed molecular stimuli, usually as discreet elements and only rarely in combinations. Attempts to systematically link the elements of shape to actual works of art were virtually non-existent. Typical early studies (e.g. the work of Martin 1906, and Hevner 1935) investigated the simple characteristics of stimuli that were preferred or liked by their experimental subjects. The stimuli employed were usually invented by the experimenter on an intuitive basis that reflected his own feelings and thinking on the subject and were not quantified in any way. Typically, simple curves,

¹The study by Silver, Landis and Messick (1966), among many others, attests to the difficulty of defining the physical parameters of simple geometric stimuli, let alone complex works of art. See chapter six of this thesis.

angles, ellipses and circles were employed, with simple variations such as size, orientation and width of line. The study of simple lines and shapes was not related to form in art and seemed to have more relevance to the general perception of form than to aesthetic reactions. However, some work with simple molecular stimuli did have important consequences, e.g. the rejection of the eye-movement hypothesis by Stratton (1903), and the development of theory of empathy (Lipps, 1908).¹

More recently interest has shifted away from simple shapes (but see Smets 1969, 1973) towards the notion of complexity as a determinant of preferences. Eysenck's factorial studies discussed in chapter five have revealed clusters of shapes and designs which appear to determine affective reactions (see Eysenck 1968, 1967; Eysenck and Castle 1970a; Eysenck 1971). The aspects of the Birkhoff polygons which determine simple liking and disliking, appear to be general to other cultures viz. Japan (Eysenck and Iwawaki 1972) and Egypt (Souief and Eysenck 1971, 1972). Apart from this there would appear to be very little interest in preference studies for simple shapes and designs.

(b) Balance and symmetry was first studied by Fechner and subsequently by Pierce, Martin, Witmer, Angier, Legowski and Thorndike over the next forty years. The results of this subsequent research failed to show any one best form in each of the categories studied by Fechner (best rectangle, best cross, etc.). In the later work individual differences became conspicuous; the irrelevance of exact ratios like the Golden Section² became evident, and only such vague criteria as moderation, simplicity or comprehensibility retained any validity (Chandler 1934; Valentine 1962, pp.93-6). Again, all these studies utilised molecular stimuli, and there was no attempt to assess balance or

¹These are discussed in more detail in chapter nine of this thesis.

²The Golden Section has been known since classical times and is

(continued..)

symmetry in real works of art. Kellet (1939) and Buswell (1935) both attempted to relate frequency of eye-fixations in the respective halves of balanced and unbalanced pictures and found that the composition of the paintings did influence eye-fixations. However, inspection of the paintings used reveals that this could be a function of the distribution of interesting detail rather than the formal properties of the picture.

A number of recent studies appear to confirm the special significance of the Golden Section ratio for perception at least with simple stimuli (McCulloch 1960; Hintz and Nelson 1971; Eysenck and Tunstall 1968; Berlyne 1968) but there has been no attempt to relate this to the perception of complex works of art. Generally, artistic form has not been studied except by analogy with very simple manipulable patterns which are quite divorced from works of art. For example, Holt-Hansen (1971) individually asked subjects to place three unpainted wooden sticks on a black surface so that the figure formed appeared to possess the maximum beauty. Analysis of the patterns and S's introspections suggested three different working patterns, all of which were governed by associational and ideational factors, e.g. mutual attraction, arrows, flowers, and not by purely compositional considerations. It is very difficult to generalise from this kind of study to the perception of works of art, but it is interesting in that it reveals the rich variation in perceptual experience in response to simple stimuli, which has also been found by Bullough (1908), Barnhart (1940), Vanderplas and Garvin

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the proportion for which the ratio of A/B is the same as $B/A+B$. In other words it is the proportion in which the smaller of two parts is .618 times the size of the larger. It was not however until the nineteenth century that the Golden Section was imputed to be a universal law of aesthetic beauty (Osborne 1968). It was this theory which first attracted Fechner's attention and led him to his first studies in experimental aesthetics.

and Smets (1973).

Arnheim (1954) has given detailed speculative analyses of balance, shape and form in visual art in the context of a general Gestalt approach. It is surprising that his ideas and interpretations have not generated experimental tests.

The age-old concept of 'unity-in-variety' has not received experimental evaluation, though Berlyne has carried out a small number of studies using molecular stimuli (Berlyne and Boudewijns 1971; Berlyne 1972b). In these experiments the elements used varied dichotomously, viz. circle or square, large or small, solid or pierced, pink or blue. Presented in threes, side by side, 35 different combinations were possible. Berlyne found that pleasingness (ratings) correlated negatively with judged complexity of the stimuli, which varied inversely with the number of identical elements in a triad, and directly with the number of properties in which elements differed. The results are seen as yet another instance of intermediate levels of complexity being judged most pleasing. The inadequacy of Berlyne's behaviouristic conception of unity-in-variety is immediately apparent if one considers types of art where complexity is deliberately exploited as a formal device. Islamic arabesques, Persian carpets (see Plate VII), early Irish manuscripts (e.g. the Book of Kells, c.800 A.D.), all present to the observer a mass of intricate design and detail, and yet there is no confusion as the various patterns correspond to each other in order to form a complex harmony of design and colour. It would be much more revealing if experimental aestheticians investigated the perceptual effects of stimuli like these as well as representational paintings in which the unity in variety is less obvious.¹ At present we do not even know whether a liking for

¹Notable examples are Michelangelo's frescoes in the Sistine Chapel (1508-1512), and Raphael's 'Galatea' (1514) in which Gombrich has drawn attention to 'the perfect and harmonious composition of freely moving figures' (Story of Art, Eleventh Edition, p.235)

Irish Medieval manuscripts is related to a liking for other complex art (e.g. Islamic art), and to a disliking for other kinds of art (e.g. Suprematism).

General features of artistic composition have not been systematically investigated by the psychology of art. In line with the argument of chapter two of this thesis it is not acceptable for empirical psychologists to express value judgements about the correctness of certain kinds of composition as a standard for evaluating works of art. Principles of formal composition in paintings have been laid down by Littlejohns and Needham (1932), by von Fieandt (1966), and as we have seen by Meier and by Graves in the designs of their respective art aptitude tests (Meier 1942; Graves 1948). Descriptive studies are required to investigate the way in which people see paintings. They may be characterised by the kinds of formal structure they respond to, if any. This must be based on phenomenal reactions and not physical measurements of the stimulus. A possible test of an individual's ability to distinguish differences in artistic form would be to present pairs of paintings which were closely matched in colour and depicted content so that the individual must judge whether or not they are by the same artist, or the same genre, or the same stylistic period, and so on. The pairs could be scaled for degree of overall similarity and it would be possible to give weights to the various answers. They could be systematically paired for similarity on the basis of depicted content, colour, tone, mood, treatment, etc. Preferences between the same pairs would also give some indication of each individuals implicit aesthetic theory.¹

¹For example the following pairs might be used:

- (a) Durer: The Painter's Father v. Rembrandt: Self-Portrait
(both in National Gallery, London)
- (b) Raphael: La Velata (Pitti, Florence) v. Titian: Flora
(Uffizi, Florence)

The amount of information accumulated by the psychology of art on the perception of artistic form is depressingly small in view of its one hundred-year existence. By contrast the potential for research and the need for it is alarmingly great. A considerable amount of time and energy has been spent investigating the effects of variables such as the effect of stimulus complexity on aesthetic reaction. It is ironic that the more immediately relevant topic of artistic form should be almost totally ignored. A recent, if limited, development in the investigation of form in art has been an interest in the detection of left-right reversals of the image (Ross 1966; Nelson and MacDonald 1971) and formal organisation of subject-matter (Künnapas and Norman 1971; Goude 1972a, b) particularly as this determines preference and value judgements. The objectivity and 'ecological validity' of this technique (Brunswick 1956) are sufficiently rigorous to satisfy the demands of the scientific psychologist whilst at the same time preserving and making

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- (c) Monet: Jeune femme assise sous un saule (National Gallery, Washington) v. Sisley: Small meadows in spring (Tate, London)
- (d) Gainsborough: Cornard Wood (National Gallery, London) v. Constable, Near Stoke-by-Nayland (Tate, London)(or see Plates VIII and IX)
- (e) De Hooch: Woman Peeling Apples (Wallace Collection) v. Vermeer The Artist's Studio (Czernin Collection, Vienna)

Other combinations might be appropriate pairs of paintings by:

- (f) Pierre Soulages and Franz Kline
- (g) Sam Francis and Jackson Pollock
- (h) Willem de Kooning and Asger Jörn
- (i) Francois Millet and Gustave Courbet
- (j) Annibate Carraci and Michelangelo da Caravaggio

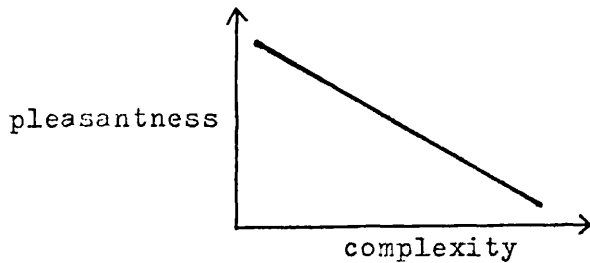
allowance for the complex and subtle nature of the paintings. Given an adequate set of representative stimulus paintings this is the ideal tool for assessing an individual's aesthetic theory though this must be supplemented by introspective data.

A number of studies have revealed the importance of lateral organisation as a determinant of preference and appreciation (Swarts and Swarts 1971; Swarts and Hewitt 1970; Nelson and Macdonald 1971). For instance in the first study the following properties of lateral organisation were successfully used to predict liking in different observers: (a) pattern of lighting; (b) profile orientation; (c) handedness characteristic; (d) quadrant distribution of important objects; and (e) ease of entering the picture space. However, some doubt is cast on these findings by an earlier study by Ross (1966). Although his subjects also revealed great sensitivity to left-right reversals of paintings after an initial very brief exposure, they were no better than chance in determining which was the correct or intended orientation. Despite this, orientation preference in paintings is an extremely interesting phenomenon that justifies further research.

Complexity as a determinant of aesthetic reactions was first quantitatively studied by Birkhoff (1933). Since then a large number of studies have investigated the nature of the relationship between complexity and pleasantness of the stimuli. The four basic types of relationship that have been found are presented in Table A. In the Birkhoff Model pleasantness is a direct negative function of complexity. In an earlier discussion (chapter four) it was noted that Birkhoff's formulation has not received empirical support. There are however a few recent studies which support the relationship, using simple geometric stimuli (Iwawaki and Clement 1972), and preferences for grades of sandpaper texture (Ekman, Hosman and Lindstrom 1965). However, the overwhelming number of studies favour the two forms of the inverted-U relation (Models

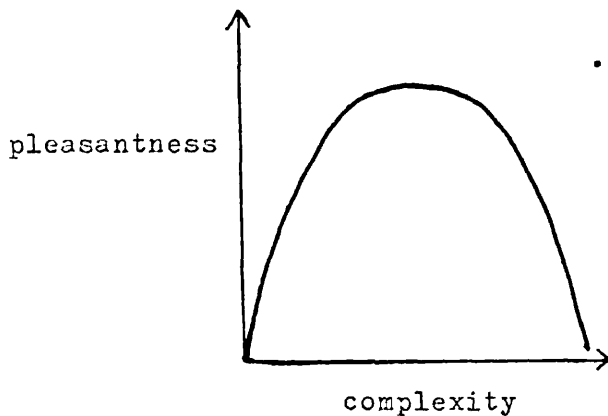
Studies

(a) Birkhoff Model (Linear Negative)



Birkhoff 1933; Brighthouse 1939c
Eysenck 1941; 1942 (Extraverts only)
Reich and Moody 1970 (familiar stimuli)
Iwawaki and Clement 1972,
Edman, Hosman and Lindstrom 1965.

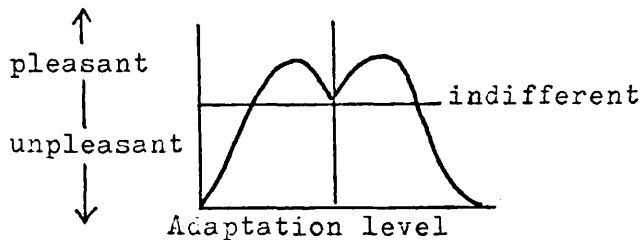
(b) Eysenck-Berlyne Model (Inverted U)



Dorfman 1965; Dorfman and McKenna 1966; Vitz 1966; Wohwill 1968; Eysenck and Castle 1970
Rump 1968
Eisenman 1966a, b
Munsinger, Kessen & Kessen 1964
Hershenson, Munsinger, and Kessen 1965
Nias and Frith 1973; Day 1967 (implicit in Golden Section studies, viz. Fechner 1876; Pierce 1894; Angier 1903).

Berlyne 1960, 1967, 1971 (ch.12)

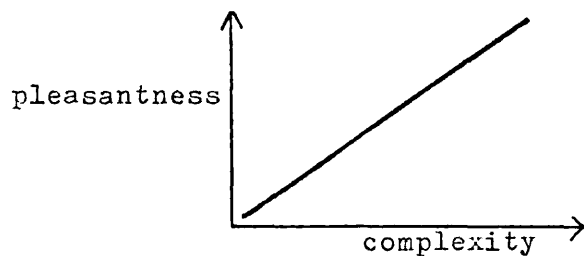
(c) Terwilliger's Model (based on Helson 1964)



Terwilliger 1963
Berlyne 1966
Berlyne and Peckham 1967
Munsinger and Kessen 1964

—discrepancy discrepancy—

(d) Linear Positive Model



Jones, Wilkinson & Braden 1961
Jones 1964
Vitz 1964
Taylor & Eisenman 1964 (artists only)
Eysenck 1941c (artists only)
Eisenman 1966a, 1967 (artists only)

Table A. Types of Relationship found between complexity and Aesthetic Preference. (Adapted from Smets 1973).

b and c). In essence this is the finding that intermediate levels of complexity are most preferred. The Berlyne-Eysenck model maintains that this is a function of a biologically determined level of complexity, whereas the Terwilliger model makes the inverted-U relation a function of each individual's adaptation-level (Helson 1964). The final model (d) maintains that pleasantness increases directly and linearly with complexity.

The first thing to note about these studies is the extreme variability in the definition of complexity and the type of stimuli used. These have included the number of points or sides in a polygon (Munsinger and Kessen 1964; Vanderplas and Garvin 1959; Eisenman 1968); the number of angles, lines and points of intersection in line drawings (Vitz 1966); bits of information in dot patterns (Attneave 1955; Dorfman 1965; Iwawaki and Clement 1972); the number of parts in a figure differing in form and location (Terwilliger 1963); collative properties¹ (Berlyne 1971; Eisenman 1966b; Maw and Maw 1962); subjective ratings of pictures (Lindauer 1971; Walker 1970; Osborne and Farley 1970) and art experts' ratings in accordance with a provided definition (Wohwill 1968). It is not surprising that so many different relationships should emerge.

Closer examination of these studies reveals that the relationship is the result of a number of factors.

(i) The range of stimuli of employed. In the majority of studies in Table A complexity is not systematically varied, and very often a very restricted range of complexity was studied (Berlyne 1963; 1966; Jones 1964; Vitz 1964). Recently, indirect evidence was presented by Day (1967) and Wohwill (1968) which

¹Collative properties include irregularity of arrangement or of shape, heterogeneity of elements, number of independent parts, random distribution of elements, and incongruity. They are not quantitatively defined in terms of complexity though each pair consists of a more complex and a less complex stimulus representing a given collative property. (Fig. 3-6)

suggested that the relationship between complexity and preference was a function of the range of complexity presented. This has been directly investigated by Smets (1973) who used three sets of stimuli (checker-board patterns) which had different amounts of maximum information (viz. high = 90 bits, medium = 225 bits, and low = 64 bits). Within each set complexity was determined in terms of each pattern's average subjective redundancy. The preference for the patterns in the different sets, when plotted against complexity revealed four different relationships. (See Fig. 1).

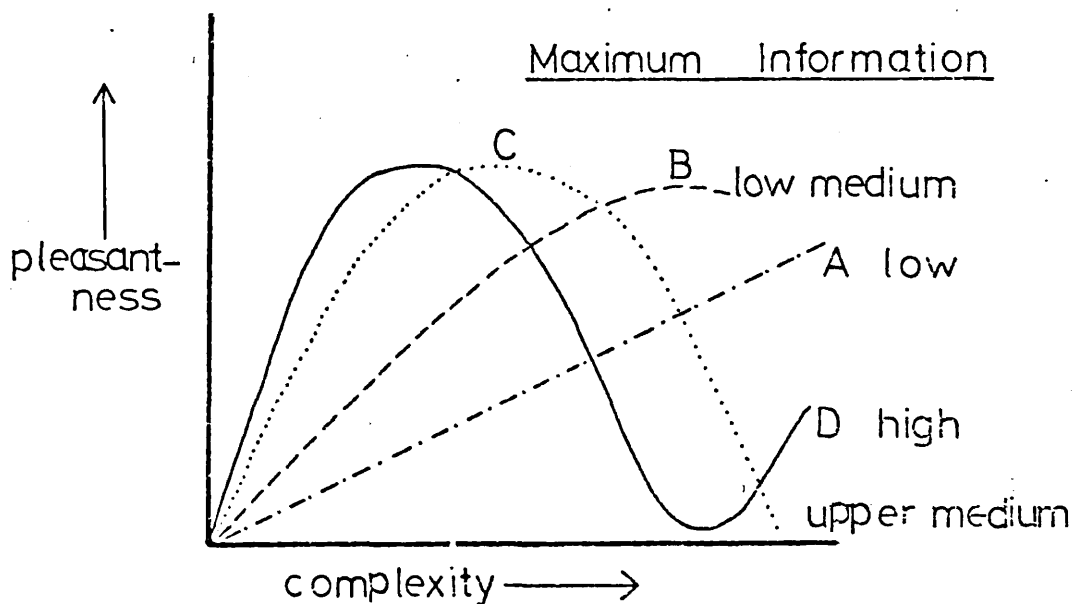


Fig. 7-1 The relationship between complexity and preference for different levels of maximum information (adapted from Smets 1973, p.39)

Essentially this means that when the range of stimulus variation presented to an observer is small the relation between perceived complexity and preference is a linear or near linear positive function (Curves A & B). When a larger range of complexity is presented Berlyne's and Eysenck's inverted-U relation is revealed (curve C) though when a still larger range is presented

(up to 900 bits) the inverted-U relation is only valid up to a certain redundancy level (in this case about 20%, curve D). The main significance of these findings is that Berlyne's theory of the relation between arousal complexity and preference is not supported for either very simple or very complex stimuli. Smets interprets these findings in terms of changes in redundancy thresholds as a function of the total range of complexity presented. This is in line with Miller's (1956) notion of 'bits' and 'chunks' of information by which the objectively more complex stimulus may appear relatively simple.

The series of experiments carried out by Smets is extremely interesting. Its relevance to art however is more difficult to establish, even though it is extremely pertinent to the large number of studies investigating the relation between preference and complexity. The stimuli used were checker-board patterns and complexity was measured in terms of transitional probabilities between cells (black or white) which were established by guessing from one cell to the next whether it was black or white. There was no attempt to measure phenomenal complexity as each individual understood that term. Finally there is no sense in which these extremely interesting findings could be generalised to the perception of art in general. It would be valuable to replicate this experiment using, as stimuli, paintings which deliberately vary in complexity, (e.g. Plates I, V, VI, VII).

(b) Individual differences. This is the second factor which can affect the relationships presented in Table A. A number of studies have revealed that the relation of complexity to preferences is highly idiosyncratic (Christensen 1961, 1962) and also that the inverted U-relation can be obtained by averaging the results of extreme scores (Vitz 1966; Noll 1972; Fritsky 1964; Kaplan, Kaplan and Wendt 1972) though Rump (1968) obtained inverted-U relations for both grouped and individual ratings. Other studies

have shown that preference for complexity is closely related to personality (Eysenck 1942; Barron and Welsh 1952; Christensen 1962; Bryson and Driver 1972; Wilson, Ausman and Matthews 1973), and an individual's disposition to seek out and experience high levels of sensation (Zuckerman, Neary and Brustman 1970; Nias and Frith 1973), as well as his degree of 'field-independence' (Bieri, Bradburn and Galinsky 1958). Furthermore, Eisenman has shown that creative persons and mathematics students prefer greater complexity to non-creative and arts students respectively (Eisenman and Coffee 1964; Taylor and Eisenman 1964), and also that first-borns prefer simpler polygons to later-borns (Eisenman 1965), and that women tend to prefer more complex polygons than men (Eisenman and Johnson 1969).¹ Francès (1970) has also shown that students prefer higher levels of figural complexity than working-class men of the same age. Training in art (Eysenck 1941c; Rosen 1955; Barron and Welsh 1952; Munsinger and Kessen 1964; Eisenman 1966a, 1967; Eisenman and Ross 1967; Eysenck 1972b), as well as perceptual learning exercises (McWhinnie 1965, 1966, 1970a) have also been shown to influence the level of complexity which is most preferred. Finally, Barry (1957) has revealed that production of (and presumably preference for) complexity in the art of primitive cultures is correlated with other features of the culture indicative of variations in typical personality.

In the light of these enormous individual differences biological speculations and hypotheses about the fundamental role of complexity as a determinant of all aesthetic reactions are seriously weakened.

¹ Although the range of stimulus complexity used by Eisenman is very restricted (viz. only three, twelve and 24-point random polygons) the emergence of strong individual differences is extremely important in view of the fact that a restricted range of stimulus variation would tend to conceal individual differences. On the whole Eisenman's methodology is weak (e.g. he only uses three instances at each of three complexity levels), and would benefit considerably from improved stimulus sampling and response sampling.

(c) The influence of extraneous factors. There is no such thing as pure complexity. It cannot exist separated from shape, size, colour and other structural properties of the stimulus. These factors may all influence an individual's liking for a particular stimulus. This is particularly apparent in Berlyne's standard set of collative stimuli (Berlyne 1963). Preferences within pairs may be governed by considerations of shape and texture rather than more or less of the collative variables in question and Berlyne never elicits the reasons for choice. An aspect of shape which is very relevant to preferences for levels of complexity is the symmetry-asymmetry of the perceived figures. Hoyles, Tuddenham and Block (1965) in their analysis of the Barron-Welsh Art Scale found that liking for complexity was independent of a liking for asymmetry. This has also been systematically investigated by Eisenman. When given a straight choice between asymmetrical and symmetrical polygons, the latter are most preferred (Eisenman 1967), and simple polygons are generally preferred to more complex polygons (Eisenman and Ross 1967). When the two variables are combined the complex-symmetrical polygons are most preferred, and the simple asymmetrical are least preferred (Eisenman and Gellens 1968). In a similar study Letzring (1972) has shown that the pleasingness of checker-board patterns was determined by interaction of black and white elements and contiguity of the elements rather than overall complexity, and Nias and Frith (1973) have shown that amount of contour was a more important determinant of pleasingness than complexity (measured in bits of information). Two factor analytic studies of Birkhoff's polygons (Eysenck 1968) and Hornung's designs (Eysenck 1971) revealed a large number of factors relating to shape (e.g. Cross, star, pillar, rotational symmetry, shading, 3 dimensional effects). It is very clear from these studies that in addition to complexity particular shapes are important determinants of aesthetic ratings of simple designs. Eysenck has also shown that a general factor runs through preferences for Birkhoff's polygons which when controlled for

revealed a linear relation between complexity and preference (Eysenck and Castle 1970). Another factor that could contaminate the effects of complexity on preference is stimulus novelty. Although both Eisenman (1968b) and Berlyne (1970) have demonstrated that the subjective novelty of molecular stimuli is functionally equivalent to objectively defined complexity this is not the case with pictures or objects. Reich and Moody (1970) have demonstrated that there is a linear negative relationship between pleasantness and the complexity of stimuli which are familiar to a person, and a positive linear relation for stimuli which are new to a person. Finally, the connotative or symbolic meaning of the molecular stimulus could influence preference judgements, regardless of complexity (cf. Bullough 1908, 1910; Barnhart 1940). A number of studies have shown that the greatest number of meaning responses (associations) are evoked either by highly simple forms or those of intermediate complexity (Vanderplas and Garvin 1959; Goldstein 1961; Eisenman 1966a; Smets 1973). In view of the fact that ranking or rating molecular stimuli for preference may be forcing the individual to make judgements that he would not naturally make, it is likely that the inverted-U relation is demonstrated when individuals merely preferred the patterns which were easiest to organise meaningfully. This leads on to the next extraneous factor.

(d) The type of stimuli used. It was noted above that very few studies have involved molar stimuli. This is presumably because it is easier to define and control complexity objectively if molecular stimuli are used. Unfortunately the great number of definitions employed have not been systematically compared with each other except in one study by Kaess (1972) who found that checkerboard variation and the number of points in a polygon were not functionally equivalent as measures of complexity. When molar stimuli are used the experimenter must rely on subjective ratings

of complexity.¹ Only five studies have used pictorial material. Walker (1970) found that liking increased monotonically with (previously scaled complexity) for stage-sets and modern paintings, but decreased monotonically for black and white reproductions of tartans. By contrast Osborne and Farley (1970) using a similar technique found a negative relationship between complexity and painting preference, and Lindauer (1971) found no relation at all between judged complexity and liking for abstract paintings. A study by Kaplan, Kaplan and Wendt (1972) confirms the domain-specific variation in the preference-complexity relationship. For photographs of urban and rural scenes the relationship between complexity and preference was linear, but it was negative for rural, and weakly positive for urban scenes. In the only study in which an inverted-U relation was revealed (using photographs of the environment and abstract paintings) Wohwill (1968) expresses doubt about the validity of the results because of the limited range of complexity presented.

(e) The absence of complexity as a factor in factor analytic studies. It was noted in chapter six that complexity was very rarely revealed in factor analytic studies involving molar stimuli. This could well explain the conflicting findings described in paragraph (d) above. By contrast the most common factor revealed in these studies is one which approximates to a dimension of static-dynamic or spontaneous-deliberate. The latter dimension has been revealed as an important criterion of evaluation by artists (Skager, Schultz and Klein 1966b; Klein and Skager 1967; Klein 1968) and similar major factors have been revealed by Bernheim (1964) and Rouse (1964). On the basis of a factor analysis Beittel (1963) was able to distinguish spontaneous and deliberate judges, and spontaneity as a factor determining preferences for drawings. Among the eight factors revealed by Choynowski (1967) one was described as dynamic-static (of composition) and another was labelled sketchy-worked

¹A small number of studies using molecular stimuli have employed subjective ratings of complexity (Atteave 1957; Berlyne 1966; Berlyne, McDonald and Parham 1967; Day 1967; Eysenck 1968).

out. Finally Kay (1969) revealed a factor of movement-quiescence in the reactions of children to paintings.

In conclusion it seems unlikely that complexity is an important factor affecting aesthetic reactions, unless as noted above, complexity-conscious art is being observed. It is wasteful to continue research on complexity in molecular stimuli as a determinant of aesthetic reactions. It would be extremely interesting to investigate preferences for complexity-conscious art, as opposed to other kinds of art, e.g. geometric, ordered Greek ornament, or African designs (cf. Connell 1968; Williams 1971 for source material). Even if judged complexity does appear to influence the reactions to these kinds of art it would not be possible to generalise the findings to other kinds of art e.g. Renaissance painting and other periods of great art in which so much more than complexity can be seen to vary. The symbolic significance of the decorative elements in early Christian art, or the zen-inspired abstract paintings of Jackson Pollock (1912-1956) or Mark Rothko (1903-) would be entirely missed if they were scaled solely for complexity. The meaning of the complex organisation of the influences the perceptual significance of the complexity. Meaning cannot be separated from complexity as an independent variable. In addition the apparent simplicity of a painting (e.g. by Raphael or Ben Nicholson) might belie the deep thought, careful planning, and the fine artistic judgement which has enabled the simple-seeming interpretation of complex and subtle ideas.

(ii) Colour.

Preferences for colour, either in isolation or in combination have been investigated with the same enthusiasm as form and shape preferences, and with a similar disregard for the role of colour in art. Colour has the advantage over shape in that like music (or sound) it is objectively specifiable (hue, saturation and intensity), though of course this does not necessarily correspond

to phenomenal experience (e.g. illusions of colour contrast). The enormous number of studies of simple colour preferences have been exhaustively reviewed by Eysenck (1941b), Valentine (1962, Ball (1965), Hogg (1969b, c) and Pickford (1972). For the most part, plain rectangles of colour have been used as stimuli, and no attempt has been made to relate colour preferences to evaluations of specific paintings (e.g. the paintings by Bonnard or Matisse in which a single colour pervades the whole canvas, and periods of art which are acknowledged for their colour properties such as 16th Century Venetian painting or Expressionist and Impressionist painting).¹ The combination of form and colour was first studied by Kulpe (1903), and subsequently by Oeser (1932) who divided his subjects according to whether they were form- or colour-dominant. This work does not seem to have attracted much attention though Smets (1973), also using plane colours and simple geometric shapes, has returned to the problem though her main interest is in the expressive qualities of the stimuli.

Pickford (1948), and Helson and Mouton (1964) correlated ratings of the colour of paintings with ratings of overall liking for the paintings, as a measure of the influence of colour on overall reactions. The latter authors calculated that colour determined 22% of the overall variance in reactions to the paintings, whereas depicted content accounts for 54% of the overall variance. Gordon's (1956) factor analysis revealed that non-artists were influenced by single colours in paintings, whereas trained artists were more influenced by combinations of colour. Using his match-to-sample technique Gardner (1969) has demonstrated that children are influenced by dominant colour in their aesthetic preferences. These techniques though they provide insight are somewhat crude in their relation to art. Goude (1972a) has also revealed that

¹Delacroix is on record as having claimed that he could paint Venus with mud if he could surround it with whatever colours he chose.

artists noticed the 'colouristic lustre' of the stimulus paintings, which appeared to go unnoticed by the non-artists who paid most attention to the depicted content (a finding also confirmed by Mortimer-Tanner and Naylor 1972).

A few studies have compared reactions to coloured and monochrome reproductions of the same paintings. Dreher (1968) revealed changes in average affective ratings of coloured and black and white reproductions. By contrast Mortimer-Tanner and Naylor (1965) found that individuals' rank order for both coloured and black and white reproductions is consistently similar. It is interesting that for coloured reproductions men are less influenced by mood than are women, but the men and women are equally sensitive to mood in black and white reproductions. Since colour is the most commonly given reason for liking a painting (after depicted content) it would seem a very useful way of studying the effects of colour to systematically compare reactions to coloured and monochrome reproductions. It is surprising that this has not been done. So far the only definite thing known is that the absence or presence of colour in a picture does not affect the pattern of eye-fixations (Buswell 1935; Yarbus 1967).

Despite these studies the investigation of colour in art has been disappointingly scant compared to the enormous number of colour preference studies. Most of the techniques so far used are too crude to be very useful. For example they have to be sensitive enough to detect the way in which Titian (1477-1576), for example, used colour to create unity in his paintings which in compositional terms were otherwise unbalanced. The psychology of art has not yet systematically investigated the connotative and symbolic meaning of colour and the expressive power of colour in art.

An interesting compromise on experimental control and relevance to art could be achieved by adapting a technique used by Edward Munch (1899-1944). He cut up several wood-cut printing-blocks

along meaningful lines, e.g. the shore-line, round a person, along the horizon, so that these elements could be separately inked with a variety of colours so that when put together exactly the same form could be seen with different colour schemes.¹ This technique could easily be adapted to form a laboratory measure of the effects of colour on the perception of paintings. Similarly abstract paintings could be photographed through coloured lenses to systematically change the colour scheme. The psychology of art has not yet met the challenge of studying colour in art. There does not appear to be any major obstacle preventing a more realistic study of colour. It is only the will that is lacking.

(iii) Depicted content and degree of abstraction.

It is surprising, upon taking a closer look at experimental aesthetics that depicted content has not been systematically studied as a determinant of aesthetic reactions. A large number of studies have shown that the subject-matter of paintings is the main determinant of liking and evaluation especially among non-artists (Peel 1944; Tucker 1955; Gordon 1955, 1956; Guilford and Holley 1949; Helson and Mouton 1964; Hussain 1966a; Getzels and Csikszentmihalyi 1969). A similar tendency was found among children (see chapter eight). Linked with an interest in the subject-matter was a moderating influence of the degree of realism in the paintings (Pickford 1948; Francés and Voillaume 1964). These findings make the psychological meaningfulness (reality) of the general aesthetic factor difficult to accept in the absence of anything more than correlational evidence. There are so many possible determining influences that it is not possible to conclude from consensus within a group that they are all agreeing about the same thing.

¹Examples of these woodcuts can be found in the Catalogue of the Edvard Munch Exhibition 1974, items 207, 204, and 198 (Arts Council, London)

Apart from these fairly crude studies there has been no attempt to correlate preferences for different types of content (landscapes, historical, military, naval battles, madonnas, rotting carcasses, portraits, street scenes, etc.). Some evidence is available from studies which investigated the relationship between personality and painting preference (discussed below) and from structural studies described in the previous chapter where paintings were categorised on an a priori basis. As a systematic variable in its own right determining reactions, variation in content has been neglected. This might be a function of the current zeitgeist. Lindauer (1973) has gone so far as to suggest that only abstract paintings be used as stimuli in experiment because they have no content,¹ and so the irrelevant and distracting factor of subject-matter can be eliminated. I shall argue below that content (symbolic, denotative or otherwise) is essential to aesthetic perception.

Most studies using abstract art as stimulus material have correlated preferences for abstract or for representational art with other person characteristics, viz. sex, education, class, personality. In these studies the division of paintings into abstract and representational is a convenient independent variable. There is no attempt to study abstract art in its own right and the kinds of reactions and experience it elicits.

Before proceeding to the next section it is necessary to comment on the often used dichotomy of abstract v. representational art used in experimental studies. This distinction is very crude indeed for as Gombrich (1963, 1965b) has been at pains to point out, content is inseparable from the form in which it is expressed so that the same object presented differently (i.e. in formal terms),

¹i.e. in the sense of natural objects depicted pictorially.

is in aesthetic effect two different objects. Gombrich's specialisation in mediaeval and renaissance art, (cf. Norm and Form 1966) in which visual art had either religious or classical content, cannot be seen as the reason for Gombrich's emphasis on the importance of the depicted content of art. As his extensive writing over a very wide range of topics would suggest (e.g. Gombrich 1960, 1966b) theme or content is an extremely important aspect of a work of art, though it is not a necessary condition of good or great art. It should therefore be a primary aim of the psychology of art to systematically investigate the interaction of form and content. This reduces to the notion of style in art especially if it is taken to mean differences in formal interpretation when the theme is held constant and differences in theme when the formal interpretation is held constant (Zucker 1962). Thus it might be possible to use as stimuli still-lives of food and drink by artists who would have interpreted this theme very differently, e.g. Van Dyke, Chardin, Cézanne, Braque and Bonnard.¹ Alternatively, stimuli could be selected from works by the same artist or artists with different themes, e.g. portraits and land-scapes by Gainsborough, Goya, Rubens, Cézanne and Corot. By systematically varying these combinations it would be possible to come closer to an understanding of the relative influence of form and content in visual art. This would represent a major step forward from the crude generalisation that artists evaluations are influenced by compositional and formal factors, whereas non-artists are most strongly influenced by the subject-matter and degree of realism of its depiction.

It was noted in chapter five that there has not been a systematic

¹In this context one might also investigate the psychological significance of the frequent meals which play an important part in recent films by Claude Chabrol, in contrast to similar meal-scenes in films by Luis Bunuel.

attempt to measure the preferences of samples of the general population for particular painters, periods, styles of art, etc. Individual painters have not been studied using empirical techniques apart from isolated studies of Picasso (Loveless 1968; Knapp 1969),¹ Cézanne (Knapp 1969; Nelson and McDonald 1971) and Van Gogh (Pickford 1969a). This is a very sad state of affairs. It contrasts sharply with psychoanalytic attempts to grapple with content and the uniqueness of the individual artist even though he tends to be surrealist in the narrow or in the wider sense of that term (cf. Bosch, Grunewald, Goya, Dali). It is perhaps the association of 'unscientific' excesses of psychoanalytic interpretations of artists which deters empirical psychologists from tackling this problem in the fear that the brand of 'unscientific' will rub off on them. As it is, there is great potential for the art psychologist to aid the art historian or artist in his attempts to interpret and understand particular painters or styles.

It is very difficult to bring these studies on the relationship between aesthetic reaction and characteristics of aesthetic stimuli together for the purpose of synthesis. Comparison between studies is handicapped by lack of a standard approach to the problem as well as the lack of standard stimuli and standard measuring techniques. Nearly all the studies stand in isolation from each other except where a single researcher (e.g. Eysenck, Berlyne, Eisenman) has tried systematically to investigate a specific problem in experimental aesthetics. Comparison between these is still difficult for the same reasons mentioned above. It has been argued that psychophysical research into the elements of visual stimuli (plain colour, simple shape) though worth studying in their own right, contribute little to our understanding

¹Jungian and Gestalt-based interpretations of Picasso have also been presented by Jung (1932) and Arnheim (1973) respectively.

of reactions to and experience of complex works of art. In addition, it has been argued that the important and extensive research on complexity is less relevant to aesthetic perception than is commonly supposed. Further work on complexity should be based on phenomenal judgements of works of art. As far as possible an objective basis for comparison between stimuli should be used (e.g. similarity judgements or style discrimination). This technique is well suited to the determination of factors which affect reactions, as well as to the characterisation of individual works, painters or styles.

Stored Stimulus Information

This area has been neglected in experimental aesthetics. It represents the knowledge, assumptions or expectations with regard to the work of art or art in general that the observer possesses and which influence his encounter with art. In an earlier chapter the notion of implicit personal aesthetic theory was discussed. To assess this experimentally would involve assessment of what individuals think represents good art, or the kind of art they like. To some extent this has already been done sporadically by workers in the field who were concerned specifically with other problems, e.g. factor analytic studies, correlational investigations of personality, etc. Some work has also been done on the need for self-consistency in aesthetic judgements (Hartley and Schwartz 1966; Nemeth and Wachtler 1973), and on the degree of distortion required before a picture is regarded as aesthetic when the content is explicitly sexual (Machotka and Waite 1968; Machotka 1970a). These and many other studies which have been mentioned in other contexts all have a bearing on the multiple constellation of criteria, aesthetic or non-aesthetic, conscious or unconscious, that influence an individual's reaction to works of art. It might be possible to determine the general influence of socio-economic status, educational level, intelligence, etc., but these are all contributing factors

to what is manifested in one individual's personal implicit aesthetic theory. It would be a more direct and sensitive approach to assess this as a whole, as it can be regarded as the mediating link between all the factors that influence an individual (psychological, psycho-physical and environmental) in his reactions to works of art. Although it is argued that a primary aim of the psychology of art is to systematically explore the mediating role of an individual's implicit aesthetic theory, it is not possible at this stage to draw any firm conclusions concerning the nature or operation of the implicit theory, though some possible factors have been noted.

A small number of studies have investigated the effects of familiarity and knowledge of aesthetic reactions. Frumkin (1963) obtained estimates of the frequency with which certain paintings had been seen before. He found that subjects who were familiar with some of the stimulus paintings liked all of them more than the subjects who were not familiar with any. The latter subjects tended to reject modern works and accept traditional works of low aesthetic quality. By contrast Child (1965) has investigated the effects of different kinds of background in art on aesthetic judgement rather than on preference. He concluded that aesthetic judgement is substantially correlated with amount of formal education in art (+.49) and with amount of experience of looking at art in galleries, books and magazines (+.49). It is significantly correlated but not very highly with pursuit of art-related hobbies such as sketching, sculpting, or photography with some art-related interest (+.21), and also with family attitude towards art (+.18). The multiple correlation of aesthetic judgement with all four background variables together was +.59. Child is inclined to interpret this in the light of his other findings as a product of an individual's own aesthetic sensitivity, though there is no evidence that directly precludes the possibility that an individual's sensitivity score is largely determined by

his knowledge of art. This is also true of a study by Bernard (1970) who designed his own test to measure familiarity with paintings and found, among other things, that there was an almost linear relationship between level of knowledge and the artistic originality of the liked pictures. The effects of educational level were slight.

In an interesting experiment on the effects of minimal familiarity Ross (1966) found that after only 20 seconds exposure to paintings the subjects were highly accurate in identifying which paintings had been reversed on a second showing. This finding is in line with the extraordinarily large capacity of the brain to remember pictorial material seen only once before.

Present context Information

Under this heading is subsumed the interaction of an individual and the stimulus, we well as any aspect of the context situation or environment which has a bearing on his reaction. For instance, it has already been noted that it is important to establish whether there are important differences in reactions to paintings in an experimental laboratory as opposed to the same paintings in a museum or gallery. In addition, it would be interesting to determine whether reactions differed either in the same individual or between individuals, depending on whether a painting was seen in a museum, a book, on television, in someone else's home, or in a school. This has not been done. Some isolated studies have measured reactions to paintings in galleries, e.g. Munro, Lark-Horowitz and Barnhart (1942); Alschuler and Hattwick (1947); and Loveless (1968), though they have not compared reactions to the same stimuli in different locations. There has as yet not been conclusive evidence that reactions to molecular stimuli are functionally equivalent to reactions to works of art, or that

reactions to reproductions can be equated completely with reactions to the real works of art.

The effects of context on the appreciation of art has been explored in an isolated study, described by Valentine (1962) in which paintings were associated in a sequence with either artistically good paintings or with poor paintings. This resulted in differential reactions which appeared to be influenced by the quality of the surrounding paintings. In another experiment subjects were asked to rate paintings in three separate rooms (an aesthetically pleasing one, an ugly one, and a neutral room) (Maslow and Mintz 1956; Mintz 1956). Although this was a poorly designed and controlled experiment, there did seem to be a suggestion that the surroundings influenced the reactions to the photographs used as stimuli and that the effect was long-lasting. This study does no more than strengthen commonsense assumptions. It is however an important notion which deserves serious investigation.

Arnheim (1969, p.61) has described an experiment (unpublished) by a student of his in which verbal reactions to a painting changed as a function of the paintings with which it was paired. Arnheim describes how 'a strongly stylised painting by Karel Appel made a Modigliani figure look realistic, whereas the same Modigliani looked suddenly flat when confronted with a Cézanne portrait'. Most paintings in galleries are seen not in isolation but along side a great variety of other paintings which may enhance perceived differences, or suppress likenesses and completely change the impact of a painting. This has serious consequences for experimental studies particularly when the method of paired-comparisons is used. Phenomenally speaking the same stimulus painting could be different in each pairing. The individual's frame of reference may shift according to the contrasts between the stimuli presented to him, in much the same manner that was demonstrated by Gregson (1968) and Ferguson (1972)

with successively presented stimuli. It is interesting that what is in one sense a methodological draw-back, is in another sense the very essence of a theory of expression in art (Gombrich 1960, 1972a, 1972b).¹

Stable Characteristics

(a) Personality. The main stable characteristic that has been studied is personality and is second only to complexity as the most studied variable in experimental aesthetics. Unfortunately there is more than one way of measuring personality which makes comparison between studies and evaluation of them very difficult. Wherever a number of studies have used the same measure a direct comparison is possible, though this is handicapped by variation in the stimuli used. The most commonly investigated aspect of personality studied is extraversion-introversion which has been measured in innumerable ways.

(i) Extraversion. Although this conception originally derived from the writings of Jung (1923) it has been correlated with aesthetic preferences and aesthetic sensitivity in a large number of studies outside the Jungian frame-work. The results are summarised in Table B.

The results of all these studies are very confusing indeed. Wherever a relation has been tested by more than one study the results are contradictory. This also casts doubt on the relations supported by only one study (section IV). Consequently it is not possible to conclude whether or not extraverts are aesthetically more sensitive or whether their aesthetic preferences differ significantly from introverts. In addition to the usual difficulties

¹Gombrich's theory of expression in art is discussed in chapter nine of this thesis.

<p>I(i) Introverts are more sensitive</p> <p>(ii) Introverts are NOT more sensitive</p>	<p>Meier Seashore Test McAdory Test Allport Vernon Lindsey Scale of Values</p> <p>polygon and design preferences tests Child Test</p>	<p>Carroll 1932² Sisson & Sisson 1940⁶ Eysenck 1972b, 1972c¹ Child 1962, 1965⁵</p>
<p>II(i) Introverts prefer abstract to representational paintings</p> <p>(ii) No difference</p>	<p>ad hoc measure</p> <p>Knapp & Green Abstract Art Test ad hoc measure</p>	<p>Jamison 1972¹ Cardinet 1958⁴ Knapp & Wulf 1963⁵ Roubertoux, Carlier Chaguiboff 1971</p>
<p>III 1. Extraverts prefer: modern impressionistic, colourful, romantic, emotional paintings</p> <p>2. Extraverts prefer: realism and reject Expressionism</p>	<p>ad hoc measure</p> <p>Picture Postcard Test</p>	<p>Eysenck 1941¹ Burt 1939 (unstable introverts)¹ Rosenbluh, Owens & Pohler 1972¹ Knapp 1964⁵ Burt 1939¹ (Stable extraverts only)</p>
<p>IV Other Relationships.</p> <p>(a) Introverts prefer thinner rectangles</p> <p>(b) Introverts who are also cognitively complex prefer simple polygons</p> <p>(c) No relation to:</p>	<p>ad hoc measure of rectangle preferences</p> <p>polygon preferences</p> <p>colour preferences tone v. colour form complexity preferences in paintings</p>	<p>Eysenck & Tunstall 1968¹ Bryson and Driver 1972¹ Currie (1966)⁷ McElroy 1953³ Osborne & Farley 1970¹</p>

1. Maudsley Personality Inventory or Eysenck Personality Inventory
2. Bathurst Test
3. Heidbredder Test
4. Thurstone Temperament Schedule
5. Myers-Briggs Type Index
6. Bernreuter Personality Inventory
7. Cattell 16PF Questionnaire

Table B. Studies of the Relation between Extraversion and Aesthetic Reactions.

of comparing the results between studies, the great variety of measures of extraversion add a further dimension of variability. The quoted studies cover a span of over forty years and so it is not possible to accept the earlier studies without replication because of cultural changes in taste over time. Despite these difficulties it can be concluded that the relationship between extraversion and aesthetic sensitivity or preference is not proven. This statement stands stronger in the context of Eysenck and Castle's (1970b) finding that there is no difference between artists and non-artists in extraversion and Eysenck's (1972c) finding that extraversion is not related to the three measures of sensitivity used.¹

(ii) Measures of Jungian Personality. (Myer-Briggs Type Index, Myer (1962)). This questionnaire which measures Jungian types has been used in a number of studies. Child (1962, 1965) has demonstrated that aesthetic sensitivity is correlated with intuition rather than sensation, and with perception rather than judgement. Using high scores on the aesthetic scale of the Allport-Vernon-Lindsey Scale of Values as a measure of sensitivity, Carlson and Parker (1969) have confirmed Child's findings. There also appears to be a close relation between type of painting preferred and Jungian personality type. The sensation type likes Realism, the intuitive type likes Expressive and Abstract art, whilst the thinking and judgemental types prefer geometric art (Knapp and Wulf 1963; Knapp 1964). It is interesting to note that in a recent study Kloss and Dreger (1971) found no relation between personality (Guilford Zimmerman Temperament Survey) and preferences for Geometric versus Expressionistic art. It all depends on the personality tests used.

(iii) Measures of Freudian Personality. It was noted in an earlier

¹These were: Maitland Graves Test, Birkhoff Polygons and Child's Test.

chapter that psychoanalytic theories of art, or psychoanalytic theory when applied to art, had most relevance to the personality of the individual and to his motivation for seeking out and deriving satisfaction from aesthetic objects. Child appears to be the only experimental psychologist who has attempted to relate aesthetic judgement (though not preference) to measures of personality in psycho-dynamic terms. Freudian categories of personality have been systematically explored by Cooperman and Child (1968, 1969) and Child, Cooperman and Wolowitz (1969). Developing their own measures, which they also tested for reliability, they measured aspects of oral and anal personality, (e.g. independence of judgement, liking for decision-making, deference to convention), and correlated these measures with aesthetic judgement. They were able to conclude, for instance, that what is relevant to aesthetic sensitivity in the notion of oral-active character is activity rather than sadism, and also that anal retentive character traits are negatively correlated with aesthetic sensitivity (Cooperman and Child 1968). The highest correlations between aesthetic sensitivity and the measures employed were for independence of judgement, low deference to convention and other people, and finally, deference anxiety; the first and third being positive, and the other negative.

(iv) Other measures. The constellation of personality traits and attitudes which passes under the diverse names of conservatism, dogmatism, or authoritarianism seem to correlate with a rather negative attitude towards art. People who are high on these characteristics tend to prefer representational to abstract paintings (Roubertoux, et al. 1971),¹ and to reject modern art generally (Pyron 1966),² though Wilson, Ausman and Matthews (1973)³

¹ Conservatism Scale of Cattell 16PF

² Rokeach Dogmatism Scale (Rokeach 1960)

³ Wilson-Patterson Conservatism Scale (1970)

suggest that 'conservatives' reject complexity in art whether representational or modern. In addition, they tend to like simple representational works and are characterised by a general lack of ability to appreciate paintings (Frumkin 1963).¹ It is also interesting to note that one of the three major cognitive characteristics which Child (1965) found to be correlated significantly with aesthetic sensitivity was 'tolerance of complexity'. Child had derived his measure from Adorno's Authoritarianism Scale.² In a study of authoritarianism and the judged pornography of great paintings of nudes, Eliasburg and Stuart (1961) found that authoritarian students² in the United States saw the paintings as more pornographic than non-authoritarian students. The authors failed to find any relation between authoritarianism and perceived pornography with Latin American students (Stuart and Eliasburg 1962).

Unfortunately these findings are crude and largely predictable and do not add much to what is known already. As so often in psychology a considerable amount of time and energy is devoted to finding out what we know already or could have guessed. Other studies have attempted to obtain measures of personality through individual aesthetic preferences (Precker 1950). Apart from the work of Burt (1939) and Eysenck (1947), aesthetic preferences have not played an important role in a theory of personality. An early attempt independent of any theory to examine personality traits as manifested in aesthetic choice, was made by Barron and Welsh (1952). They found that people who preferred simple symmetrical polygons were conservative, conventional, enthusiastic and optimistic, whereas those who preferred asymmetrical-complex polygons were antisocial, creative, dynamical and pessimistic. The two groups defined by their figure preferences showed consistently

¹Rokeach Dogmatism Scale (Rokeach 1960).

²Adorno et al (1950).

different preferences in paintings as well. More recently Cerbus and Nichols (1962) have attempted to use aesthetic preferences as a personality measure. They devised three separate aesthetic scales and correlated them with measures of personality. They found no relation of personality to preference for chromatic or achromatic qualities, or to degree of preferred abstraction in the stimulus paintings. On the other hand a scale representing objects v. people (as subject-matter) revealed that those who chose depictions of people were outgoing, friendly and with a tendency to be more expansive, self-confident and happy.¹ This sounds like a description of a stable extravert for which there are more direct measures. As the only qualities which correlated with personality in this study were semantic, rather than aesthetic it failed to measure personality through aesthetic preferences. A somewhat more interesting attempt was made by Christensen. He devised a texture-preference test based on natural texture (brick, cloth, bark, leather, etc.) which enabled him to classify the persons tested into three basic types, viz. those who preferred (i) complex unstructured; (ii) simple structured; and (iii) simple structured textures, (Christensen 1961). Preferences for the three types of textures were clearly related to personality as well as to vocational preferences, (Christensen 1962).¹

Finally there are a number of studies which are difficult to classify. For instance, Roubertoux (1970) used psychometric measures of personality to determine characteristics of people interested in visual art only, or drama only, as well as people with no interest in art. He found that personality traits are related to interest in art, and also that to each type (theatre-goers, and museum-goers) there corresponds a specific form of personality.

¹California Personality Inventory.

²Minnesota Multiphasic Personality Inventory and Kuder Vocational Preference Record,

It would be interesting to see if Bernard's test of the painting familiarity (Bernard 1970) could be used to cross-validate Roubertoux's findings. In another study Roubertoux et al (1971), this time using the Cattell 16PF, found that subjects who preferred abstract to representational art were less dominant, dependent and conservative, and less global in their approach to things. In addition their soci-cultural level tended to be significantly higher than those preferring representational paintings. This latter finding was confirmed by Knapp and Wulff (1963) who also found that preference for abstract art correlated with superior academic achievement at the pre-collegiate level and superior verbal and mathematical abilities.

As noted in chapter four, Cardinet (1958) has tried to elicit the criteria people use in making preference judgements between paintings. The results were extremely complex and are difficult to make sense of. As a general point, however, it can be concluded that people tend to project themselves in their choice of pictures, and are not seeking compensatory expression in art. This has also been demonstrated by Charles Morris (1957) who found that Sheldon's types (mesomorphs, endomorphs and ectomorphs) tended to choose paintings which reflected their personality and interests. Morris argues that people project their needs in choosing paintings which satisfy them. Value judgements can be regarded as an index of the capacity of an object to satisfy a need, though people differ in the degree to which value and preference judgements are identical.

(v) The notion of an aesthetic person. In a very extensive study Child (1962, 1965) used a variety of perceptual, cognitive and personality measures which he correlated with aesthetic sensitivity. He concluded that good aesthetic judgement is largely the outcome of a general cognitive approach to the world. This approach involves searching for complex and novel experience which is then understood and evaluated through relatively autonomous interaction

of the individual with the objects providing such experience. The aesthetic value of such works of art would be a function of their aptness for engaging and rewarding the attention of a person whose cognitive approach to the world is of this character. In addition, to the three Jungian characteristics, (regression in service of the ego, the intuitive and the perceptive), tolerance of complexity and independence of judgement were the other two variables that made up this cognitive approach (Child 1965). In short the aesthetic person is open to experience, independent in judgement and capable of adaptive regression. This is consistent with Christensen's (1961) characterisation of people who prefer complex unstructured textures. He describes them as sensitive and responsive to stimuli, seekers of stimulation and capable of dealing affectively with unstructured situations. It would be interesting to cross-validate Child's and Christensen's tests. It is odd that there has only been this one major attempt to characterise the aesthetic person.

Child's study is exemplary for the wide range of variables it encompassed, (viz. 4 measures of background in art, 9 measures of perceptual skill,¹ 8 measures of cognitive style, and 4 of Jungian personality.) Hogg (1969a) has severely criticised Child's work as loose, lacking in causal determination, and selective. It is true that Child's evidence is correlational rather than causal, but Child is very aware of this. He presents some extremely interesting findings many of which he replicated. Child's description of an aesthetic person is substantial and testable. Hogg is applying inappropriate criteria when he condemns Child's work as loose and unsystematic. On the other hand he is correct

¹It is interesting to note that these suggest that there is a consistent tendency for aesthetic judgement to be positively related to skill in perception of visual form. However, the relation does not appear to be very important. There have been several attempts to develop aesthetic appreciation by means of formal training in perceptual skills, but the evidence for the efficacy of this approach is equivocal. See chapter nine of this thesis.

in pointing out that there is no guarantee that the variables studied are the only, or alternatively the most interesting, ones. Child's description may not be wrong, but at the same time it may not be complete. It is regrettable that Child has since shown no sign of expanding on the work he started so well, though he is still active in other areas of experimental aesthetics (Child 1973), and has generalised his findings to aesthetic judgement in children (Child and Iwao 1968; Child 1970).

(vi) Intelligence, age, sex and socio-economic class. These common variables for research in general psychology, have also been correlated with aesthetic reactions. There seems to be a low positive correlation between intelligence and aesthetic judgement (Dewar 1938; Eottorf 1946; Allison 1970).¹ The relation between intelligence and aesthetic preference has not been studied except for an experiment described by Knapp (1964). For the four categories of paintings used there were no significant correlations between preference for Fantastic or Geometric paintings, and scores on the Terman Concept Mastery Test. However, preferences for Expressionist paintings correlated significantly and positively with intelligence (+.25), but negatively with preferences for Realistic paintings (-.29). Preferences for abstract rather than representational paintings is also correlated with superior verbal and mathematical ability, superior achievement at the pre-collegiate level, as well as a high score on the aesthetic scale of Allport-Vernon-Lindsey Scale and Values, (Knapp and Wulff 1963). Child (1962) found that scholastic achievement did not correlate

¹ That this is not the case with all arts is suggested in a study carried out by Williams, Winter and Woods (1938) in which the correlation of appreciation for poetry with general intelligence was as high as +.63 whereas that between the appreciation of pictures and intelligence was only +.31 and for music and intelligence +.22. This could reflect educational biases of the time, which together with subsequent educational and cultural change makes it difficult to generalise these findings to the present. It is however an interesting relationship which deserves serious investigation.

with aesthetic preferences, though it did correlate significantly with aesthetic judgement. This is also consistent with the finding that there was a tendency for representational paintings to be preferred by subjects with a lower socio-economic status, (Francés and Voillaume 1964; Roubertoux et al 1971). This would suggest that the relationship between intelligence and aesthetic judgement or aesthetic preference is complex and deserves more extensive investigation using a variety of intelligence measures with systematic variations of the type of painting employed as stimuli. An important study in this context has been carried out by Eysenck (1972b) who used four measures derived from the MGDJT, Child's test, and two measures using Birkhoff's polygons.¹ He found no clear cut relationship between intelligence and the three measures of aesthetic sensitivity. This could be a function of the kind of intelligence measured. It seems plausible that other types of intelligence (e.g. Hudson's (1968) converger-diverger distinction) should relate to both aesthetic judgement and preference.

The influence of sex on aesthetic reactions has been studied by a number of researchers. There is evidence that in the United States women are more knowledgeable about art and aesthetically more sensitive than men (Frumkin 1963; Obst 1966; Eisner 1966) though there is evidence that in France men possess more knowledge of art than women (Bernard 1972). Women tend to do better than men on the Graves Test as a whole but not on the separate factor scores directed by Eysenck (1967). They also do better than men on Child's test but not on Eysenck's polygon test (Eysenck 1972b). Whether this is a direct result of biological sex differences or the environmental influences resulting from sex differences cannot be established, and is probably not a very meaningful thing to establish

¹See footnote on page 152.

The aesthetic preferences of men and women have also been investigated. Burt (1939) has presented data which suggests that while men tend to prefer romantic and realistic paintings, women tend to prefer impressionistic paintings and men generally preferred more modern works. Bernard (1972), who administered a questionnaire to purchasers of paintings, confirmed this general finding, albeit thirty years later and in France. He also found that men tended to like seascapes, and that both sexes preferred representations of their own sex,¹ except for pictures of young girls which were equally preferred by men and women. In a systematic study, Johnson and Knapp (1963) found that sex differences in aesthetic preferences were smaller, than age, class, training and occupational differences (Knapp, Brimmer and White 1959). The interaction between preferences and formal features of the paintings and tartans used as stimuli were complex, but in general tended to be more extreme in the types of art preferred, and women chose the more controlled and subdued stimuli.

Surprisingly, in view of its importance in psychology as a whole, the effects of age and the ageing process on aesthetic judgement or preference have not been studied. There have been many comparisons between aesthetic reactions of children and adults, and a great many more studying developmental changes in the reactions of children (see Chapter eight). However, only one study by Simon and Ward (1973) has attempted to assess the effects of age on aesthetic judgement. Unfortunately, this was a poorly designed experiment and the age groups were not properly matched, and so it is not possible to draw conclusions

¹This is confirmed in a study with children in the United States (Lark-Horowitz 1938).

from the study.¹ This would seem to be an extremely important variable which has been totally neglected by experimental aesthetics. It is necessary to obtain records of the changing pattern of tastes as a person gets older and to measure the relation of preferences of older people to the prevailing fashions in art.

Socio-economic class has been explicitly studied by Bulley (1934); Frumkin (1960); Knapp, Brimmer and White (1959); Eisner (1966), and Loveland (1971) and also by other workers as part of a larger study (cf. Francès and Voillaume 1964; Eysenck 1970; Child 1965). Despite the usual wide differences in stimulus material and aesthetic measure there does seem to be a tendency for middle-class subjects to show superior aesthetic judgement and to prefer greater complexity in visual stimuli (Knapp et al, 1959; Francès and Voillaume 1964) and for lower-class subjects to prefer simpler designs and more orthodox paintings, (Roubertoux et al 1971). As we have seen the effects of personality, intelligence and sex are extremely complex and would make any attempt to determine the influence of class except in the crudest sense, extremely difficult.

Other studies have investigated the relation between attitudes to life (Morris and Sciadini 1966); attitudes to time (Knapp 1962) and value systems, for example, as measured by the Allport-Vernon Scale of Values (Knapp and Mullf 1963; Knapp 1964). The results of all these studies could be artefactual consequences of the particular type and range of stimuli employed as well as the particular kind of aesthetic measure employed. The argument for

¹ It is interesting to note however that among the non-artists the older group (aged 35-45) obtained a significantly higher score than the younger group (aged 19-22) on the Bulley Test (1934) whereas there was no difference between these groups on the MGDJT (Graves 1946). This suggests that the older people might have different values from the younger, though this quite reasonable assumption could, and should, be studied directly.

the establishment of standard criteria for the selection of stimuli and standardising the conditions of aesthetic measurement is very strong, for on it rests the efficacy and utility of all the work described above.

(c) Cross-cultural comparisons.

The culture to which an individual belongs is a major stable characteristic which may influence his reactions to art. The cross-cultural study of aesthetic reactions is almost as old as experimental aesthetics itself (cf. Lalo 1908) and has recently been extensively reviewed by Child (1969) and Pickford (1972). The chief aim of cross-cultural comparisons is to throw light on the problem of whether aesthetic values are culture-specific or universal across cultures. Cross-cultural agreement however small is seen by some writers as evidence for the objectivity of aesthetic values (Child 1968, 1969), whereas the same evidence can be seen as evidence of cultural relativity (Pratt 1961). The truth would seem to lie somewhere between these two extreme positions. It all depends on how you look at the data.

Many of the recent studies have been associated with the work of Child who takes as his criterion agreement with American experts (Child and Iwao 1965; Sumito and Child 1965; Iwao and Child 1966; Ford, Protho and Child 1966; Child 1968). In all these studies in Africa, Fiji and Japan, Child found small but significant agreement with American experts. Child attributes this to the independent discovery by people in different cultural traditions, of similar facts about the adequacy of particular works of art to satisfy their aesthetic interests. Child goes on to argue that this cannot be done by everybody in a given culture as aesthetic sensitivity is a minority characteristic. Consequently previous studies which have failed to find transcultural agreement did so because the sample was not preselected for interest in art. This does appear to be the case. People who are

not preselected for interest in art show little transcultural agreement (McElroy 1952; Lawlor 1955; Hussain 1966b), in reactions to works of art, though Eysenck's (1941) review revealed considerable cross-cultural agreement in rank-order preference for colours. It is possible that non-aesthetic factors play a greater role in influencing the judgements of non-art people. As these factors are likely to be culturally specific then transcultural agreement among non-artists is less likely than between artists.

A number of cross-cultural studies have been carried out by Eysenck and his associates. Eysenck described the general aesthetic factor as 'independent of teaching, tradition and other irrelevant associations' (Eysenck 1940). In two comparisons of preferences for Birkhoff polygons by Egyptian artists and non-artists (Souief and Eysenck 1971, 1972), the author found both average and structural similarities between the responses of the English and Egyptians.¹ However there are embarrassing differences such as the fact that Egyptian non-artists tended to prefer simple polygons whereas the English non-artists preferred complex polygons. Eysenck attributes the differences to the differential training of Egyptian and English artists, and concludes rather limply that the 'data do not prove that cultural differences do not exist'.

Berlyne has as yet not carried his work into the cross-cultural field, but has noted (in Berlyne 1972c) that he plans to extend his work in this direction. With the biological emphasis of Berlyne's work one would expect that any degree of agreement between cultures however small, will be seen as providing support for his theory. It is unlikely that differences between cultures in aesthetic reactions will be emphasised.

¹Similar findings were obtained in the Japanese-English comparison (Eysenck and Iwawaki 1971).

As with the ~~Mature-Nurture~~ controversy in intelligence theory it is extremely doubtful that we can ever accurately determine the relative influence of each. As aesthetic appreciation is very much a cultural phenomenon which is not amenable to experimental investigation with the manipulation of independent variables, it is unlikely that this controversy will be resolved. Although it is possible to speculate about the effects of a biological or a physiological factor determining reactions these are likely to be confounded in the tremendous diversity and variety of art both within and between cultures, periods, styles, and schools of art.

(d) Psychopathology and artistic behaviour.

Another area of research that must be briefly mentioned at this point is the investigation of the relationship between psychopathic illness and aesthetic reactions. These have been well reviewed by Cerbus and Nichols (1963), and also by Pickford (1972) who has worked extensively in this area (Pickford 1967). This work has usually been carried out with aims that stem from the attempt to understand mental illness as well as to provide therapeutic techniques. With the exception of Eisenman (1966b) these studies have not been carried out with the aim of elucidating aesthetic problems, though the work has considerable relevance to several areas in the psychology of art. These are the relationship between aesthetic reactions and personality (even if pathological) and to the general area of emotion and meaning, communicated in works of art.

(e) Colour Blindness and the Art of the Blind

In passing, it is necessary to mention two stable characteristics that have been extensively investigated by Pickford. They are the effects of colour blindness (especially among artists) and the art of the blind. Both topics are well described and discussed in Pickford (1972, Ch.3 and 5). Although colour vision defects can have demonstrable effects on the colour scheme used by artists there has been no attempt to assess the effect of major or minor

colour defects on the perception and appreciation of painting.

(f) Man versus Machine versus Monkey.

Noll (1966) has demonstrated how only 28% of an experimental sample were able to correctly identify a computer-generated picture which had been paired with a painting by Mondrian the style of which the computer picture simulated. The majority of the people in the experiment preferred the computer-picture. Further doubt on the supposition that art necessarily and intrinsically embodies the spirit of its human maker is revealed in an experiment by Hussain (1966b). He obtained preference judgements of paintings by several artists, viz. Picasso; an established painter; children; and by Morris's famous painting Chimpanzee Congo (D. Morris 1962), though the subjects did not know who had painted each of the paintings. They were judged by English school children, university students from England, France and India, and also by English art students. Not one of the group ranked the paintings by Picasso, the established painter, the children, and Congo in the order that might have been expected. This finding is not unique for Rensch (1965) has shown that art experts have been deceived by monkey paintings. Also relevant in this context are two studies by M. Morris (1957) and Pronko et al (1965) who both provide evidence that the actual form a work of art takes is not necessarily the most preferred, and that changed or altered versions of the same painting can be equally, or even more, pleasing. The studies suggest then that the work of art is not necessarily unique, perfect and immutable, embodying the spirit of its human maker. However, this does not of course preclude the possibility that some art (e.g. the Mona Lisa), is of this nature, or even the majority of what is commonly considered as great art.

Desmond Morris (1962) has reviewed all known studies of ape drawings together with the studies he carried out himself, and came

to the conclusion that 'the aesthetic aspect of picture-making is shared by man and ape'. According to Morris we share with apes 'an inherent need to express ourselves aesthetically in ways which are common to all picture-making from Leonardo to Congo'. The chief difficulty of Morris' study was its poor control and the absence of any form of measurement. A quantitative assessment of Morris' claims have been made by Smith (1973) using the simple device of a grid placed over the ape-drawings to enable objective quantification. Smith found evidence of a tendency to mark stimulus figures and to fill in blank spaces in all three chimpanzees studied, but only inconclusive evidence of a genuine balancing response, and no evidence of completion of an incomplete stimulus array, which had been reported by Morris (1962). It would seem that Morris' findings have been only weakly supported. His extravagant claims about the common biological basis of all art (human and primate), and also the aesthetic evolutionary interpretation given by Bleakney (1970), must surely be accepted only when simpler hypotheses have been eliminated, e.g. that an empty space is filled simply because it is the largest space left on which to draw a totally visible scribble. The hypothesis of genuine aesthetic expression in monkeys has neither been proven nor disproven.

There is however quite strong evidence that rhesus monkeys are capable of responding meaningfully to pictures. For example Butler (1961) found that monkeys gave fear-reactions to pictured snakes, and Hochberg (1964) has described experiments in which rhesus monkeys who had been trained to discriminate between ⁿlive drawings of objects could transfer their learning to discrimination of the real objects. Similarly they could learn to discriminate the objects and transfer this to discrimination of perspective drawings of the objects. More recently Humphrey (1972) has presented evidence which shows that monkeys have strong and consistent preferences for colours, and for still and motion-pictures.

(g) Training in Art.

The comparison of aesthetic reactions by Artists and non-Artists has been quite extensively studied in experimental aesthetics though it seems that the true potential and value of this technique has not been fully exploited. 'Artists' refers to any person having extensive training or experience, (i.e. employment) which is connected with art, and 'Non-Artists' refers to any person having no training or working experience in art. Child (1962, 1969) in his extensive work on aesthetic sensitivity, prefers the term Connoisseur in place of the label artist. The latter term is preferable because it is objectively defined, and is free of the value connotation implied in the use of the word Connoisseur.

There seem to be two main advantages to comparing Artists with Non-Artists in their reactions to Art. The first is that the Artists are presumed to have greater understanding of, and insight into, works of art and into their own aesthetic reactions. Associated with this is the hoped-for facility of Artists to describe and record their reactions to art. A second advantage is that comparison between those experienced and those inexperienced in appreciation of art might lead to illuminating insights into aesthetic experience.

Artists and Non-Artists can be compared to establish the stimulus determinants of their reactions. Non-Artists are influenced by naturalism (Peel 1944; Gordon 1955; Francès and Voillaume 1964), depicted content (Helson and Mouton 1964; Getzels and Csiksentmihalyi 1969); clarity, single colours and craftsmanship (Gordon 1955, 1956). By contrast artists have been shown to be less interested in these factors and to pay more attention to compositional and formal qualities (Peel 1944; Gordon 1955, 1956; Künnapas and Norman 1971); dynamic qualities such as spontaneity-deliberateness (Klein 1968), and originality (Getzels and Csiksentmihalyi 1969). In addition Morris and Sciadini (1966)

have noted that artists distinguish between liking and evaluating a painting whereas non-artists tend to regard liking and evaluating as undifferentiated. There is also some evidence that artists are more sensitive to the emotional significance of paintings (Goude 1972a).

The differential influence of complexity as a determinant of preferences for polygons was investigated by Barron and Welsh (1952) who found that artists preferred complexity-asymmetry to simplicity-symmetry in polygons. This confirmed Eysenck's (1941, 1942) finding that artists preferred greater complexity in polygons than non-artists. This was later confirmed by Rosen (1955) and more recently by Munsinger and Kessen (1964) who argue that the Artist's preference for more complex polygons is a joint outcome of the variability of the stimulus and the adequacy of the person's cognitive structure for processing higher levels of variability. Art students, through extended experience of patterns and shapes have developed as part of their cognitive structure coding rules that reduce cognitive uncertainty below that of non-Artists. Whether this is also true for works of art it is not possible to say. Eysenck's more recent work on differential reactions of Artists and non-Artists (Eysenck and Castle 1970; Eysenck 1970b) suggests that on both Birkhoff polygons and the Maitland Graves Design Judgement Test there is considerable agreement between Artists and Non-Artists, except that on certain items in both tests there were conspicuous differences in that the Artists have a strong preference for simple symmetrical designs. Outside Eysenck's own work it is difficult to find corroborative evidence apart from the finding that when presented with pairs of polygons, equated for Birkhoff's 'M', artists tended to choose the simpler of each pair (Brighouse 1939c). Peel (1944) has also noted that artists tended to dislike too much representational detail in landscapes.

The explanation of the change from artists preferring complexity (Eysenck 1941) to artists preferring simplicity in polygons (Eysenck 1970b) could be attributed to cultural changes in aesthetic taste, but this is weakened by a number of recent studies which found that artists preferred greater complexity (Munninger and Kessen 1963; Taylor and Eisenman 1964; Eisenman 1966a, 1967; Pyron 1966). The issue is further complicated by Noll (1972) who revealed that complexity influenced affective reactions to molecular stimuli in the same way for Artists and Non-Artists respectively. Eysenck's findings may well be stimulus specific.

Several studies have revealed that Non-Artists agree amongst themselves more than Artists in the judgements of paintings (Gordon 1956; Francès and Voillaume 1964; Getzels and Csiksentmihalyi 1969), and in judgements of Persian carpets, (K. Gordon 1923). On the other hand, others (Child 1962; Burt 1933; Springbett 1960, and Tucker 1955) have revealed greater consensus among Artists than among Non-Artists. It is perhaps significant that the first two studies were based on correctness of aesthetic judgement on which the artists should be fairly knowledgeable. The remaining two studies were based on abstract art which may have produced confused responding among the non-artists. There is a strong case for systematically assessing the degree of agreement between artists in contrast to laymen in their reactions to art.

Very few of the studies comparing the reactions of artists and non-artists have concentrated on the actual process of perceiving a work of art. An isolated, but extremely interesting study by Brighthouse (1939b) revealed several important differences in the 'aesthetic apperception' of paintings by Artists and Non-Artists. The artists spent longer observing the stimulus paintings, produced richer verbal reports, took longer to make up their minds about liking or disliking the work, and spread their attention more evenly

around the painting. It is regrettable that psychology's present-day obsession with scientism should discourage this type of study which is qualitatively rich and at the same time empirically controlled.

One of the difficulties comparing the reactions of Artists and Non-Artists is the specialised vocabulary that the artist can use which may draw attention only to differences in evaluation which are expressible in words. Perhaps it would be more illuminating if future research concentrated directly on the study of artists themselves and not only by contrast with non-artists. It would be interesting to see whether Child's notion of the aesthetic person coincided with the characteristics of artists. The kinds of experience, and the kinds of stimulation that artists regard as aesthetic should be investigated directly. In addition, the writings and talkings of artists (especially famous ones, represents the verbalised expressions of the implicit aesthetic theory of individual artists. This is extremely valuable raw material, which should be utilised optimally by the art psychologist, in conjunction with his empirical findings, to develop the notion of individual and cultural implicit theories.

Non-Stable Characteristics of the Person

This is another area in which very little research has been done. A number of studies have carried out work on the effects of perceptual learning on aesthetic reactions to complexity-asymmetry (McWhinnie 1966, 1970a, 1970b). As nearly all this work has been done with children with a view to finding the best ways of teaching art appreciation to children, it is discussed separately in chapter eight. Only two studies, (Haber 1958; Terwilliger 1963) have looked into the very important notion of adaptation-level as a determinant of aesthetic reactions (Helson 1964). As this is a dynamic, ever-changing base-level against which all new experiences

are compared it is an important feature of the systematic change in the reactions (and also the expectations) of both individuals and groups over time. It must underlie an individual's artistic development and his changes of taste with time and experience. Shifts in cultural adaptation level must also underlie the way in which avant-garde art eventually becomes conventionalised and accepted. To take a longer time perspective than this and use the notion of adaptation-level to help explain the development of European art (Peckham 1965) lies outside the limits of empirical psychology.

Outside the frame-work of adaptation-level theory, Ekman, Hosman and Lindstrom (1965) have demonstrated that each individual has his own scale of roughness-smoothness in judging texture. Using poems, Harding (1968) has shown that ratings of liking vary directly in relation to the number of times a person is asked to read it. Alschuler and Hattwick (1939) who studied the reactions of children to paintings over a period of six weeks found similar shifts in evaluation over the period. Although not working within the frame-work of adaptation-level theory these studies have clearly revealed shifting adaptation levels.

Aesthetic appreciation does not characteristically involve overt behaviour. Indeed it is often said by definition to inhibit activity and practical perception. Consequently, mood and feeling (in contra-distinction to the appetitive emotions) must play an important role. Curiously, this has not been studied at all in experimental aesthetics. The notion of aesthetic emotion is discussed in a separate chapter.

CHAPTER EIGHT

The Development of Aesthetic Appreciation

'The road from knowledge to love is far longer and less pleasant to travel than the road from love to knowledge'.

Thomas Bodkin, 'The Approach to Painting', (1954)

'Seeing comes before words. The child looks and recognises before it can speak'.

John Berger, 'Ways of Seeing', (1972)

I Introduction : What is appreciation?

The modern view, as Hungerland (1957) put it, is that an individual is free to adopt an aesthetic attitude toward any object, but that certain objects, viz. works of art, are better suited to this purpose than others. This statement of the modern view has been well elaborated and expounded in Osborne's recent book 'The Art of Appreciation' (1970). He argues that appreciation is an ~~acquired~~ skill which can be acquired, cultivated and matured. It is a form of percipience, often emotionally charged and directed, leading to an expansion of normal awareness whereby the content of perception is enlarged and enriched. Osborne also argues that the fine arts, by inviting empathy and richer perceptual awareness can help to redress the imbalance of an increasingly technological society. This view has also been expounded by Read (1943) and Reid (1969) and Arnheim (1969). Although there is disagreement in detail concerning the logical status of appreciation (a question for philosophical aesthetics), there is fairly general agreement that aesthetic appreciation involves discriminating appreciation and understanding of the arts (Reid 1969). This involves reacting to paintings not merely as physical objects, or merely as illustrations, but as objects of aesthetic awareness. Knowledge, sensory

discrimination, feeling and meaning are all features that intermingle in the complex and subtle processes that constitute aesthetic appreciation.

Appreciation cannot be reduced to a set of rules, otherwise it would be identical with knowledge and teachable as such. This was a view held until the 19th Century and embodied in Academies of painting, where objective standards and canons of beauty, morality, function and technique prevailed (Osborne 1968). However, individual differences in taste and preference within the range of 'good' works of art exist as much as between 'good' and 'bad' works of art. One aspect of the skill of appreciation is the ability to discriminate between good and poor works of art, particularly when this is based on independent judgement and not the opinion of others. It is the professional role of critics to help the 'man in the street' make a correct decision. In the 20th Century (and the end of the last century) the old and long-established Academic rules were no longer always applicable. Many critics however held on to them and reacted in a very hostile way to new movements such as the Impressionists in France, and the Vorticists in England. Today in the absence of absolute canons of art or agreed criteria of quality the burden of discrimination is very great. At one end of the scale each individual must judge every new experience for what it is, applying criteria he has developed himself, i.e. in terms of his implicit aesthetic theory. At the other extreme, the absence of agreed criteria is taken by some to mean that there are none, and that in art 'anything goes'. Out of this denial of criteria of judgement has evolved the notion of Conceptual Art¹ which lays less emphasis on the art-work as a contemplative object. Instead it is a trigger for ideas, a functional object. In addition the persistent and prevailing

¹Over the past few years the magazine Art and Artists seems to be concerned with conceptual art or anti-art, and very little else.

interest in anti-art might reflect the confusion that results when there are no standards at all, rather than an art-form in its own right. By contrast with the avant-garde art of our day, the general population is still very interested in older forms of art. This is clearly seen in the recent highly successful London exhibitions of Chinese art, Egyptian art, and Impressionist painting.

Critics and philosophers alike have found it very difficult to define art,¹ though with regard to art of the past it is easy to recognise what is or is not art. Croce has remarked: 'It might be said jocosely (and this would not be a bad joke) that art is what everyone knows it to be'. Although criteria of what is art as opposed to non-art, and criteria of what is good as opposed to bad art, change from century to century and generation to generation, at any one moment it is easy to recognise in a given culture what is considered as art in that culture, if only by the fact that art is what artists produce. For any individual person part of his skill in appreciation must be analytic to decide which objects he will consider as art, and how he will judge quality in those objects. Having made the appropriate decision, skill in appreciation implies ability to experience and respond to works to art in ways that are barred to people who do not possess appreciation skills.

In an attractively practical discussion of 'Sense and Nonsense in Aesthetics', Saw (1958)² has listed the facts of aesthetics which need to be explained in aesthetic theory. Many of the 'facts' are relevant to the psychology of art, and should be investigated by empirical methods. The most relevant of Saw's 'facts' are that:

¹ See the all-embracing definition given by Tatarkiewicz (1971) and his discussion of the problems of defining art.

² In H. Osborne (Ed.) 1968b .

- (a) many people spend time and energy contemplating works of art;
 - (b) people can be trained for increased enjoyment of them;
 - (c) most people think it is a good thing to make and appreciate such objects;
 - (d) it is possible to enjoy natural objects in the same way as works of art, and there is some connexion between the beauty of some of the arts and the beauty of nature;
- and, (e) it is better to enjoy worthy objects than inferior ones.

Although these statements beg many questions they do provide clear starting-points for the psychologists investigation of aesthetic appreciation. For example, there has not been a systematic study of the amount of time and energy people spend in contemplating works of art. Often ad hoc experimental measures are obtained (e.g. Child 1965), and tests of artistic knowledge and attitude (Eisner 1966; Bernard 1970) are devised for use as aesthetic measures. There has been no attempt to survey and describe the natural behaviour of people in this important respect. On the other hand, attempts to train people to appreciate art have been frequently investigated and are discussed in Section V below. Linked with the lack of knowledge of how much time and energy people devote to art, there is a similar dearth of information on people's attitudes to the perceived benefits of appreciating art as opposed to other forms of activity, e.g. playing foot-ball: This is yet another aspect of the prevailing aesthetic theory which has not been systematically documented and described. This is also true of Saw's fourth 'fact', viz. the relationship between the beauty of art and nature. Finally, it is doubtful if most people's implicit aesthetic theory would accord with Saw's unquestioned contention that it is better to enjoy worthy objects than inferior ones. Despite the tautology of this statement it should be possible to find out what people generally consider to be 'worthy', and whether there is any sign that it is preferable to enjoy worthy art,¹ whether this is defined

¹The world's most popular painting (in terms of reproductions sold)

by experts' opinions in a given culture; by consensus for the population as a whole; or each individual's personal opinions.

The psychology of art has paid scant attention to the nature of appreciation as a psychological process. Instead it has placed most emphasis on the development of aesthetic judgement in children (discussed in section I); the differences that exist between adults' and children's aesthetic reactions (Section II); and various attempts to teach aesthetic judgement and appreciation.

I Children's reactions to paintings

This very popular field of investigation within experimental aesthetics has resulted in a disappointing achievement, out of all proportion to the effort involved. As far back as the beginning of the century (Calkins 1900) children's verbal reactions to paintings have been recorded and coded. Since then there has been a spate of similar studies, differing only in stimuli used, populations sampled, and minor points of procedure. Only a small number can be sampled here. Newcombe (1924) interviewed or obtained written descriptions of beautiful objects from 2,000 school children, aged 5 to 13. She found that colour was mentioned more than any other factor, which supported Calkin's (1900) findings. Bulley (1934) investigated the reactions of a similar number of children using a wide range of works of art and revealed a more complicated pattern in which young children were found to be strongly influenced in their liking for pictures by the depicted content as well as the colour of the painting. The majority of studies with children have supported the finding that children are primarily influenced by depicted content in their preference

(continued from overleaf)

is The Green Lady by Vladimir Tretchikoff. It is significant that neither the painting nor the artist is discussed in most ~~and~~ studies of modern art (cf. Read's A Concise History of Modern Painting, 1959).

for paintings (Neumann 1911; Valentine 1912; Littlejohns and Needham 1932; Katz 1944; Schwartz 1953; Subes 1958). Despite gradual changes in education recent studies show that the finding still holds (Rump and Southgate 1967; Coffey 1969). A number of studies compared average and gifted children and found that the verbal reactions of gifted child mainly concentrated on content, and then realism colour, but also included references to design, imagination and emotion (Lark-Horowitz 1937, 1938, 1939; Munro, Lark-Horowitz and Earnhart 1942).

From all these studies it is possible to draw the following conclusions:

- (a) Children's preferences are strongly influenced by realism.
- (b) The paintings should represent clear depictions of objects, scenes, etc. which are interesting to the child.
- (c) Finally, the paintings should enable them to form crude associations, often on the basis of a preferred colour.

Up to 1960 there were however one or two exceptions to the general pattern of straightforward observations of children's reaction to art. Burt (1933) correlated the acquisition of aesthetic judgement (i.e. agreement with experts) with increasing age. He found that children aged 7 - 11 correlated about +.5 with experts' rank-order of the same paintings. Children aged 12-15 correlated +.65 with the experts, and children of 15-17 produced a correlation of +.72 which was higher than that obtained by 'miscellaneous adults' (+.5). Burt attributed this to an underlying factor of aesthetic taste which is gradually acquired with education, but it is doubtful whether this task was a real measure of aesthetic appreciation or that it genuinely reflected children's real

¹ Here there is a difference between girls and boys which is not present in (a). It tends to follow the cultural stereotype of sex-role identification; boys like battle-scenes and action-packed pictures whereas girls prefer pictures of flowers, children, landscapes, etc.

reactions, rather than their learning of dates and pictures in class. However, this study does anticipate the development which has recently been adopted.

Before discussing these it is important to note two studies which revealed that children's reactions to paintings may not be quite as simple and neatly categorised as most of the studies cited above seem to suggest. The first is the Littlejohns and Needham (1932) study which led them to express the somewhat cynical view that 'there is no more certainty in choosing pictures than there is in backing horses'. They set out to discover the kinds of paintings that children naturally prefer; the natural evolution of their tastes, and how this evolution can be fostered and developed. Their comprehensive study revealed the complexity of children's preferences within the general context of liking for subject-matter and colour as major determinants of preference. For example they described the tendency of boys toward destructive, analytical criticism, and a liking for realism and exactness and the tendency for girls to be more emotional and take more interest in human feelings. Children (7 - 8 years) begin with an interest in the depicted object, and only later become interested in the painting as a picture of an object. By the age of 12 something like a standard of evaluation is applied. By current values this study would have little to recommend it in terms of research design and control, but for its comprehensiveness and sensitivity and attention to detail it is exemplary. The same might be said about the work of Alschuler and Hattwick (1947). They also revealed the concealed complexity of children's reactions to works of art. The author's study of children's art-work revealed complex relationships between children's personality, attitudes and day-to-day experiences as these are manifested in their paintings. Similar evidence of the complex nature of child art has been presented by Arnheim (1954), Read (1943), Kellogg (1969) and Freeman (1972). In the light of this it is surprising that most studies of children's reactions to art are so crude.

Experimental investigations of children's reactions to art since 1960 seem to reflect a dissatisfaction with earlier studies. For the most part they are designed to go beyond the broad findings summarised above, and to incorporate findings within a theory of development, though some researchers are still repeating, with predictable results, the studies of earlier workers, (e.g. Rump and Southgate 1967). The work of Machotka (1963, 1966), however, represents an interesting attempt to explain children's preferences for subject-matter and realism rather than form, composition or the other so-called aesthetic features of paintings. He developed a theory of aesthetic development based on Piaget's stage theory of intellectual development (Inhelder and Piaget 1955). According to Machotka, the aesthetic appreciation of the child of 7, based as it is on subject-matter and colour, requires no more than pre-operational functioning. Evaluation, based on realistic representation, contrast and harmony of colours and clarity of representation (found in 7 - 11 year olds) requires concrete operational thought, and finally interest in style, composition, affective tone, and luminosity (12 plus) necessitates formal thinking. Later levels of evaluation are added to the earlier ones but do not replace them. Frechtling and Davidson (1970) support this general finding but claim that sensitivity to artistic style is dependent on concrete operational thought. Machotka did not measure the children's level of cognitive functioning and relate it to their verbal reactions to paintings. He merely related the kinds of remarks made by children to the stage of cognitive functioning described by Piaget at a given age. More direct evidence in support of Machotka's ideas have come from Janes (1970) who used a direct measure of cognitive functioning.¹ She found a tendency for 'conservers' in both the seven and eleven-year old groups to use more relational descriptive categories in response to paintings, this tendency being stronger in the older children.

¹Sigel's Conceptual Style Test.

However, two recent studies throw doubt on Machotka's contention that awareness of artistic style is dependent on operational thought (e.g. class-inclusion and conservation). Walk, Karusaitis, Lebowitz and Falbo (1971) demonstrated that with training, children aged between four and six could learn to discriminate artistic style, but the greatest improvement in ability to describe differences in discriminated styles came in the six to eight-year old group. Gardner concurred with Machotka in his finding that pre-adolescent children do not speak of artistic style and do not understand an instruction to sort by style (Gardner and Gardner 1970), and that they tend to sort by dominant figure even when explicitly instructed to sort by style (Gardner 1970a, 1970b). In a later study Gardner (1972a) demonstrated that seven-year old children could be taught to discriminate between artistic styles in paintings. He concludes that style learning may be more closely related to discrimination learning or to the discovery of distinctive features than to class inclusion or conservation. It would thus appear that sensitivity to style develops naturally and is most clearly apparent in pre-adolescence. This does not however mean that style sensitivity is dependent on operational thought.

Outside the frame-work of Piaget's stage theory of intellectual development, many writers have speculated about the age at which aesthetic appreciation emerges in children. Several studies have emphasised early adolescence as the point at which genuine aesthetic reactions emerge (Valentine 1912; Schultze 1912; Burt 1933). These studies illustrate the difficulty of defining genuine aesthetic reactions as opposed to other non-aesthetic reactions. Valentine defined it as verbal reactions falling into Bullough's 'character' type. Schultze used the technique of photographing children's facial reactions in response to paintings and Burt used agreement with experts' rank-order. Other studies suggest that seven might be a critical stage. Bulley (1934) found that seven-year old children revealed better aesthetic judgement¹ than children aged

¹This was defined as agreement with expert opinion, i.e. Bulley's.

between 8 and 11. Using the method of production rather than verbal reactions Jasper (1933) found that children between 5 and 7 showed an increased ability to perceive graphic rhythm, and Whorley (1933) found a similar age trend in reactions to compositional unity, though it was very weak. Finally, Daniels (1933) found that pre-school children tended to prefer balanced to unbalanced three dimensional designs.

More recent studies have avoided the issue of defining an aesthetic criterion and have relied on strictly descriptive methods. Rump and Southgate (1967) noted a gradual progression in the pictorial interests and preferences of 7, 11 and 15-year old children and adults as measured by their reactions to paintings in an art gallery. However, a more erratic development was revealed by Richards and Ross (1967) who evaluated the drawings of a cat by 1200 children under standard conditions. They found that some drawing-abilities increase steadily with age (range studied, 5 - 14), some fluctuate up and down (e.g. outlining), and some reach a peak and then decline (e.g. the number of colours used peaked at age 12 and thereafter declined). There is a complex interaction between natural development and environmental learning, and the effects of education. There was no evidence of a close relation with the onset of puberty.

Individual differences are very apparent in these studies. There is evidence that girls are usually more advanced than boys (Eisner 1966; Rump and Southgate 1967), and that middle class children are more advanced than working-class children in their aesthetic judgements (Bulley 1934), and some children show greater aesthetic sensitivity than others (Munro et al 1942). However, despite different methods, different central concerns, and very different subject populations the results of studies of children's preferences among paintings and of changing criteria tend to concur, viz. that young children are influenced by subject-matter,

and ignore realism, while older children prefer realistic representation, light and harmony. If aesthetic standards and criteria appear at all it seems to be about the age of 11 or 12.

II Adult reactions to painting.

The most interesting thing about studies of the aesthetic reactions of average adults is that they are remarkably like those of children. Bulley (1934) compared the reactions of artistically naive adults and children and found that the criteria used by adults were very similar to those of children. Placing more emphasis on the perception of works of art in terms of viewing times, eye-fixations etc. Erighthouse (1939b) found that children and naive adults were similar, though both were very different from adult artists. In their studies of the determinants of aesthetic preferences Peel (1944), and Pickford (1948) used both children and adults as experimental subjects. They both found that children preferred naturalistic pictures full of incident and detail and well coloured designs, which tended to be symmetrical. Adults also preferred naturalistic paintings, but had a more sober interest in colour. There was little interest in, or attention to, balance, rhythm and composition among the adults. The experts on the other hand were much less influenced by naturalism in a picture and placed much more emphasis on composition, form, etc. It is interesting to note that neither adults nor 6th form pupils were aesthetically superior to the 13 and 14 year olds. More recent work has confirmed this general pattern (Francès and Voillaume 1964; Hussain 1966; and Mortimer-Tanner 1965). It is important to note that the majority of studies quoted above used verbal aesthetic measures. More numerical, factor analytic, approaches strive to reveal underlying or covert dimensions which are not necessarily verbalisable. Consequently these studies produce very different results from the verbal ones described above. Although it is highly desirable that information be obtained on

unconscious, or unverbalisable aesthetic dimensions or criteria of judgement, the great diversity of findings does not inspire confidence in the methodology.

The only safe conclusion that is possible is that children and adults are alike in being influenced by subject-matter and naturalism in their reactions to paintings. Children are however more influenced by dominant colour than adults. It is not contended that these are the only criteria used by children and adults, only that the evidence suggests they are the most dominant.

III Children's reactions to child art

Several studies of child art have drawn attention to the indifference of children towards their own work (Katz 1944; Read 1943; Peel 1954; Subes 1955). This has recently been investigated by Voillaume (1965) and by Shields (1969). Both studies found that children at any given age tend to prefer the art-work of children older than themselves, and to dislike the work of younger children. Voillaume (1965) found that adults judging the works of children placed them in the reverse order. In other words the most preferred paintings were by $4\frac{1}{2}$ - $6\frac{1}{2}$ year olds, and the paintings of older children were less well liked. There is quite strong evidence that children between 7 and 12 years are strongly influenced by the pictorial realism that the older children can achieve. Both studies suggest that children's expressed preferences are closely linked to developmental factors. The younger children in preferring the work of older children are probably aspiring to the achievements of the older age-group and may even be modelling themselves on the apparent effectiveness with which older children can reproduce the appearance of things. Why they should want to do this is not clear. It could be that in schools there is still considerable emphasis on perspective and naturalistic drawing, and that this is the adult-approved behaviour that young children

are responding to. Many writers have bemoaned the falling off of aesthetic interest in children as they enter adolescence (Piaget 1951; Read 1943; Peel 1954) when both emotional and educational factors change. Kellogg (1969) and Freeman (1972) have also noted that children often draw in special ways when adults ask them to draw something. Consequently they have a notion of 'art for others' and 'art for themselves'. This makes the study of children's natural aesthetic development very difficult. It is ironic that children should naturally prefer the kinds of art which many educationalists seek to discourage, and which are the opposite of what artists prefer,¹ even though they are consistent with the preferences of untrained adults.

IV The development of aesthetic appreciation in children.

This is a subject which is not usually discussed in general texts on child or developmental psychology, though there is an extensive literature on the subject. Most of the books published in the area fall under the heading of art education (Read 1943; Kellogg 1969; Eisner 1972). Although art is considered by many educationalists to be of critical importance in the natural development of expression in the young child and is accordingly encouraged in primary education, it is definitely not considered important in secondary and higher education, except as a specialised discipline. Even then, it is considered by many to be a 'soft-option', (Gardner, Hebden and Adams 1966). Read (1943) and Arnheim (1969) have gone so far as to say that the lack of emphasis on art in education accounts for much of the ugliness of the world we live in. Read did not mince words in putting his case:

¹Some artists have deliberately incorporated child-like qualities in their paintings, viz. Picasso, Klee and Miro.

"The art of the child declines after the age of eleven because it is attacked from every direction - not merely squeezed out of the curriculum but squeezed out of the mind by the logical activities which we call arithmetic and geometry, physics and chemistry, history and geography, and even literature as it is taught. The price we pay for this distortion of the adolescent mind is mounting up: a civilization of hideous objects and mis-shapen human beings, of sick minds and unhappy households, of divided societies, armed with weapons of mass destruction ... but the creative activities which could heal the mind and make beautiful our environment, unite man with nature, and nation with nation - these we dismiss as idle, irrelevant and inane."

(H. Read: Education through Art, 1943, p. 168-9)

This view may well be emotive and rather extreme, but it is I believe, essentially correct. It is yet another symptom of psychology's failure to face up to relevant areas of human concern, that it has ignored the development of aesthetic appreciation in children. As is so often the case in these relevant, 'soft', humanistic and vague areas the majority of work done has been intuitive rather than controlled, imaginative rather than systematic.

The most commonly held view is that children reveal a natural development of drawing skills and aesthetic appreciation which is maturational. Nearly all the investigators holding this view believe that children are naturally aesthetic in their drawings but that the processes of growing up and the effects of education serve to stamp out the aesthetic disposition of all but a minority of children. This view is held by Gestalt-influenced writers (Arnheim 1954, 1969; Werner and Kaplan 1933), psycho-analytic writers (Ehrenzweig 1967; Kris 1953) and others (Lowenfeld 1957; Morris 1962; Read 1943). None of these studies have been based on vigorous experimental investigations, but rather the extensive observation of and experience with, child art.¹

¹This is with the exception of Morris (1962) who based his work on monkeys and extrapolated to the art of all mankind.

There have been a large number of (more or less) controlled studies of developmental changes in children's reactions to art but very few have attempted to settle the issue of whether these changes are maturational or learning-based.

Several studies have concluded that aesthetic development is maturational because it can develop independently of teaching in art (Eysenck 1972a) or because attempts to teach artists appreciation fail (Brandon 1960). Voillaume (1965) has reported a study in which he found that the majority of children do not develop aesthetic criteria for judging paintings, though a small number of them did. This agrees with an earlier study by Cranston (1952) who concluded that children did not naturally develop aesthetic criteria. The study by Eysenck can be rejected because it is based on the separate factor scores derived from his factor analysis of the Maitland Graves Design Judgement Test.¹ Another study by Eysenck (1972c) revealed that sensitivity to the MGDJT designs was independent of sensitivity to Hornung designs and Birkhoff polygons respectively. In the light of this and the argument against the use of molecular stimuli presented in chapter four of this thesis, Eysenck cannot generalise from developmental changes in preferences for these designs to the appreciation of all art. Furthermore, St. Clair-Penny (1973) has demonstrated that the MGDJT and the Meier Art Test no longer differentiate between artists and non-artists. As these tests were used by Brandon (1960) as pre- and post-training measures, he cannot conclude that appreciation cannot be taught as these tests may not be sensitive to changes in appreciation. Even if they were sensitive to changes in appreciation, they might not have revealed change for the simple reason that Brandon's methods of training were ineffective.

¹See Eysenck (1967).

It is harder to reject Voillaume's and Cranston's conclusion that the majority of children do not develop aesthetic criteria for judging paintings. All the studies quoted above who maintain that all children are intrinsically aesthetic have concentrated on the art products of young children rather than on their judgments of works of art. There is overwhelming evidence that by the age of 11 at least most children are responding to paintings as illustrations, and are more concerned with realism and depicted content than with aesthetic qualities. This does not however settle the issue of whether aesthetic development is maturational or learning-based. Like the nature-nurture controversy in the field of intelligence, testing it is not a question worth the trouble of resolving. It is almost certainly a combination of both as in the Piagetian framework of equilibration. It is also futile to establish the relative influence of learning and maturation. If appreciation can be taught (as indeed it can¹) then a purely pragmatic approach can and should be adopted. On the other hand there is a strong need for systematic investigations of the qualitative development of aesthetic appreciation in children. This should be synchronously to assess the nature of the cogniser, and diachronously to assess the nature of the development. This work has not yet been undertaken. The vast number of unrelated studies of children's reactions to art serve only to confuse and restrict our understanding of the nature of the development.

In their detailed discussion of perceptual development Pick and Pick (1970) conclude that there is an obvious increase with age in ability to cope with complex aspects of the environment and in particular to respond to stimuli which are functionally similar but physically different. This is in accordance with

¹This is discussed in the section below.

the common interpretation of development as hierarchic integration with increasing differentiation, or Gibson's (1969) emphasis on 'new attention' to properties formerly unnoticed. The changes in perceptual abilities with increasing age are, however, very gradual unlike the dramatic qualitative changes in the development of say, conservation in cognition (Kagan and Kogan 1970). In the absence of sensitive and reliable measures of aesthetic reactions in children it is impossible to determine whether aesthetic development is in accord with perceptual changes or with cognitive changes with age.

V Teaching aesthetic appreciation.

In his discussion of the possibility of teaching appreciation in the arts Valentine (1960) argues that allowance must be made for innate differences in sensitivity to beauty of colour and form, but allows that mere exposure to good paintings has a beneficial effect (a rubbing-off phenomena). He also argued that the essence of aesthetic apprehension should be explained, and that the learner should be alerted to the dangers of intellectual infusion, which interferes with the essence of true aesthetic appreciation. This sweeping recommendation is a far cry from the 1875 code of Education which prescribed, e.g. 'for the third and last year in school, three hundred lines of poetry, not before brought up, repeated, with knowledge of meanings and allusions,' (in Catty 1921). By contrast to this rather mechanistic approach successful training in appreciation should permit someone, hitherto unable to do so, to become absorbed in an aesthetic object, and to derive pleasure and/or enlightenment from so doing. According to Osborne in *The Art of Appreciation* (Osborne 1970), this essentially involves (a) acquisition of new powers of perception, (b) learning to perceive features which were previously unnoticed; and (c) to learn to hold clearly in attention aspects which without training in appreciation had only incidentally come on awareness.

A somewhat similar account has been proffered by the art psychologist Howard Gardner (1972b). The terms and concepts are different but the meaning is essentially the same. He characterises the inexperienced perceiver of art as having 'customary focus upon the figure in a display, a highly idiosyncratic and non-exhaustive focus, and a persistent object orientation'. By contrast, 'experienced perceivers have a customary focus which includes textural and other non-figural aspects, a wider range of potential figures, less object-orientation and comprehensive momentary focus'. The problem with definitions such as these (and the many others which are similar to them) is that they are indistinguishable from definitions of perceptual development or perceptual learning in general, (E. J. Gibson 1963, 1969; Epstein 1967; Wolhwill 1966). For example, Gibson argues that perceptual development consists in a progressive increase in sensitivity. This increase in sensitivity refers to both an increase in resolving power with respect to stimulus dimensions and an increase in the number of stimulus dimensions to which a person is sensitive. It is a question of learning to attend to new relevant properties of stimuli. This applies whether it is a question of learning to perceive the world about us or the acquisition of highly specific perceptual skills such as learning to interpret aerial photography, or sex-typing newly hatched chicks, or fault-mending in weaves.

The problem then is to distinguish perceptual development and change from the change that is involved in aesthetic appreciation. There can be no doubt that aesthetic appreciation involves the development and use of the perceptual skills described above, but what more? The difference must surely lie in the meaning of the experience. Although it may be difficult to define appreciation in detail it is not too difficult to recognise when someone is appreciating a painting. He will spend longer looking at it; he might return to it time and time again; make approving comments; he may buy a reproduction of it; he might spend money on it (if only

in a token economy); or he might be so impressed by it that the mere sight of it can function as a reward, and so on. Some or all of these activities suggest that the painting is a meaningful perception. What that meaning is, only the observer can tell us, insofar as he is capable, or the meaning is communicable in any form other than the painting itself.

Appreciation then is not something static; it is essentially subjective and individual. It can be founded in knowledge and experience, though it is not identical with knowledge. Consequently it is very difficult to teach. There has been a large number of experimental attempts to teach or cultivate aesthetic appreciation. The studies divide naturally into those determining whether or not it is possible to teach appreciation, and the studies which assume that it can be taught and compare two or more alternative approaches. Child has shown that formal training in the principles of art appreciation for children (grades 4 - 8) and college students was not successful in changing individual's aesthetic preferences (Child and Schwartz 1966). It appeared that the subjects could learn to identify the relatively superficial cues by which experts differentiate between good and poor works without necessarily developing any genuine aesthetic awareness. In another study Child and Schwartz (1968) found that mere exposure to poorer and better art,¹ accompanied by explanations of the difference, did result in significant improvement in preferences. However these studies do not at the same time prove that the explanation of principles, or differential exposure to good and bad art (cf. Metzger 1965) are totally ineffective methods of teaching appreciation.

¹An interesting study of the 'rubbing-off phenomenon' by Taylor (1971) revealed that a specially designed, visually rich classroom significantly improved the quality of art-products by the 4 and 5 year old children studied. There was however no improvement in their ability to make critical aesthetic judgements, based on an ad hoc aesthetic measure.

Wilson (1966) compared the effects of two methods (developing a critical vocabulary and art practice) on a 28-category taxonomy of aesthetic responding of which 14 categories showed significant improvement in favour of the vocabulary group. The experimental training course was based on ideas contained in Arnheim's book on Picasso's 'Guernica' (Arnheim 1973)¹ and the provision of reading material in relation to the progressive illustrations in that book. It is hardly surprising in view of the verbal emphasis of the training that children should show improvement in a pre- and post-training measure which classified verbal descriptions in response to paintings. As in the Child and Schwartz (1968) study, the children may have incidentally learned to do well on the criterion measure rather than to develop genuine appreciation.

An alternative approach is to compare the effects of depth and breadth programmes for teaching aesthetic appreciation. The former is narrow in range and intensive whilst the latter is wider in range and extensive. Davis (1967) found no clear evidence in favour of one method, though an earlier study by Beittel and Burkhart (1963) found that the effectiveness of either approach was related to individual differences. Miles (1962) found that a breadth approach (ranging across art, music and dance) produced significant improvements on a test of aesthetic tolerance, but there was no difference in ability to organise visual materials, nor any change in physiological or general reactions to art or music. Unfortunately Miles did not show that this could not be achieved by a well taught non-integrated course. This highlights a general problem when comparisons between teaching methods are being made. It is essential that both methods be the best possible that the conditions will allow. It is no test to compare a good example of one method with poor example of another method. The

¹New revised edition, first published in 1962.

best comparison would be between two methods devised and set up by two separate investigators in full knowledge of their respective interests, involvements and committed attitudes. The courses could be run by a third independent person, and all three could agree on a wide ranging battery of measures for evaluating the effectiveness of the teaching methods in developing aesthetic appreciation.

An interesting alternative to the direct teaching of appreciation is the attempt to develop in the individual the capacities and abilities from which appreciative skills might naturally result. This divides into two broad areas, viz. direct perceptual training and the development of cognitive skills and personality characteristics. McWhinnie's sweeping attempts to 'clean up' experimental aesthetics (McWhinnie 1967) has resulted in his concentration on 'relevant' factors by which he means variables which are specifically related to the production or appreciation of art work. Consequently in art education he places great stress on the effects of perceptual learning experience (McWhinnie 1965, 1966, 1970b) and the perceptual characteristics of children, (McWhinnie 1970a), e.g. field independence. For instance, in an early study McWhinnie established a perceptual set towards complexity and assymetry in abstract diagrams, through special learning experiences which were designed to draw attention to the components of figures based on the factors of complexity revealed by Hochberg and Brooks (1960), viz. number of angles and number of continuous line segments (McWhinnie 1966). Measuring the effects of learning on the Welsh Figure Preference Test he found that although there was no improvement overall, 6th grade children did show some improvement whereas college students did not. In this study a matched control group who did practical art work instead of the perceptual training showed the same gain in increased preference for complexity-asymmetry compared to a non-learning control group. This is an interesting finding because it seems to

suggest that children can learn to appreciate aesthetic stimuli or rather acquire preferences for greater complexity in abstract designs through practice on other material. This does of course limit the generalizability of the results and the external validity of the experiments. It is a pity that McWhinnie should confine himself to the use of standardised tests as aesthetic appreciation and that he should limit his stimulus materials to abstract diagrams. In the light of research on the ineffectiveness of standardised tests in differentiating between artists and non-artists, McWhinnie cannot conclude that a change in preference in the direction of complexity-asymmetry is necessarily an increase in aesthetic appreciation. Again, the training may simply have taught the children to do better on the criterion measure without any corresponding increase in aesthetic appreciation since the training-to-criterion comparability was very high. McWhinnie must introduce transfer tests which are unrelated to the training given (e.g. Child's test of Aesthetic Sensitivity) in order to assess the effectiveness of the perceptual training.

More recent work by McWhinnie (1971b, 1972, 1973) suggests that perceptual training is more effective in improving the quality of art-work produced by children, rather than their appreciative capacities. This agrees with the conclusion reached by Salome (1966) in his review of the area, and that of Grossman (1970) who concludes his review of research into the teaching of art to young children with the argument that art teaching strategies should develop children's cognitive and sensory exploration abilities by special training. Special perceptual training for the development of appreciation has been hinted at by writers on art appreciation (Osborne 1969; Reid 1969), and has only been rarely used by educators, though perceptual training is widely used in industry for the improvement or acquisition of perceptual skills (Annett 1969; Gibson 1969).

Perceptual and learning variables are inextricably linked to each other (particularly cultural) factors in determining the nature of aesthetic appreciation. Even perceptual capacities might be environmentally determined (cf. Barry 1957; Segall, Campbell and Herskowitz 1966).¹ The general concept of personality brings together many of these amorphous variables and determinants (cf. the work of Child, Barron, Knapp), but none of these studies has led directly to recommendations for the teaching (or research into the teaching) of art appreciation. A notable exception to this is Machotha (1970b). Drawing mainly on his own work and that of Child (1965) he lists the factors that correlate with good aesthetic appreciation, viz. tolerance of complexity, regression in the service of the ego, independence of judgement (Child 1965), tendency towards femininity, and skill in perception of visual form; an orientation to 'quality' rather than 'thing' perception, and general psychological activity (Child, Cooperman and Wolowitz 1968). In addition, Machotha's own work revealed that aesthetically sensitive people are less oriented towards social goals; less satisfied with their upbringing; had better understanding of human relationships; and were also cognitively more complex. Machotha also speculates that aesthetic appreciation necessarily involves an ability to empathise. As a result Machotha recommends an indirect approach to teaching appreciation by developing appropriate psychic processes (in the cognitive, affective and interpersonal areas) at the right age, so that aesthetic appreciation would result from them.

This is a tall order because it essentially involves making fundamental changes in people as they develop which is notoriously difficult to achieve. If affective methods can be found, there are probably too many other factors influencing a child's development

¹It is interesting to note that Bertrand Russell (1961, p. 688) has speculated that Kant's philosophical explanation of space might have been different had he lived in the Alps rather than the North German Plain.

which are completely outside the teacher's control, so that it is impossible to guarantee that aesthetic appreciation would ensue. It is curious that Machotha should suggest the formal training of many of the things which others (Read 1943; Reid 1969) have claimed follow from aesthetic education particularly with regard to interpersonal and affective behaviour. It is probably wiser to concentrate directly on specific training in perceptual and cognitive skills which are directly relevant to the aesthetic perception of complex objects. Despite this Machotha's paper has the refreshing charm of attempting to apply in a concrete and useful way the mass of unordered data that accumulates so readily in experimental aesthetics without any subsequent attempt being made to tackle concrete problems. Before discussing perceptual training in more detail, it is necessary to discuss attempts to teach sensitivity to artistic style as this has a direct bearing on the discussion that follows.

Walk (1967) and Tighe (1968) have reported preliminary studies in which adults learned the concept of style in art in a problem-solving exercise in which the subjects had to match previously seen paintings with new paintings by the same painters. Walk, in a later study (Walk, Karusaitis, Lebowitz and Falbo 1971) demonstrated how difficult it is for children to acquire the concept of style in paintings. The adults could perform the task perfectly (which suggests it might have been too easy) though the children found it difficult, especially in the 4 - 8 year old group. To prove that this was not due to an inability of young children to find similarities among multidimensional stimuli the authors quote a study by Kofsky and Osler (1967) in which children were consistently able to sort cards varying in colour, form, number and size, though this can hardly be equated with the perception of paintings in which a large number of variables interact in almost infinite variety. Walk et al (1971) also showed that mere exposure to positive instances of style led to far less consistent concept

acquisition in younger children (4 - 8 years) than in adults. Further doubt on the efficiency of training by positive instances has been presented by Flechtling and Davidson (1970) who gave subjects (age ranged 5 years to adult) a task in which they were asked to sort paintings into groups of their own choice. The results revealed that subject-matter was the strongest determinant of children's sorts; only adults showed a higher (but relatively small) frequency of sorting by style, and colour was seldom used as a basis for sorting by any group. The authors agree with Walk et al (1971) that it is not enough to present positive instances in order to form a concept of style. The authors maintain that specific training should be provided to reduce attention to the naturally preferred concrete non-aesthetic attributes of paintings. before the concept of style can be acquired. This agrees well with the approach adopted by Gardner who has carried out the most systematic work on the perception of artistic style.

Gardner (1970) has provided useful definitions of style and of sensitivity to style in art. He defined the former as 'Those qualities of line composition and texture which characterises a range of work by the same artist, and which remain discernible regardless of subject-matter, dominant colour, size or medium', (Gardner 1970a). The same also applies to the style of a period or country (See Osborne 1968; Zucker 1950) or to specific schools of art within any period or country. Sensitivity to style was defined as 'the ability to make classifications which isolate objects, works or persons possessing sundry qualities from those possessing other characteristics,' (Gardner 1970a). Gardner devised the match-to-sample task which engages both the perceptual and rule-following skills of the individual. In this way he could measure performance of 'the sort which involves following a set of rules not all of which are known to the perceiver' (Osborne 1964). By using the task, sensitivity to style could

be operationally defined as an individual's ability to select from an array an additional example of a painter's work once he had been exposed to a number of examples, or alternatively to select which two, of four paintings, in an array were by the same artist.

The paintings provided for inspection were grouped so that the children were not able to choose correctly on the basis of subject-matter, dominant colour, medium or form. Gardner (1970a) found that young children were very influenced by overall Gestalt of a painting and highly specific detail, e.g. moustaches, hats, etc., whereas some children were not able to do the task at all because they claimed the paintings were identical. Some children utilised past experience and familiarity. Older children (aged 11 - 14) began to be sensitive to features of style in that they realised that certain qualities characterised a painter and girls were better at this than boys. Overall the children were influenced in their judgements by dominant figures or content. Gardner also found that there was no significant developmental trend towards spontaneous grouping by style or content when both were possible alternatives. Gardner and Gardner (1970) have demonstrated that it is the ability to group by style when instructed to do so that increases with age, rather than the natural inclination to do so. In another experiment Gardner (1970b) attempted to overcome these habits by re-arranging the stimuli used in the match-to-sample task by inversion of the inspection stimuli, and providing one instead of two inspection stimuli to eliminate misleading comparisons. This seemed to improve the scores of older children, but to reduce the scores of younger children who were confused by the re-arrangements.

As a measure of children's or adult's ability to infer stylistic regularities in paintings the match-to-sample task is a very useful tool for research, not only because it is close to

the perceptual skills under study and hence high in ecological validity, but also because it is flexible and amenable to experimental manipulation. For instance, the task might be adopted to measure the ability to select good works from an array of aesthetically poor paintings after simple exposure to and experience of several good paintings. Alternatively it can be used as a pre and post-measure of sensitivity to style in an attempt to teach style awareness to young children (Gardner 1972a). It could even be used as a training technique in its own right.

VI Perceptual learning

In teaching children to acquire sensitivity to artistic style most of the researchers have employed feed-back to the responses made by children in their judgement of whether paintings were by the same artist. Walk (1967) and Tighe (1967) working with adults, found that merely telling subjects whether or not two paintings were by the same artist is sufficient to develop a concept of style. This is consistent with the evidence presented by Gibson (1969) which indicates that perceptual learning can occur as a result of simple practice in the absence of extrinsic feed-back. In this way absolute thresholds are lowered and difference thresholds are reduced; errors are reduced and there is a general increase in the specificity of perception to stimulus variation. There is very powerful evidence that intrinsic feed-back (or what Gibson calls 'self-knowledge') from one's own performance, is sufficient reinforcement for perceptual learning. Although this is largely based on detection, discrimination, recognition and identification experiments performed under artificial conditions, with mostly unidimensional stimuli in a laboratory, there is no evidence that this should not occur with complex multivariate stimuli such as paintings. It is arguable that full aesthetic appreciation of works of art cannot occur until the individual can see paintings with the degree of differentiation which also enables them to

perceive differences in style. In the absence of formal perceptual training this probably evolves through a process of familiarization among those who choose to expose themselves to works of art. Perhaps the first step towards teaching appreciation is to teach style discrimination. As this cannot be reduced to rules there is no advantage in teaching by rules. Equally as verbal descriptions can at their best have only poor correspondence to the perceptual experience, verbal methods are unlikely to be very effective. This suggests that direct perceptual training may be the best answer. Equivalence training and distinctiveness training could facilitate the acquisition of sensitivity to style. This could be done by the method of 'cueing' or 'anchoring' (cf. Annett 1969) of the correct answer so that the learner is informed which of 4 paintings in an array, is by the same painter as a target painting, from the moment he sees the array. This saves him from groping in the dark as he doesn't know quite what it is he is supposed to be looking for. Given a cue or anchor he can make the appropriate comparisons etc. while he is directly perceiving the paintings, rather than relying on memory when reinforcement is subsequently given. This method has worked well in training industrial perception skills.

VII Theories of Art and the Teaching of Appreciation

The aims of art education were well formulated by Herbert Read. In *Education through Art* (1943) he argued that there were three main areas of activity, viz. (a) sharpening the faculty of observation by looking, drawing, recording and memorising; (b) giving the individual the satisfaction of communicating thoughts, reactions, feelings visually (i.e. the urge to express; and (c) developing a strong sense of discrimination and awareness of 'values in a world of facts'. For Read art education, as we have seen, was not only an end in itself but also a means of improving the quality of life both for the individual and society

in general.

In a more restricted account of the function of art in education de Bucher (1953) has argued that there are five main functions of education which he stipulated as cathartic, character-forming, educative, aesthetic, social and idealistic. This view is certainly not a new one. A similar approach was outlined by Catty in 1921, and by Littlejohns and Needham in 1932. It is a view still held (Reid 1969), and is the official doctrine of the Department of Education and Science (DES 1971), who defined the central aim of art education as the development of visual awareness and discrimination in art and in everyday life. Valentine (1960) expressed the aim simply as the development of aesthetic pleasure and the avoidance of ugliness. Gardner et al (1966) laid down the possible and alternative aims of art education as (a) the continuation of art after school-days as a pleasurable activity; (b) better or more complete people; (c) the development of aesthetic judgement or taste; (d) development of a sensitive visual awareness of the environment; and (e) a career in art. Underlying all these possible outcomes is the importance of teaching and enlarging discrimination and visual sensitivity generally, or what Arnheim calls visual thinking (Arnheim 1969).

It is argued that perceptual training by means of the match-to-sample task will facilitate the emergence in each individual of criteria and discrimination exercises which will facilitate his ability to appreciate other works of art. The studies of children's and adults' reactions to paintings have revealed a preoccupation for basing evaluative and preference judgements on the subject-matter, realism, and dominant colour. Perceptual tasks can be designed in such a way that these attentional and perceptual habits will be undermined and the individual will be forced to base his judgements on other, hopefully aesthetic criteria.

For children this will involve relinquishing the habit of attending mainly to the content and the dominant colour, and for adults, in addition, it will involve breaking down their obsession with naturalism.¹ It is essential that children (and adults) overcome the tendency to be influenced by concrete factors before they can acquire the concept of style. It is necessary to have acquired sensitivity to artistic style before full appreciation and evaluation in art is possible.

Conclusions

In this chapter I have looked at studies of children's reactions to art, the reactions of adults, experimental attempts to teach artistic appreciation, and very briefly, writings on the aims of art education and practical recommendations for teaching appreciation.

In a world that is becoming increasingly technological and inhuman, aesthetic appreciation is unique as a form of knowledge in its capacity to enlarge and enrich awareness of oneself and the world about us. Appreciation has been shown to be a very complex phenomenon with many facets and complex interrelations between them. It would therefore seem undesirable to teach appreciation directly. For instance much depends on whether the child is being taught generally to see with a 'seeing' instead of a 'knowing' eye, or whether he is learning to paint. Most of the writers on art education referred to above have mentioned the need for knowledge to function as a supplement but not as a substitute for appreciation. We have also seen that it can't be taught as a set of rules and precepts because it is too dynamic, variable and complex. What is needed is a method of acquiring

¹cf. Read (1943): 'Nothing in the history of art is so fatal as the representational fallacy'.

appreciation which is not directly taught. Perceptual learning exercises would seem to be the best method of achieving this end.

CHAPTER NINE

Meaning and Expression in Art

'He seems to gaze at us with
such an intense and soulful
look that it is almost impossible
to believe that those dreamy eyes
are only bits of coloured earth
spread on a rough piece of canvas'

(E. H. Gombrich 1950)¹

I Introduction

The previous chapters have dealt with the structure of aesthetic responses, and the variables that determine, or correlate with, aesthetic reactions. However neither of these areas lend themselves to yielding explanatory ideas concerning the nature of aesthetic experience. By contrast the problem of meaning in visual art is much closer to the critical features of the process (cf. Gombrich 1973).

In what sense can a work of art, or elements of a work of art, be said to possess meaning? Does a work of art express anything, and if so, what? What does it mean to say of a work of art that it expresses something? These are questions shared by philosophers, artists and psychologists alike. The psychologist, as empirical scientist, must ask other questions as well. How can meaning be measured in a painting? Are some people more able than others to detect (or read) meaning in a painting? Is aesthetic communication different in kind from other forms of communication (e.g. non-verbal communication between persons)? Is there a distinctively aesthetic reaction to uniquely aesthetic qualities in objects?

It is almost trivial to say that meaning in some form or
¹Of Titian's 'Young Englishman' (1540) in the Pitti Palace, Florence. Or see Frontispiece.

another is an essential feature of our experience of art, but it is not quite trivial to say this in view of the modern view of aesthetics which was discussed in an earlier chapter (see page 268). The modern view, in contrast to earlier formulations (Beardsley 1966; Osborne 1969) poses a problem of what is or is not to be regarded as aesthetic, or artistic. In this situation we must fall back on Saw's recommendations that 'the ultimate test of what is to be regarded as a work of art must be commonsense agreement with the sort of things which critics and aestheticians have taken to be worthy of agreement' (Saw 1961). It is in this context that the notion of meaning becomes especially important.

In the crudest sense the difference between a coffee pot seen as a hot, brown liquid dispenser and the same object seen and appreciated as a Georgian silver pot of graceful line, must lie in the meaning or significance of coffee-pot as container, and the significance of the pot as an object of appreciation. In both cases the object is the same but the perception differs. Meaning is a small word doing a big job; it must be analysed and elucidated.

There have been several attempts to classify types of meaning. The notion of signs, icons and symbols are well known due to the influence of Ogden and Richards (1923) and of Charles Morris (1956). Their ideas have been adopted and expounded by Child (1969) within the frame-work of the psychology of art.¹

¹ Child distinguishes between referential and expectational types of meaning. The former subdivides into conventional reference (e.g. the word 'horse'); iconic reference (e.g. a picture of a horse); and exemplary reference (when the iconic reference has physiognomic qualities). The other type of meaning is expectational through (a) syntactic relations between signs; (b) causal relations; and (c) pragmatic relations (about the effects of a sign). According to Child, most people in a western culture see representational paintings as icons, whereas experts see them as having exemplary meaning.

Unfortunately, having made the classification Child does not use it but immediately proceeds to other matters.

As an alternative to establishing logical categories of types of meaning it is possible to define meaning in operational or behavioural terms. Thus consensus or agreement between people can become a criterion of meaning. If several people agree on the attributed characteristics or significance of an object then to that extent it has shared meaning. At one extreme, words (e.g. dog, tree) have almost universal demonstrative meaning within a language-culture, whereas the word-salad of schizophrenics has no meaning in the ordinary sense, except perhaps to the schizophrenic himself. Related to the notion of consensus is the notion of meaning as communication. Berlyne (1971) defined communication as the occurrence of a signal in one part of a system resulting in the above-chance possibility of the signal occurring in another part of the system. In other words communication occurs when information (meaning) is transmitted. In this sense a painting has meaning when an observer interprets it in accordance with the intentions of the painter; what transmitter (the artist) and receiver (the observer) agree on is the meaning of that painting. This conception, however, does not allow for the fact that the information extracted from a picture can be quite independent of the intentions of its maker. Also by this definition of meaning there is no possibility of unique or individual meaning.

These diverse approaches to the meaning of meaning only result in confusion for the art psychologist. For his purposes fine logical points, and committed viewpoints serve only to confuse rather than to clarify. Consequently a simpler, functional scheme will be proposed, which not only elucidates the notion of meaning in art (albeit at a very basic level), but also reflects the contributions that psychology can make to the understanding of meaning in art (See Fig. 9-1).

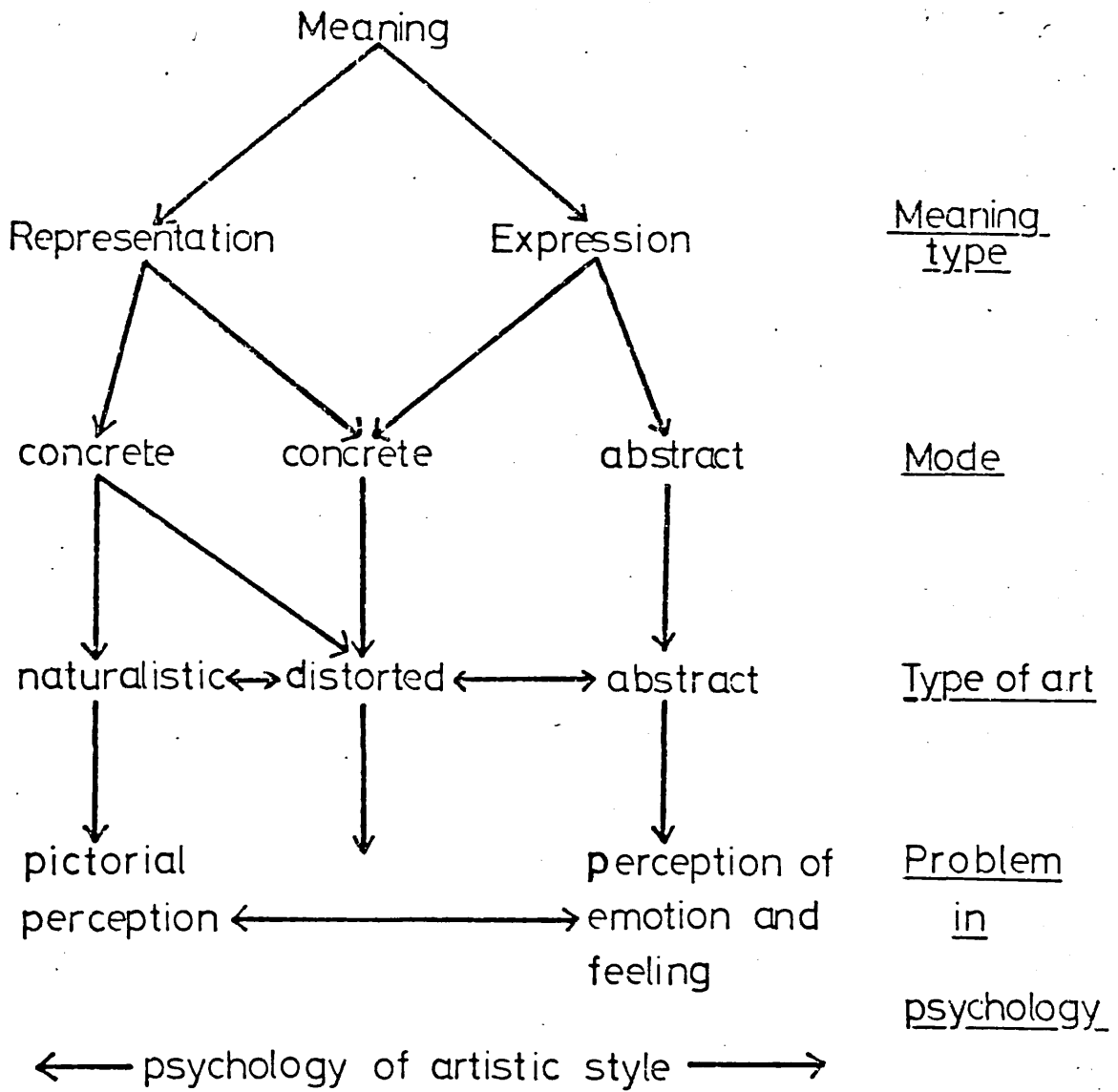


Fig.9-1. Types of meaning in art and the respective contributions of psychology.

Fundamentally, there are two kinds of meaning in art, viz. semantic or denotative meaning by which some other object, condition or state is referred to, e.g. a picture of a horse by Stubbs, or a Dutch interior by Vermeer. This we call Representation. This term subsumes Naturalism, mimetic art, illusionism, realism, trompe l'oeil art (See Osborne 1968). At its most extreme the appropriate criterion is that the painting must look sufficiently like the depicted objects to be acceptable as an accurate illustration of that object according to the prevailing standards of a culture.

By contrast Expression in art does not necessarily convey or communicate information about the appearance of things but evokes in the observer emotions, moods, ideas or feelings. Under this category is subsumed the majority of art throughout history.¹ Nearly all art has expressive qualities whether it be in the form of Celtic medieval manuscripts or the paintings of Van Gogh, Cranach or Piero della Francesca. The importance of fidelity to the depicted objects (Gibson 1966) varies, and in some cases is not relevant, but they all have in common the fact that they all express something other than semantic information. Many writers (e.g. Croce, Collingwood, Carritt) regard expression as the essence of art. The same point could have been made of painting.

Obviously there is no clear-cut distinction between representation and expression; they are only clear at extremes. For instance some surrealist painters (e.g. Dali, Magritte) represent objects with great realism except that they are combined in ways which are meant to express subconscious ideas.² Similarly the sixteenth century German painter, Grünewald paints according to representational criteria, yet by selection of motif, and concentration on

¹ Henry Moore has noted that 'the realistic ideal of physical beauty in art which sprang from 5th century Greece was only a digression from the main world tradition of sculpture' (The Listener, 24 April 1941, p.599)

² See documentary accounts by André Breton in Waldberg 1965.

details of torn flesh, and signs of suffering the paintings are highly expressive. Constable's rural scenes are painted naturalistically and yet can be said to express serenity and tranquillity. However, the distinction between expression and representation is valid if only as opposite poles of a continuum.

By contrast with representation which must be concrete, the abstract mode must always be expressive if only because by definition it cannot 'represent' objects. This art expresses purely by the qualities it possesses itself, viz. its line, shape, pattern, and colour etc. On the other hand at the other extreme Representation as illustration, illusion, or trompe l'oeil, must be concrete since physical things are depicted. These are signs when all they do is refer to objects (i.e. function as illustration) but they are symbols if in addition to referring to objects, the objects themselves have some additional extraneous meaning, e.g. a crucifix, St. Jerome's lion, etc., when it is also a symbol. In between these extremes lie the expressive representations described above. These could be referred to as iconic signs or as the meeting of representation and expression. In order that depicted objects be also expressive they have tended to be distorted or changed from their natural depiction, though this is not always the case.¹ In its most extreme form this category includes Expressionism, but would also include Cubism, Impressionism, Futurism and New Realism. In fact, it would include most forms of art that are not either (1) purely representational (= actual concrete illustration), (e.g. Academic painting at its worst) or (2) purely abstract (e.g. Suprematist paintings). Consequently there is a continuum of types of art ranging between

¹The notion of distortion in this scheme refers to qualities in the art object itself, and not to the artists intentions. It is not implied, for instance, that Egyptian artists 'distorted' their motifs or that Giotto distorted what he saw. On the other hand, painters who could represent naturalistically may choose deliberately to distort their representations in order to be more expressive, e.g. Georges Rouault (1871-1958) or Asger Jorn (1914-).

two extremes (representation and abstract expression) with most art falling between, the middle value being represented by representational art with expressive qualities. This lies very close to the view of Gombrich (1962)¹ who is making the distinction that signs communicate and icons express, states that art lies somewhere between the extremes of expression and communication.

Finally we come to the contribution of psychology to the question of meaning in art. At one extreme, viz. art as representation, the study of pictorial perception is highly relevant. We need to know what a picture is in perceptual terms, how pictorial depth is perceived and how objects represented by the painter are recognised by the observer. At the other extreme the perception of emotion and feeling in objects and people (as well as paintings) is an important though neglected field of study which is highly relevant to the psychology of art. Between these extremes lies the psychology of artistic style, which as yet is a non-existent field of study. We need to know how a painting is interpreted, how a concept of style is developed and on what basis styles of art are differentiated in psychological terms. It is also important to determine whether there is some qualitative difference between the aesthetic perception of works of art, and the perception of pictures, on the one hand, and of graphically presented emotional qualities, on the other.

II The Perception of Pictures

The dual reality-status of paintings has been discussed recently by several writers (Gregory 1966, 1970; Pirenne 1970; Gibson 1966, 1971). In essence a painting is a flat pigmented surface and at the same time gives the appearance of objects

¹This paper, entitled Expression and Communication can be found in Gombrich (1963) pp.56-69.

depicted in depth. It is both a two-dimensional surface and a scene in three dimensions. This is not a new discovery, though the significance of the 'picture paradox' has recently led to interesting theoretical developments, which have an important learning on the psychology of art.

There are five major approaches to the investigation of picture perception. It is first necessary to assess their respective techniques, value and findings before determining and assessing the sum total of research on pictorial perception. The respective approaches are sometimes complementary, and sometimes antagonistic.

(a) Ecological Optics. This is the approach of J. J. Gibson who gave only brief mention to pictorial perception in his book, *The Perception of the Visual World* (Gibson 1950), but has since expanded and developed his theoretical position in a series of publications which the most recent major work is *The Senses Considered as Perceptual Systems*. In this work pictorial perception is given considerable importance (See Gibson 1966, Ch.11). Gibson has also written extensively on pictorial perception beginning with a formal theory of pictures in 1954, and through a succession of articles has refined, changed and developed his views.¹

Gibson is important for two reasons. First because of his revolutionary approach to the study of perception, and secondly because his is the only detailed and formal theory of pictorial perception which is a functional part of a general theory of perception.²

¹See especially Gibson 1954, 1960, 1966, 1971.

²The Gibsonian approach is by now well-known, but it is worth
(continued)

Gibson's more direct contribution to the study of the perception of pictures is the application of concepts from his general theory of perception to a formal analysis of pictures and picture-perception, and his analysis of the role of perspective in creating what he calls an 'as if' experience. His definition of a picture is a very useful one: 'A picture is a surface so treated that a delimited optic array to a point of observation is made available that contains the same kind of information that is found in the ambient optic arrays of an ordinary environment', (Gibson 1971). This represents an instructive revision of his earlier definition in which he defines a picture as a 'human artifact which enables another person to perceive some aspect of the visible world in the same way that the artist, the maker of the picture, has perceived it', (Gibson 1960). This makes a picture equivalent to an illusion which is indistinguishable from veridical perception of the same object. Only rarely is this the case as in trompe l'oeil art. For example the peep-show cabinet of S. van Hoogstraaten (1627-78) in the National Gallery, London, ensures optimal illusion by restricting vision to a stable monocular view which fills the whole visual field.

(continued from overleaf)

noting, if only briefly, the chief characteristics of his position. Perception is defined as the means by which we obtain information about the world around us. This definition is much more subtle than it at first appears. The theory is based on the 'radical assumption that light can convey information about the world, and hence the world does not have to be constructed by the brain out of meaningless data. This rests on the conception of light in terms of an array at a point of observation; light not considered merely as a stimulus but also as a structure', (Gibson 1971). Because the structure of light gives us information directly about the world Gibson coined the phrase 'ecological optics'. Gibson talks not of senses, but of active perceptual systems which seek out information about the environment in the structure of light without any intellectual mediation. This embraces the concept of 'sensationless perception' which means that stimulus information can determine perception without having to enter consciousness in the form of sensation. In this sense it is possible to have sensationless perception but not informationless perception.

The illusion may be powerful (just as the Ames demonstration are) but the observer is not totally deceived. Consequently Gibson's later definition, stressing the information in pictures as equivalent though not identical to that given by the real objects, is more suitable and closer to experience. In Gibson's words, 'the optic array from a picture and the optic array from an object can provide the same information without providing the same stimulation,' (Gibson 1971). An artist can capture the information about something without replicating its sensations. In his extensive discussions of perspective Gibson examines how the artist achieves this.

Pictorial perspective is a sub-class of perspective in general. It is defined as 'the geometry of the ways in which light specifies the world of surfaces from which light is reflected' (Gibson 1960). Linear perspective is only one kind, viz. the perspective of the edges of rectangular objects projected on a plane surface.¹ There are other types of perspective, viz. textures

¹The principles of linear perspective were first formulated by the Florentine architect, Brunelleschi (1377-1446) but were first used in painting by Masaccio (1401-75). This was not, however, the first time pictorial depth had been portrayed, for in the 14th century Giotto (1266-1337) had rediscovered the art of creating the illusion of depth on a flat surface, without perspective, by the then revolutionary adoption of a single viewing-point. Prior to Giotto artistic problems centred on the arrangement of figures on a flat surface (cf. Byzantine art) but after Giotto the arrangement was constrained by the need for realism as well. In view of the fact that foreshortening was discovered as early as 500 B.C. it is surprising that linear perspective which is such a powerful means of conveying depth should be discovered so late in the history of Western art. (For a history of perspective in art see White's *The Birth and Re-Birth of Pictorial Space* (1957)). There are, of course, other monocular cues to depth. These have recently been listed and illustrated by Blakemore (1973), viz. position in the field (i.e. higher up is further away); linear perspective; texture gradients; size of familiar objects; shadow, overlay; and aerial perspective (distant objects appear bluish). Blakemore (who strangely omits reference to foreshortening as a cue to depth) presents physiological explanations of the perception of shape, size, movements and binocular depth perception but notes that there is no corresponding physiological explanation of monocular depth perception, or in other words, perspective effects.

of individual surface, gradients of texture-density. There are also perspectives of change of position, not just perspectives of position.¹ These perspectives are used to depict on a surface the world as it appears, because these perspectives are features of the 'visual field' (or the pattern of retinal stimulation caused when light travels from objects to the eye). Gibson is also at pains to show that the surface of a painting can never be treated in such a way that its optic array and that of an object can ever be identical. First, the range of contrasts of light and colour and texture that the eye is sensitive to is infinitely greater than can be reproduced by a painter on a canvas. This is not a serious limitation as the eye is more sensitive to relations than to absolute values. Hence though it is impossible to produce absolute fidelity to the depicted object or scene, functional fidelity can be obtained. Pictures do however fail on three points: (a) the observer cannot look round the scene (b) he cannot move in it (c) there is no binocular parallax. (In addition, though Gibson does not mention it, there is no movement in the depicted scene, which can provide extra information to reduce ambiguity). Despite these limitations Gibson argues that we can perceive the painting 'as if' it were the objects depicted, though it would never be mistaken for the real objects. This requires a special state of mind which Gibson calls the 'Pictorial Attitude' (Gibson 1966). It is because we see objects in the world (the visual world) and not projected shapes on a flat surface (equivalent to the visual field) that we have to learn to see things as they are projected on a surface according to the laws of linear perspective.

Despite the power and functional utility of Gibson's analysis there are two major drawbacks. The first is his interpretation of abstract art. Gibson admits that an abstract painting is

¹For a detailed discussion of perspective gradients as determinants of our perception of the world around us, see Gibson (1950).

problematic in his scheme of things. He regards them as exercises in perception, if not of representation. They contain information, but not information about anything other than itself. If this is the case it is difficult how non-representational art can inspire such elevated thoughts, ideas, and feelings as the work of Kandinsky, Mondrian, Ben Nicholson or Jackson Pollock (cf. Read 1964). Their works, in different ways, aspire to the apprehension of transcendent qualities, or in Koestler's phrase, they 'provide peep-holes into eternity'. This must surely stem from more than a mere exercise in perception.

Gibson's disappointing interpretation of abstract art, stems from the other main weakness in his position. Possibly for reasons of persuasion and advocacy of his viewpoint Gibson has altogether neglected the role of expectation and familiarity, and other non-optical variables in perceiving a representation or painting. We shall see below that the respective theories of Gregory and Gombrich lay great stress on what Gombrich has called the 'Beholder's Share' in pictorial perception (Gombrich 1960). Gibson's view is persuasive and convincing, but it must be remembered that it is one-sided. In rejecting orthodox associationist view of perception by which all meaning was derived from experience and was attached to otherwise meaningless sense-data, Gibson ignores the role played by set, memory, familiarity and expectation in the perception of pictures, which help to give it meaning.

The theories and ideas of Gibson have been given extensive coverage because they are so important in the psychology of perception. Two weaknesses have been pointed out which other workers in this area compensate for by approaches which are biased in the opposite direction. In addition they cover areas which Gibson only glances at, or omits to deal with at all.

(b) Physiological Optics. This approach is well illustrated by the work of Pirenne in his fascinating book 'Optics, Painting and Photography' (1970). Gibson had argued that linear perspective is not a convention because basically we all see alike, i.e. by means of light and the fact that its propagation is rectilinear. That this is actually the case was directly tested by Pirenne in an ingenious series of experiments. To test the validity of Euclidian optics Pirenne used the exised albino eye from a rabbit, which allows the pattern of strong stimulation to be observed through the sclera, as it is translucent. In this way Pirenne demonstrated the retinal convergence of parallel lines of lights, and the foreshortened retinal image of straight lines of lights seen at an angle. He was able to conclude that the retinal image has a point-by-point correspondence to the object, a correspondence that is determined by the simple fact that light travels in straight lines before entering the eye.

Pirenne also designed a pin-hole camera with which he could simulate the perspective projections of objects on the retina. With this analogue of the retina he was able to demonstrate the very large distortions that perspective projections cause. For instance spheres become increasingly elliptical in projection as they are farther away from the line of gaze. Similarly, columns appear fatter at the edge of the visual field than in the centre. Yet these distortions are not noticed in perception; nor do they occur in representational paintings.

Ideally, the perspective view of each painting can be correct for only one, preferably monocular, viewing position. But paintings will be seen from a variety of positions. It is because of this that painters break the rules of perspective projection when the shape of the object is already familiar, so that correct linear perspective is not relied on to convey the actual shape of some objects at an angle. Consequently vases, pots, balustrades and

other curved familiar objects tend to be painted from a 'new' frontal perspective position regardless of the perspective alignment of the painting as a whole.

This raises a further question: why don't we see the painting as distorted when viewed from the wrong position. Pirenne with a wealth of detailed demonstration and argument claims that a 'subsidiary awareness of surface' (cf. Polanyi 1970) sets up a constancy mechanism. Surface in a painting is indicated at a low level of awareness by the lack of retinal disparity which would be caused by real objects. Awareness of the shape and position of the picture surface causes an unconscious process of psychological compensation to take place which restores the correct view when the picture is viewed from the wrong position. Although he doesn't explain how this mechanism operates, Pirenne provides convincing evidence in support of this argument by demonstrating the surprisingly large distortions of perspective projection seen in pin-hole camera photographs taken from off-centre positions. These distortions are not noticed in the perception of paintings when viewed at an angle. There is, however, no subsidiary awareness of surface in the ceiling of the Church of St. Ignazius in Rome (painted by Andrea Pozzo (1642-1709)), because the actual surface is too far away from the floor (20m.) Viewed from the correct point (marked by a marble disc on the floor) the barrel vaulted ceiling appears to be a vertical architectural continuation of the walls of the church to a greater height, and part of the roof looks as though it is open to the sky where angels are much in evidence. When viewed from the wrong perspective view-point it all appears grossly distorted though still seen in three dimensions because the eye at that distance is functionally monocular. However, when seen much closer at a distance of 10 metres the binocular disparity causes the impression of depth to disappear and the surface is seen as it actually is, viz. cylindrical.

Pirenne is exceptional in combining rigorous physiological experimentation, with sound psychological theorising and a mature knowledge of art. His work represents a valuable contribution to the study of pictorial perception.

(c) Psychopictorics. This is a branch of psychophysics which deals with natural images as pictorial stimuli (see Lipkin in Lipkin and Rosenfeld 1970). Its fundamental dependent variables are (i) detection, the awareness that there is an object present which is a sensory process; and (ii) recognition and the complex stages of visual processing between the initial detection and the final interpretation. Its major independent variables are (i) contrast and border; (ii) shape and geometry, and (iii) texture. Introspective and phenomenological techniques are positively rejected, and the role of cognitive factors is not emphasised. With such an approach it is difficult to see what psychopictorics can contribute to an understanding of aesthetic perception which is cognitively so complex.

By contrast the experimental study of pictorial perception has a lot more to offer. Eye-fixation studies have revealed that there are very large differences between individuals in the sequence of movements made by their eyes in scanning a picture (Buswell 1935; Yarbus 1967). Each individual has a distinct sequence which re-cycles at a fixed period of time for each person. The individual is not however at the mercy of this sequence for instructions to obtain different kinds of information from the picture produce very different sequences and patterns of fixation. There is a very strong tendency for the eyes to fixate an area of high information, or unusual features which offer the potential of yielding information. Usually the eyes never focus on homogeneous, familiar, or low information areas (Buswell 1935; Yarbus 1967; Mackworth and Morandi 1966; Pollock and Spence 1968). Despite very large differences in fixation

patterns, the phenomenal experience of the picture seems to be constant (Kolers 1972), though there is no direct evidence that affective or aesthetic reactions to paintings are not related to eye-fixations patterns.

A feature of these fixation studies is that there appears to be no preliminary systematic scanning of the picture. The immediate concentration of fixations on a few areas of high information suggests the operation of peripheral scanning outside foveal vision. Studies of peripheral vision reveal that pattern acuity drops by 50% for objects placed only 1° from the centre of the fovea, and by 85% at 8° from the fovea (Riggs 1965), though even at 80° out from fovea information can be utilised which reduces processing-time when the same objects come into foveal vision (Sanders 1963). A recent study by Loftus (1972) has shown that pictures seen only in peripheral vision can be recognised again. The evidence for pre-attentive processing is very strong (Neisser 1967). Although always seen in focus, the greater part of a painting is actually out of focus, and some parts of it never come into foveal vision. It seems possible that the overall aesthetic appeal, or affective impact of a painting could derive not from foveal vision but from the diffused, undifferentiated information that is constantly present peripherally, despite the ever-changing location and input of foveal vision. Eye-fixation studies of children (Mackworth and Bruner 1970; Vurpillot 1968) reveal that their scanning strategies (when compared to adults) are not very efficient at extracting the information required in the task instruction. Could this be a sign that children's perception is naturally aesthetic, in that they do not attend solely to figural qualities as was argued by Arnheim (1954), Ehrenzweig (1967), Werner (1956) and Gardner (1972), Nickerson (1968). This could be systematically tested.

Eye-fixation studies are highly interesting. It is regrettable

that this objective measure of an individual's selective attention has not been correlated with phenomenal measures of the individual's feelings and reactions, as well as his overall aesthetic reaction. It is possible that differential reactions to liked or disliked, better or poorer art, could be reflected in eye-fixations. There is evidence from Loftus (1972) that higher valued pictures both received more fixations and were remembered better than low-valued pictures, and when the number of fixations was held constant memory performance was independent of value.

There is also evidence that memory for pictures is near perfect, and lasts almost indefinitely (Shepard 1967; Mickerson 1968; Standing, Conezio and Haber 1970; Shaffer and Shiffrin 1972), though there is no evidence that it is superior to memory for faces. Even so the powerful information-processing capacity for pictorial stimuli is a critical feature that must be accommodated in an explanation of aesthetic perception. The study by Shaffer and Shiffrin is particularly important because they revealed that memory for pictures was a function of duration of exposure and was not influenced by the interval between exposures, as is the case with verbal material. This suggests that rehearsal is not necessary in the processing of complex visual material. The immediacy of visual pictorial perception has also been revealed in a study by Brighthouse (1939c) who found correlations of .82, .76, and .80 between aesthetic ratings of stimuli presented tachistoscopically (.25 sec) with ratings of the same stimuli observed for as long as the three subjects wished.

Cross-Cultural studies of pictorial perception really began with the pioneering work of Hudson (1960, 1967) and has been developed by Dawson (1963), Mundy-Castle (1966) and extensively by Derogowski (1972, 1973). Hudson had investigated perceived depth in line-drawings based on the cues of size, interposition and perspective, though he did not study texture-gradients. He

found that most of the rural Africans tested could only see two-dimensional patterns. However subsequent work revealed that cultural experience and formal education were important factors in promoting the perception of pictorial space. Deregowski and Byth (1970) used Gregory's 'Pandora's Box'¹ to demonstrate that three dimensional depth was actually seen, and that responses were not just dependent on cue interpretation. In general, cross-cultural studies (almost all from Africa) support the view that pictorial perception is learned, though a one-subject developmental study by Hochberg and Brooks (1962) suggests that it might be unlearned. This is consistent with Gibson's (1969) view that learning or instruction is not required to see that representations with light fidelity are similar to the real objects. Learning is only required with pictures of low fidelity. However, fidelity may not be the only feature, as Deregowski (1968c) has shown that familiar animals can be recognised by people from pictureless environments. Gibson (1969) concludes that 'perceptual learning beyond what is accomplished in the natural ecological surroundings is probably only required for perceiving the meaning of representations that empty special conventions or distortions, ones that are peculiar to the graphic act or to the artist'. There is clearly considerable scope and need for research on the development of perception for pictures and other graphic representations.

(d) Art History. This approach is exemplified in the writings of E. H. Gombrich who as an art historian has drawn extensively on the psychology of perception and has integrated it with his interpretation of the history of style in art. His largest single contribution is the influential *Art and Illusion* (Gombrich 1960). In this book Gombrich argues that the reading of a representational painting is based on convention. He sees the growth of illusionism in painting as a result of the quest for a

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See Gregory (1970) pp.94-96, for a description of this technique.

narrative pictorial art. Proceeding from trial and error to a process of schema and correction the artist learned to create an illusion of three-dimensional scenes on a plane surface. The discovery of the appearance of things was due not so much to careful observation of nature as the discovery of visual effects. In the same way the observer had to learn to interpret the optical effects, and it is only when painter and observer share common canons concerning the projection and depiction of objects on a plane surface that a painting can represent. The gradual shift and development of these shared canons Gombrich calls the history of artistic style.

Gombrich (1972c, 1973) has recently defended the position adopted in *Art and Illusion* that linear perspective is itself not a convention though use of it might be. He argues that although the world does not look like a picture, a picture can look like the world. Gombrich stresses that linear perspective presents appearances rather than actual reality. He sees himself as a straight-liner rather than a curvilinearist, to distinguish himself from those who believe that a curved or hyperbolic perspective is more veridical (cf. Hansen 1973; White 1957). Gombrich notes that every culture that has discovered, or been introduced to, linear perspective has eventually adopted it, including the Japanese.

Gombrich's technique combining expert knowledge of art and an extensive knowledge of perceptual psychology is a welcome relief from the biased committed viewpoints of most approaches to this subject. If it is rare for several disciplines relevant to a full understanding of art to combine in one mind, then an integrated team of diverse experts should serve as a substitute. A less good but still valuable way to integrate ideas, techniques and concepts from several disciplines is to be eclectic.

(e) The Eclectic Approach. This is exemplified in the writings of Gregory (1966, 1970), Hochberg (1962, 1966, 1972), and von Fieandt (1966). Much of Gregory's writing on perspective coincides closely with Gibson's and that of Pirenne. Gregory's definition of perception is slightly different. He sees it as an active process of using information to suggest and test hypotheses about the world. He sees the world as essentially ambiguous, so that knowledge derived from experience is needed to choose between alternative interpretations. This is particularly true of perspective projections in pictures. He sees the task of the painter or draughtsman as making the observer accept just one out of the infinite set of possible interpretations that are possible from a single perspective projection. It is a feature of perspective projection that an allipse inclined at a given angle is projected as a circle, and a circle inclined at a certain angle is projected as an ellipse. A small object placed close to the observer will give the same projected size as an object of twice the size at twice the distance from the observer. In the absence of binocular cues to depth (convergence, disparity) and motion parallax, the artist must use perceptual distance cues that are available to the single eye (see Footnote to p.308). It is here that Gregory departs from the Gibsonian view, and comes very close to Gombrich when he stresses the role of familiarity and experience in reducing the ambiguity of the depicted objects. Gregory goes further and demonstrates that an object which is sufficiently familiar can be seen in depth without perspective. Perspective (linear or otherwise) is not essential to the depiction of objects. The Egyptians did not use perspective, the Chinese used a kind of inverted perspective (see Pickford 1972, p. 173), and in medieval and Renaissance painting size was often a function of importance (e.g. donors in votive paintings). In *The Intelligent Eye* (1970) Gregory marvels at the ability of perception to make remarkably efficient use of strictly inadequate, and so ambiguous, information for selecting internally stored hypotheses about the

current state of the external world. The perception of pictures is no less marvellous; 'Pictures are such artificial visual inputs that the surprising thing is not that they may appear ambiguous, uncertain, paradoxical or distorted representations of objects, but that we make anything of them at all'. (Gregory 1970 p.102) like Gombrich, Gregory lays great stress on the role of experience in interpreting pictures. Gregory has recently attempted to give an explanation of abstract and semi-abstract art, (Gregory 1973). He argues that, as a result of the power of the visual system to select in tentative form-hypotheses and features of hypotheses when there is insufficient input to permit correct hypotheses (as in abstract art), the observer is given the impression of rich experience because he sees more than is before his eyes. This is no different from seeing objects in flames, faces in clouds, or even Leonardo's seeing battles and landscapes in 'walls splashed with a number of stains' (cf. Richter 1952, p.182).¹ Projection of this sort probably does play a role in the perception of abstract art that is suggestive in the right way (e.g. Jackson Pollock or Mark Rothko), though it is unlikely to play a role in the geometric abstract art of Naum Gabo or Antoine Pevsner. This could easily be tested empirically. The 'projective potential' of abstract art may not distinguish it from non-art objects, though it might be shown that because it is seen as a work of art, the observer's attitude to it, and experience of it, is different from gazing at clouds. This could be tested by comparing the 'projective potential of photographs of natural objects (clouds, branches of trees, stoney soil, etc.) with that of abstract expressionist painting, and geometric abstract painting, respectively.

Julian Hochberg (1962, 1972) has developed a theory of canonical form in art. He has argued that at any given moment most of a picture as we perceive it is not on the retina, nor on the plane of the picture but 'in the mind's eye' (Hochberg 1968). The picture is encoded out of the input to the retina at each fixation. What is not encoded and stored is lost to perception

¹Leonardo recommended this as a technique 'to increase your talent and stimulate various inventions'.

(e.g. the perspective inconsistencies). Hochberg explains the powerful impact of drawings in that they can represent only those features that the viewer will encode and store in ways that the artist wants us to (cf. Ryan and Schwartz 1959; Jennison 1972). Cartoons and caricatures are drawings which produce this effect to an extreme degree, by leaving out the redundancies of veridical perception that the mind's eye doesn't see, and by approximation of the drawing to canonical form, i.e. shapes that are close to the ways in which these objects are encoded in the mind's eye. This is perhaps equivalent to Pirenne's (1970) contention that familiar objects are presented frontally regardless of their legitimate perspective distortion.

Hochberg's theory is speculative and extremely interesting. There is clearly a case for research on the nature of caricature and the notion implicit in Hochberg's account, viz. that aesthetic pleasure is the result of the perceived economy of a drawing to achieve its impact on the observer's visual or rather his mental coding system. It is doubtful that this could be an explanation of all art, but then it is doubtful if a single explanation will be adequate for the perception and experience of all kinds of art.

von Fieandt is also eclectic combining the approaches and findings of Arnheim and Gibson with introspection and a smattering of experimental studies. Although not contributing any original matter the discussion is important in bringing the problems of pictorial and artistic perception strongly within the fold of general psychology in a general text-book on perception.

(d) Other Approaches. These include Gestalt, psychoanalytic and information-theoretic approaches. In more general terms these have been discussed already in chapter three. The Gestalt approach does not deal directly with pictorial perception. The identification of objects is not important; it is their expressive

qualities that are aesthetically important. The same is also true of the psychoanalytic approach which, as we have seen has placed most emphasis on latent content of the art objects, and also information theory with its stress on quantification of the stimulus input and its general neglect of meaning.

Conclusions

There can be no doubt that the illusion of depth in pictures is very strong, though it is equally true that we are never deluded or deceived by it. There has not been a great deal of experimental work with pictures, though there has been considerable speculative emphasis on perspective as a cue to depth.¹ Pirenne (1970) has demonstrated directly the validity of Euclidian optics to retinal projection, though other writers (especially Gombrich, Hochberg and Gregory) stress that perception is a constructive process and that the observer does not experience only what is on the retina. Consequently, the perspective distortions which arise when the canvas is seen at an angle lie outside conscious perception. Perspective projections appear to be intrinsically ambiguous so the correct reading of a painting is dependent on a variety of cues both present in the painting and in the observer (Gregory 1970; Gombrich 1970). Finally, we do not perceive the world according to the rules of perspective, even though it is the means by which the visual world is projected on the retina. This is perhaps why a painting can be made to look like the visual world, even though the visual world does not look like a painting.

Most of this is only indirectly relevant to aesthetic perception, except that Arnheim (1972) has argued that deviation

¹ Studies by Zajac (1961) and Adams (1972) represent rare empirical investigations of linear perspective as a cue to pictorial space. Both studies reveal systematic but minor inconsistencies between the perspective laws and perception of the pictures.

from the laws of perspective in Western art has permitted the use of intrinsically expressive forms which contradict the rules of linear perspective. Of more immediate relevance is the suggestion by Gregory (1973) that the essence of abstract art is object-hypothesis formation to an exaggerated degree, and Hochberg's (1972) notion of canonical form. Both of these notions can be tested and should be further researched. In addition Gombrich's 'beholder's share', and Gibson's 'pictorial attitude' should both be extensively researched. In general there is a serious need for research with real works of art, and not just pictures in order to establish whether the perception of pictures is qualitatively different from the aesthetic perception of painting, or whether there is a continuum from documentary photographs, through caricature to great art.

III The Expression of Meaning in Art

As noted in Section I expression here has the widest possible meaning. It refers to the perception of emotion, feeling and ideas in painting which may or may not have any semantic reference. This includes the notion of form as distinct from content and the notion of art as form (Bell 1914). It also includes the expressive qualities of elements of paintings, and of paintings as a whole. By contrast with pictorial perception there is a large amount of experimental work on graphic expression.

1. Experimental Studies: Do paintings have meaning?

A very broad division can be made between studies using whole paintings or drawings and studies using molecular stimuli. Whereas the latter practice has been discouraged in this thesis it is now considered acceptable because of its more direct relevance to the expressive qualities of the elements of abstract art. Meaning in these studies has been measured in a variety of ways.

(a) Meaning as Agreement (adjectives to images). This technique involves the presentation of lines (or colours, or shapes) by an experimenter, and the subject is asked to attribute qualities to them, usually from an adjective check-list. Poffenberger and Barrows (1924), used circles and lines varying in size, and thickness of line. Some figures produced complete agreement and others almost complete disagreement. Similar experiments have been carried out by Israeli (1928) and Hevner (1935) with similar large individual differences. More recently the technique has been used by Wexner (1954) using colours and by Peters and Merrifield (1958) using lines, and also by Beldock (1964). Although these authors stress the measures of agreement between characteristics of stimuli and attributed adjectives, there is considerable individual variation; for instance, with Wexner's subjects the colour red was most frequently seen as exciting, or stimulating. Yet the same colour shared with brown, blue, black and purple the adjectives protective and dependable. As only a small number of adjectives are usually supplied, it is not surprising that there is agreement when the choice situation is so limited. In other words these studies are biassed because of inadequate response sampling.

(b) Meaning as Agreement (images to adjectives). This is the opposite technique where the subject is presented with stimulus words (usually having emotional reference) and is asked to make a drawing or a line to express that word. The experimenter then categorises the responses and relates them to the emotion-stimuli. This technique has been used by Lundholm (1921), Scheerer and Lyons (1959), and by Peters and Merrifield (1958). As with the previous technique there seems to be a tendency to concentrate on agreement only, and to ignore the disagreement and individual differences which are clearly present. There is also a tendency to over-generalise from the results. For instance, Peters and Merrifield (1958) go so far as to claim that direction of line ($\uparrow \rightarrow \downarrow$) indicates the social desirability of the behaviour or feeling represented by the stimulus-word.

(c) Meaning as Semantic Differential ratings. This was originally used by Tucker (1955), (in Osgood et al 1957) where he found that the structure of semantic space of representational paintings was the same as for objects in general, except that there was a higher loading on the Evaluative Factor. Springbett (1960) used the semantic differential to show that abstract paintings did have objective meaning, even though Tucker (1955) had found that abstract paintings had meaning only for art experts, whereas non-artists revealed 'semantic chaos'. Choynowski (1968) also used the S.D. technique to revealed the complex meaning structure in paintings and an interesting study of the connotative meaning of colour was carried out by Wright and Rainwater (1962). Factor analysis revealed six clusters of adjective-pairs, viz. happiness, showiness, forcefulness, warmth elegance, and calmness/strength. Overall the strongest determinant of connotative meaning was saturation rather than hue.

(d) Meaning as agreement between artist and observer. This embraces the important notion of the artist's intention as a factor in appreciation, but as tested experimentally tends to involve no more than a correlation between artists' ratings of their own works and ratings by other observers. Nidorf and Argabrite (1970) developed this technique as a measure of physiognomic perception using the Semantic Differential. They found that there was more communication mediated through the two representational paintings than through the two abstract paintings which were used as stimuli in the experiment. However, as only one artist's work was used it is difficult to generalise these results to abstract and representational paintings in general. A similar study was carried out by Siddiqi and Thieme (1969) again using Semantic Differential judgements by artists of their own work, by art students, and by psychology students, but this time using a wide variety of paintings. The two groups of students showed substantial agreement with each other but very

little with the judgements of the artists who painted the works. This suggests that the students shared a group implicit aesthetic theory which was not the same as the artists individual aesthetic theories as manifested in their works.

(e) Meaning as structured response. Most factor analytic studies fall into this category (see Chapter 6). Dimensions of similarity between paintings, of preferences for paintings can be said to represent the meaning of the paintings. Usually, the factorial structure has relevance to all the paintings used in the study, and by implication, to all painting. The meanings of an individual painting can be determined by its loading on the respective factors making up the total structure. The limitations and weaknesses of this approach have already been discussed.

(f) Meaning as fittingness. This refers to the assertion that paintings are 'just right' in the sense that if they were changed in any way they would not look so good, (cf. Koffka 1940). This has been specifically tested by Pronko et al (1965). He carefully modified photographs of paintings in a variety of ways, e.g. by altering the composition, changing proportions of the canvas. When mixed with unaltered paintings subjects were no better than chance at identifying the modified paintings. Perhaps this was due to the short time (5 seconds) that was allowed for each response, for the discrimination task was very difficult. Interesting techniques have been devised by Lindauer (1969, 1970) to measure 'physiognomic awareness'. In one technique abstract paintings were presented to subjects who had to indicate their preferred orientation for hanging on a wall. Thirty-five per cent of the judgements agreed with the original orientation, and twenty-five per cent preferred the paintings upside down. Lindauer takes this as evidence of the intrinsic expressiveness of the paintings communicating a sense of orientation to the

observers. Lindauer in a later experiment asked subjects to select the most appropriate title for an abstract painting from a choice of four (one of which was the correct title). As in the previous experiment there was above-chance agreement with the artists' title, but still considerable disagreement overall. Using a fairly similar task Ross (1966) found that after minimal exposure to paintings his subjects were able to identify with only 10% error which had been reversed on a second showing. However, when asked which orientation was the 'artist-intended orientation', the subjects were influenced more by the initial orientation they had seen than by the qualities of the paintings themselves. Thus a painting that had not changed its orientation in the two viewings tended to be seen as correct. Ross concluded 'a painting viewed twice looks good like a painting should'. Preferences for paintings in original form compared to their mirror images have also been investigated by Swartz and Swartz (1971) and Swartz and Hewitt (1970). They found that preferences for the original over the mirror image must have reached significance.

(g) Meaning as Categorisation. This technique involves interpreting the emotional source or the expressive intention which is manifested in a painting. For example, Main (1969) collected 25 paintings executed by people in each of 5 categories, viz. (a) schizophrenics, (b) neurotics, (c) physically ill people, (d) non-hospitalised normals, and (e) children aged 9. Subjects were divided into groups, each one having to distinguish between schizophrenic paintings and one of the remaining categories. They could easily discriminate between the schizophrenic paintings and each of the other categories with an average error rate of only 15%. There seems to be a definite ability to identify abnormal expression in art.

(h) Meaning as Unverbalisable. Two experiments have shown that paintings can be sorted into groups which the subjects are unable to describe or identify verbally. Alexander (1960) revealed

that there was not always agreement between visual dimensions (as indicated by sorting behaviour) and introspected verbal dimensions. He warns against the use of verbal techniques, and stresses the need to collect data which reflects only visual behaviour rather than verbal habits. A similar warning is implicit in a study by Mirels and Efland (1970) who used a non-verbal sorting task followed by multi-dimensional scaling analysis. This is a particularly important point which has been stressed by Arnheim in *Visual Thinking* (1969) and also by Gibson (1971). Visual meaning is freer and less stereotyped than verbal thinking. Pictures have no vocabulary of defined meanings, so it is possible that thoughts can be visualised which cannot be verbalised.

III Theory and Explanation: the expression of emotion in art.

Despite variation in conception, or operational specification of meaning, and the great variety of experimental techniques two general conclusions can be drawn. First, there can be no doubt that non-pictorial stimuli, or the formal aspects of pictorial stimuli do have meaning in some sense of that word. Secondly, agreement concerning this 'meaning' is by no means complete. It is also apparent that some of the attributed meaning is the artefactual result of the experimental procedure. The experiments reviewed above have stressed communal (objective) meaning based on a criterion of agreement. They have ignored individual (or subjective) meaning, for by their own operational definitions (explicit or otherwise) disagreement between people implies a lack of meaning. In art idiosyncratic or subjective interpretation is valid for an individual even though in scientific terms concensus is required to make a judgement valid.

Given that there is some agreement on the meaning of nonpictorial stimuli, what explanations have been offered?

Associationist Approach.(a) The Theory of Empathy

The theory of empathy was first expounded by Lipps (1903) and Worringer (1908) in Germany. The theory was introduced to England by Lee (1913) and received an important exposition in the work of Langfeld (1920). Although there are many subtle variations of enormous import to philosophers, the details by which the theories differ are less relevant to a psychology of emotional expression in art. Pratt (1961) has given a useful summary of Lipps' theory. In brief it is that in response to a work of art an observer feels in himself qualities that are best described by words for emotions and feelings. 'The qualities are subjective in origin but by a kind of simultaneous association, by inference built up by countless repetitions they are seen as aspects of objects located outside the body' (Pratt 1961). In essence the theory of empathy is one of projection of feelings originating in the observer to the object observed, It is in this way that the object is seen as expressing emotion. The observer 'feels into' the observed objects feelings that he is in reality experiencing himself.

This theory has enjoyed immense popularity in both philosophy and aesthetic theory. There are several reasons why this is so, despite very serious weaknesses. Firstly, it is very plausible and easy to grasp as an explanation. Secondly, it is readily applicable to any situation. Thirdly, and this is probably important in terms of its status in philosophy, as it is largely consistent with the logical Positivism of Stevenson (1944) and Ayer (1946). As a theory it remained unchallenged for almost 40 years, until it was attacked by the Gestalt psychologists.

What then are the weaknesses in this theory as explanation of how emotion is perceived in objects? The main limitation is

that the theory of empathy doesn't explain anything at all. It does not say why or how the observer feels the emotion he does feel in the first place. It may be true that projection of emotion is part of the aesthetic response, but this notion does not explain why the emotion arises. The theory of empathy describes an aspect of the process but does not explain it. The other weakness is that the process of 'feeling into' is taken to be the essence of the aesthetic experience. If this were the case projection of emotion would result in very diversified and mood-reflecting reactions. If it were purely a matter of individual interpretation and projection the same stimuli would suit all people because each individual could project whatever he chose to. Finally, the notion of empathy ignores the power that works of art have over the observer's feelings and the changes that can occur as a result of experiencing them. Different types of paintings are sought for the effects they produce in the observer. If an irritable or anxious person be calmed by Matisse's 'Tree near Trivaux Pond' (1916) (See Plate X) or a calm person made to grit his teeth at the sight of Max Ernst's 'The Beautiful Season' (1925) (Fig. 3-6) it cannot be his own feelings he is projecting in his initial reaction. Finally the theory of empathy does not differentiate between aesthetic perception and ordinary every-day perception of objects in which projection also occurs.

It is possible that the theory of empathy in all its forms (see Kainz 1962) has been overinterpreted and over-generalised. It is certainly interesting that Lipps who first used the theory of empathy to explain the effects of illusions also utilised the notion of the inner activity of lines comprising the illusion. Could this have been an anticipation of isomorphism?

(b) The Gestalt Theory of Intrinsic Expression.

Despite the fact that there has not been a major Gestalt

treatise on aesthetics, the gestalt theory of expression is likely to have a lasting influence on the psychology of art. The theory was formulated by Koffka (1935, pp.654-661) and Köhler (1949, pp.216-247), though Koffka (1940) and Arnheim (1954) specifically applied it to art. To say that the theory was applied to art is in a sense misleading. The essential tenet is that all objects have physiognomic qualities, as 'expression is the primary content of perception' (Arnheim 1954). All objects by virtue of their dynamic qualities express emotion intrinsically. Intrinsic expressiveness is a function of the isomorphism that exists between the structure of physical objects and the structure of our central nervous system. Expression is defined as 'the psychological counterpart of the dynamic processes which result in the organisation of perceptual stimuli' (Arnheim 1949). The dynamic qualities of objects are paralleled by the same dynamic qualities in the brain. It is the dynamic qualities of the stimulus that enables the direct perception of emotion. The artist makes use of the expressive qualities of curves and shapes and by representing any subject-matter through them, he achieves artistic expression. By utilising the 'dynamics of expansion, contraction, conflict and concordance, rising and falling, approach and withdrawal' he can turn concrete objects into 'symbols of the forces that shape human destiny' by representing them with these dynamic qualities (Arnheim 1954). Thus pure form cannot be without meaning because all shapes, colours etc. have intrinsic meaning as natural signs.¹ The meaning of these curves, shapes, masses, etc. are not as trivial as the meaning indicated by the adjective check-lists as they are used by Wexner (1954), and others. It is much deeper and more fundamental meaning for all man-kind. 'Art begins to make sense when it is conceived as the most radical attempt to understand the meaning of our existence through the shapes and colours and movements that the sense of

¹This view was also held by one of the pioneers of abstract painting, Wassily Kandinsky, (1866-1944). See *Additional References*, p.390.

sight grasps and interprets', (Arnheim 1966).

The theory has many advantages. It does attempt to explain the perception of emotion in art though the emphasis on the painting as natural sign precludes the possibility of any contribution on the part of the observer. Whereas empathy logically implies chaos and absence of communal meaning, the principle of isomorphism implies more universality and stimulus determination than actually exists in experience. The Gestaltists, because of their nativism and rejection of associationism, claimed like Gibson (1950, 1954) that all emotion in art was intrinsically expressed. One extreme position is counteracted by another. Despite this, the Gestalt approach can also be commended for its emphasis on the deeper meaning of art, which is all too rare in the psychology of art. Linked with this is the characteristically Gestaltist reluctance to shrink from the difficult question of 'value'. K hler (1938) developed the notion of 'requiredness' which was applied by Koffka (1940) as a 'criterion of quality' in art. Koffka claims that a great work of art is a perfect Gestalt, for nothing can be changed without altering its beauty. It is the fittingness of the dynamics of the depiction to the object depicted that determines quality in art.

This criterion is too general to be empirically useful, and would be very difficult to apply to complex works of art. It may have some relevance to Suprematist or Constructivist types of art, but the notion of fittingness of structure to object loses meaning as this type of art is free from content in semantic terms. Although the criterion has limited value, it is noteworthy as the only one in the psychology of art.

(c) Physiognomic Perception

Although not specifically within the framework of Gestalt theory there have been a number of experimental studies on

physiognomic perception investigating the effect of the dynamic qualities of stimuli on their perception. Werner (1956) contrasted the physiognomic mode of perception in which dynamic or expressive qualities are seen with the geometric-technic mode of perception in which objects are seen as sources of information. Physiognomic perception is intrinsic because it characterises the perception of children, primitive groups, and also because it is compelling. Working within the frame-work of sensory-tonic theory (Werner and Wapner 1952) a series of experiments was conducted. Thus figures with directional dynamics (drawings of birds, aeroplanes, balloons, arrows), systematically shifted the apparent median plane (direction of gaze), (Werner and Wapner 1954; Kaden, Werner and Wapner 1955). Similarly directional dynamics can be induced in a symmetrical stimulus by applying extraneous stimulation to one side of the observer (Wapner, Werner and Krus 1957), and the autokinetic motion of a spot of light in the dark can be influenced by the observer hearing sliding tones (Miller, Werner and Wapner 1958). Physiognomic perception is not stimulus bound as similar dynamic effects have been obtained with ambiguous stimuli which were labelled in different ways (Werner and Wapner 1954; Comalli, Werner and Wapner 1957), and also with words connoting dynamics (Kaden, Werner and Wapner 1955). Finally, Comalli (1960) has demonstrated an experiential factor in physiognomic perception. He found that the effects of dynamic qualities on perception were greater for artists than for scientists.

The chief value of these experiments is that they demonstrate that both the meaning and the configurational dynamics of a stimulus determine the way it is seen. The meaning of a stimulus, whether it was derived from its shape, or by suggestion, or by its conventional verbal meaning, influenced perception in systematic ways. It can therefore be seen that physiognomic here means something very different from Koffka's (1940) interpretation. Thus stimulus characteristics, semantic interpretation, and habitual

ways of seeing the world affect the influence of dynamic qualities on perception. As with many experiments of relevance to aesthetic perception it is difficult to generalise from effects obtained with diagrammatic stimuli to the perception of complex works of art. However these experiments throw doubt on the Gestalt contention, and also that of Gibson (1950, 1954) that physiognomic qualities are the product of sensory stimulation alone. Perhaps the conclusion should be that physiognomic qualities are derived from sensory stimulation, and influenced by attributed meaning. However, Gombrich would maintain that it is only through attributed meaning in a given context.

(d) Expression as a choice between alternatives.

Looking at the problem of expression through the history of art, Gombrich rejects the notion of intrinsic expressiveness. He rejects the notion that colour and shape are inherently charged with expressive meaning. He argues that expression functions within a range of possibilities. 'Where everything is possible and nothing unexpected communication must break down. It is because art operates with a structured style governed by technique and schemata of tradition that representation could become the instrument of expression', (Gombrich 1960). Thus it is when we know the convention that a deviation becomes meaningful. Gombrich builds on Kris' (1952) notion of self-expression as a series of decisions between alternatives. In response to works of art, a knowledge of the history of art, or familiarity with the relevant style creates a context of expectations against which new experiences can be evaluated (Gombrich 1962). The context of expectation created by awareness of style is analogous to Helson's notion of Adaptation-Level (1964). Gombrich does not completely reject the notion of physiognomic perception, but strives to differentiate it from aesthetic perception. It is not equivalent to the perception of children where everything has meaning, but it is the first step in an effort to make sense;

an act of categorisation, which is refined by subsequent observation and a frame-work of expectations. 'Without this frame-work against which to test and modify our first impressions we are left to the tender mercies of our first projections.' (Gombrich 1960). It is because the visual image is a symbolic system (rather than a representation of reality) that the observer is channelled into a correct reading of it by (a) a knowledge of the conventions of the style or period (the code); (b) the caption to the work; (c) its relation to other works of a similar nature based on prior expectations (the content). All three function to reduce ambiguity (Gombrich 1972d). We have seen in the discussion above that the perception of emotional expressiveness cannot be either projection only, or be intrinsic only. Although not a psychologist, Gombrich has provided the best description of the perception of expressive qualities in art. Intrinsic expression has a small but important role in eliciting a further look because of its immediacy, but this has to be distinguished from aesthetic expressiveness. This Gombrich sees as perception of the significance of the decisions that have been made within a known frame-work of possibilities. By this scheme the perception of expressive qualities in art is the end product of a kind of categorization process (Bruner 1957). In his earlier writings on expression Gombrich (1960, 1962, 1965, 1972b) did not explain how the meaning became attached to the visual images by the observer, though in a recent paper on the perception of physiognomic qualities in the face, Gombrich (1972a) supports an empathy interpretation in which traces of muscular reactions from our own experience are projected onto the perceived object. Gombrich admits this is not a total explanation but feels that it must be contributory.

IV What makes perception aesthetic?

(a) The aesthetic attitude

Before the publication of Bell's theory of significant form

(Bell 1914) aesthetic interest was in the art object and not in the experienced emotion. In modern aesthetics the notion of aesthetic experience as a self-rewarding activity prevails. There have been many philosophical attempts to define and describe the special frame of mind that is required in order to perceive objects aesthetically. The special frame of mind is usually referred to as the 'aesthetic attitude'. Hospers (1969) has distinguished three different types of aesthetic attitude. The first type sees aesthetic perception as non-practical. Perception is indulged in for its own sake and not for any practical reason. This is the view of Vernon Lee (1913), and is embodied in Puffer's (1905) notion of 'aesthetic repose'. The second type sees the aesthetic as the non-cognitive, i.e. the perceptual characteristics of an object are attended to, without any regard to information or knowledge. Thirdly, there is the view of the aesthetic as the non-personal; there should be no concern for the feelings of the observer or any other person. The differences between the three types are slight and in psychological terms it is difficult to distinguish different processes at work. Equally the diverse accounts of the aesthetic attitude as 'disinterested attention' (Kant 1790); 'The moment of mystical vision' (Berenson 1907); 'psychical distance' (Bullough 1912); 'aesthetic repose' (Puffer 1905); 'complete absorption', Munsterberg; 'the oceanic feeling' (Freud 1922); 'that which pleases apart from desire' (Kellog 1930); and 'disinterested attention' (Stolnitz 1960) seem to differ only in the catch-phrases used to characterise the process they regard as aesthetic. Fundamentally they are all talking about the same thing. The interpretation given by Mace (1972) is a good one. 'To adopt the aesthetic attitude is to effect, in proportion to our ability to do so, all those adaptations and pre-adjustments which facilitate the process of extracting satisfaction from the intrinsic character of the object of perception', (Mace 1972). In other words, practical interest and intellectual curiosity must be suspended.

The nature of the pre-adjustments etc. must be established by empirical research. Dickie (1964) in his evaluation of the notion of 'aesthetic attitude' in all its forms, concludes that the aesthetic attitude collapses into 'attending closely' which tells us nothing new, and certainly doesn't distinguish aesthetic from ordinary everyday perception. Dickie also rejects Bullough's notion of 'Psychical Distance' as nothing more than a function of focussed attention, and Stolnitz's 'disinterested attention' as a function of the observer's intention rather than his attention.

If there is any value in the notion of the aesthetic attitude it is that the observer's attention is stressed. It emphasises that the same object can be looked at in different ways, e.g. Lee's practical, theoretical and aesthetic modes (Lee 1913). Even if this were the case the aesthetic attitude leaves unexplained why looking at an object 'in and for itself' should arouse what is identifiable (at least introspectively) as aesthetic experience. If it is purely a question of the way an object is apprehended the aesthetic attitude doesn't help us to distinguish good aesthetic experiences from less good experiences. It leaves out of consideration differences in the objects that are apprehended aesthetically. In other words it neglects the correlation of the object with the experience. Aesthetic experience results from the interaction of object characteristics, person characteristics and processes in the person resulting from the other two. The notion of aesthetic attitude is an abstraction which is too general to apply to concrete cases. In psychology, attention is a better defined, systematically researched construct. It is necessary to investigate the suggestion, arising out of the notion of aesthetic attitude, that aesthetic experience involves, if not a unique kind of attention, at least a different kind from ordinary perception. It would be premature to characterise it, but the following can be said:

- (a) it is more intense than everyday attention;
 - (b) it can involve a loss of self-awareness (i.e. it is self-transcendent);
- and (c) it is apparently experienced in relation to works of art.

These could all be operationally defined and tested. The suggestion that aesthetic experience is most commonly (or only?) experienced in response to works of art, raises the possibility akin to that suggested by Schacter (1964) a generalised physiological state of emotional arousal is interpreted by means of cognitive cues arising from the situation which appears to be causing the physiological state. By this view the experience of the physiological state is regarded as aesthetic because of the presence of art objects, and might be called mystic if the observer happened to be sitting on top of a mountain (cf. James 1901-2). This possibility has certainly not been discounted in the psychology of art, and should be empirically tested.

I have already referred to the Gestalt theory in which a work of art is made with the idea of being a good Gestalt (Koffka 1940). This is seen by the Gestalt psychologists as a symptom of the organisms urge to create the maximum order that limited conditions will permit. As a work of art it serves as a source of stimulation specifically selected for its effect. Birkhoff's notion of maximum aesthetic effect from the highest ratio of order to complexity is a similar notion of aesthetic perception as facilitated perception (Birkhoff 1933). Similar views have been put forward by Chandler (1934); Platt (1961); Valentine (1962); Berlyne (1971) and the information-theoretic school, though for widely differing reasons. This contrasts sharply with the view expressed by Bruner (1962) that aesthetic perception involves 'effort' because it is a departure from 'literal and habitual ways of perceiving'. Bruner shares with Koestler (1964) the view that 'metaphor' is an essential part of aesthetic experience.

Where Koestler talks of bisociating ideas and artistic medium, Bruner talks of metaphoric activity, though in essence they are saying the same thing. Metaphors join dissimilar experiences by finding the symbol or the image that unites them at some deeper emotional level of meaning. In art there is both metaphor and economy. Arnheim's notion of the fittingness of image to object is very close to Bruner's interpretation, especially if we disregard the insistence on the good Gestalt as a criterion of the aesthetic. In place of a criterion of aesthetic affectiveness Bruner argues that there is a 'shock of recognition of the fittingness of an object to fill a gap in our experience'. This is equivalent to Wittgenstein's notion that a painting 'clicks' or doesn't 'click' as an aesthetic object, as the case may be.¹ Discursive logic does not permit us to say anything more. Because of the non-discursive, non-rational nature of metaphor it is unlikely that psychologists can explain the essential features of aesthetic experience. This view is held by Bruner (1962), and by Gombrich (1960, 1965), both of whom are very ready to accept the contribution of psychology to the non-essential aspects of aesthetic experience. There would be no need for visual metaphor if its meaning could be translated exactly into words. I have already argued that it is easy to destroy the essence of what is being studied through inappropriate methods, or to alter significantly what is being studied, without being aware of this happening.

In this discussion I have discussed great art, and its meaning and significance in terms of the universals of human existence. At this level psychology as empirical science has been ^{6/4/66} behind. But all art is not great art, nor is all great art perceived with full-blown aesthetic experience. Paintings can

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In Barret (1966)

be looked at and appreciated for a great variety of reasons, and at differing levels of attention, interpretation, etc. Representational paintings may be enjoyed because the depicted content is pleasing to the observer. Alternatively, it may be enjoyed because it invites the observer to apply concepts which are subtle or profound. The study of differences in perceptual behaviour of this kind belong to the domain of psychology whereas the operational specification of the metaphoric language of great art is not.

CHAPTER TENConcluding Remarks and Summary

The overall contribution of the psychology of art to our understanding of behaviour and experience in relation to art is disappointingly small. In earlier chapters the advantages and the disadvantages of particular approaches to the subject were assessed. Perhaps the most outstanding feature of the various approaches is that each one tends to concentrate on one aspect of the problem to the exclusion of other aspects. Psychoanalysis has tended to be speculative and has concentrated on the content or subject-matter of art. By contrast, Gestalt psychology, also speculative, has concentrated on the characteristics of form perception and the various branches of experimental psychology have concentrated on measurable properties, either in the stimulus (e.g. information theory) or in the person (most experimental studies). It was argued that the best solution is to combine the assumptions, techniques and methods of all the approaches within a single flexible empirical framework rather than to elevate one particular approach as the correct model of research^{and} explanation in the psychology of art.

In particular, the following points were made:

- (a) The psychology of art should be brought within the mainstream of 'respectable' psychological research and teaching. This probably necessitates a change of heart in psychology as a whole. There are signs that this change is already coming about.
- (b) The best approach for the psychology of art is a neutral, open-minded, multi-disciplinary, attack on real problems of experience and behaviour in relation to works of art.
- (c) All sources of information and ideas are admissible so long as they lead to some form of empirical check, test or confirmation.
- (d) To this end a model of man closer to that of the man-in-the-

street should be adopted.

(e) The field of enquiry should be structured by a hierarchy of general and subsidiary questions, rather than the formulation of ad hoc hypotheses and isolated theories.

(f) Accurate, comprehensive description must precede explanatory endeavour. Lower forms of explanation and theory are primary aims, since it is argued that low-level explanation is better than no explanation, or higher level (e.g. causal) explanations which are at the same time irrelevant. It is likely that, for any given problem, several types of explanation will provide the greatest insight and understanding.

(g) All types of measurement are admissible (including that derived from introspection), provided that naturalism and ecological validity are preserved. As a general rule, the use of molecular stimuli is discouraged, as well as objective stimulus specification which derives from their use. Phenomenal specification is preferred as a stimulus measure.

(h) The dispute concerning the aesthetic criterion as agreement with group consensus or expert opinion is considered irrelevant. They are both important as descriptive measures.

(i) Research studies should be conducted with real paintings rather than substitutes, and preferably in natural surroundings. Reproductions can be studied either in their own right, or where it has been proven that responses to them are acceptable equivalents to responses to the original works of art.

(j) There is a serious need for the standardisation of a battery of stimuli (representative of all types of art and aesthetic stimuli) which can be drawn on, in whole or in part. In this way comparison between studies would be facilitated, particularly if standard procedures are followed. Perhaps then, it will be possible to work towards progression and development in the field.

(k) There has been too much emphasis on the study of readily available parameters (sex, age, I.Q., personality) and a general neglect of more amorphous concepts such as a person's assumptions,

expectations, opinions and the true nature of aesthetic experience. As these are more likely to determine an individual's relationship to art (or even whether or not he has one) the implicit aesthetic theory was proposed as a frame-work to provide a basis for an integrated approach to the psychology of art. It was argued that a prime concern of the field was the study of inner determinants and that all the 'factual' findings of experimental and correlational studies can only be meaningful in the context of an individual's implicit theory, or a culture's prevailing aesthetic theory.

In the remaining chapters four main areas in the psychology of art were discussed:

(i) Attempts to reveal the underlying structure of aesthetic experience have resulted in a large number of diverse types, factors, dimensions and categories. Amongst the varied approaches, it was argued that multidimensional scaling of similarity judgements is an effective, if crude and tentative, means of characterising which aspects of a painting an individual is responsive to. Post hoc verbal classifications were also considered acceptable, particularly if the categories found were subsequently evaluated empirically within the context of individuals' implicit aesthetic theories. Concentration in the past on molecular stimuli has led to a pre-occupation with complexity as an aesthetic factor, with a corresponding general neglect of semantic and meaning factors. Studies which utilised molar stimuli have repeatedly revealed a spontaneity-deliberateness dimension, though this is a small return on the considerable outlay in time and research effort. Very few studies have attempted to assess the validity, psychological meaningfulness, or utility of the revealed structure. This should be the primary aim, rather than the search for structure as an end in itself.

(ii) The achievements of nearly a hundred years of research on the determinants and correlates of aesthetic reactions is distressingly small. The traditional psychological variables have been studied ad nauseam, and features such as artistic form and awareness of style have been almost entirely neglected. The psychology of art should primarily be an applied field of psychology, rather than a branch of psychology in which aesthetic as opposed to other kinds of stimuli are employed. There has been too much emphasis on single variables in isolation from others. The presence of other variables is normal in aesthetic perception and may significantly change the meaning of the same variable when studied in isolation. There has also been a strange reluctance to directly study the aesthetic experience and behaviour of artists and other art experts. Instead they are compared with non-artists as part of a bi-valent independent variable or used as the basis of a criterion of aesthetic quality. Artists and other connoisseurs should be studied in their own right.

(iii) The numerous studies of the aesthetic development of children have also been disappointing. There is evidence from studies of child-art that children's reactions to art may be much more complex and subtle than most studies have revealed them to be. Attempts to teach aesthetic appreciation were discussed and some suggestions about the use of perceptual training were made. It was also argued that teaching sensitivity to style, and the perceptual differentiation that this entails, could facilitate the acquisition of aesthetic appreciation.

(iv) The study of meaning in art divides naturally into the process by which objects are seen in pictures, and the process by which meaning or expressive qualities are perceived pictures. Studies of pictorial perception have tended to concentrate on the study of perspective, though eye-fixation and information-processing studies have provided valuable information on the

perception of pictures. There have been a large number of studies, many of which are methodologically weak, which suggests that pictorial elements such as lines, colours and shapes, do have some level of measurable meaning. There is no clear-cut evidence to decide between the theory of empathy or the theory of intrinsic expression, nor is there any real evidence of a unique aesthetic emotion. The study of meaning in art is held to be critical to the psychology of art.

The psychology of art has a great deal to contribute to our understanding of art. By concentrating on both experience and behaviour in relation to art it can function as an essential adjunct to the other major approaches to the study of art. In addition, as an applied field of psychology its weaknesses are largely those of psychology in general. The psychologist's study of art cannot be considered a priority for research because there are more pressing human problems, (mental illness, crime, marital relations, alcoholism, etc.) On the other hand, if an appropriate psychology does not study man in relation to art, an essential feature of man will be ignored.

* * *

Appendix A

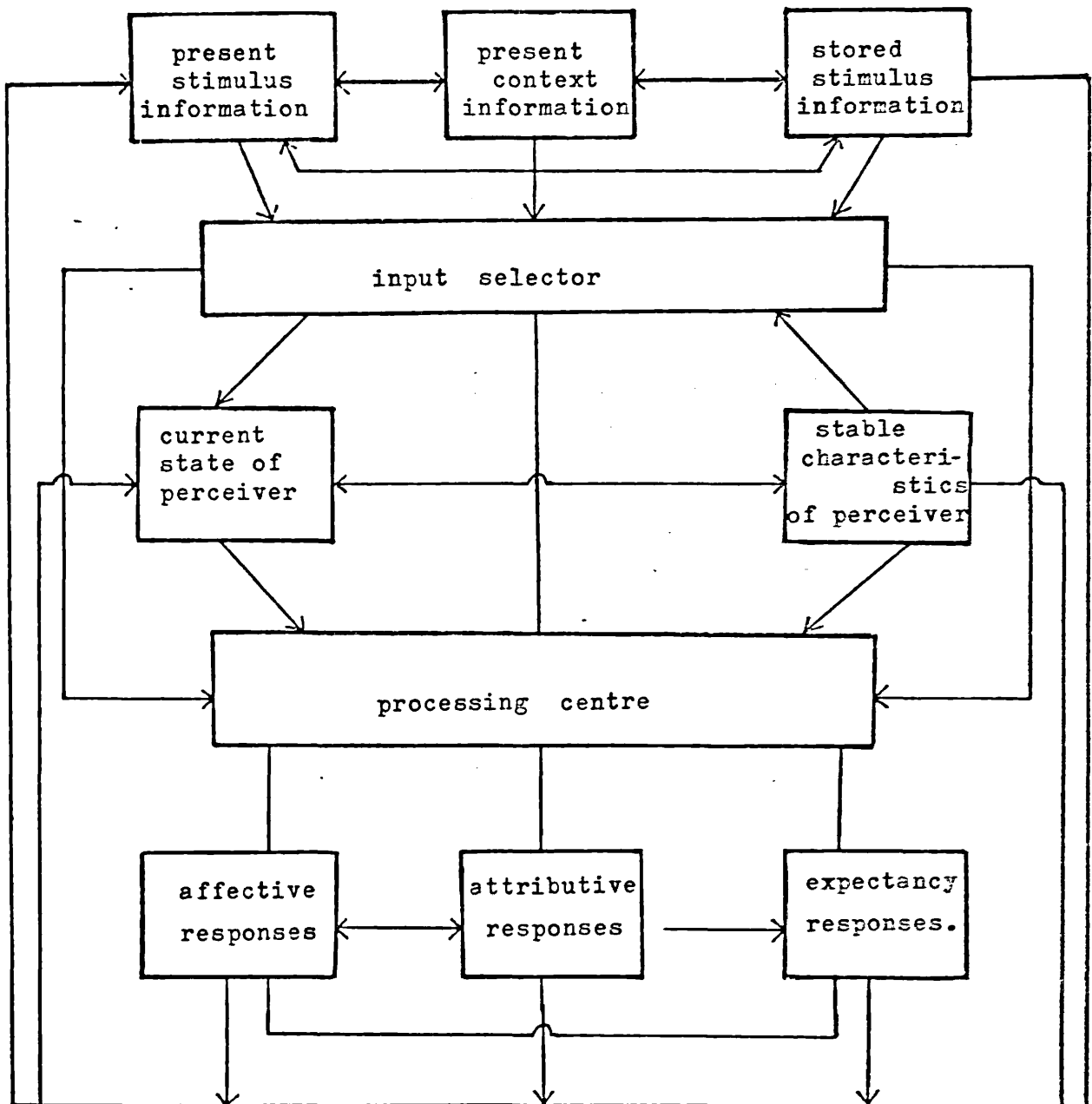
The proportion of papers devoted to aesthetics out of the total number of papers abstracted each year in Psychological Abstracts, 1927-1972.

* * *

Year	Papers Abstracted	Papers on Aesthetics	Percent of Papers on Aesthetics	Critical Works and Books
1927	2730	18	.66%	
1928	3758	42	1.17	
1929	5016	60	1.2	
1930	5139	38	.74	
1931	5066	32	.63	
1932	5088	36	.71	
1933	6129	35	.57	Birkhoff: Aesthetic Measure Burt: The Psychology of Art
1934	6184	42	.75	Chandler: Beauty and Human Nature
1935	6056	35	.58	
1936	6062	28	.46	
1937	6063	33	.54	
1938	6693	48	.72	
1939	6557	35	.53	
1940	6275	42	.67	Koffka: Problems in the Psychology of Art
1941	5452	59	1.10	
1942	5066	40	.78	
1943	4323	20	.46	
1944	3926	21	.53	
1945	3539	21	.59	
1946	4936	28	.57	
1947	4468	25	.56	
1948	5612	53	.94	
1949	6530	69	1.22	
1950	6563	72	1.10	
1951	8319	102	1.20	
1952	7289	91	1.24	
1953	8087	86	1.06	
1954	9117	122	1.34	Arnheim: Art and Visual Perception
1955	9100	84	.92	
1956	8529	94	1.10	
1957	9059	91	1.00	Eysenck: The Psychology of Aesthetics
1958	6097	56	.92	
1959	11239	79	.70	
1960	8521	48	.56	
1961	7353	40	.54	Pratt: Aesthetics (Ann.Rev.Psychol.)
1962	8500	48	.56	Valentine: Experimental Psychology

(continued..)

Year	Papers Abstracted	Papers on Aesthetics	Percent of Papers on Aesthetics	Critical Works and Books
1963	8381	43	.51	
1964	10500	26	.24	
1965	10191	55	.34	First International Colloquium on Experimental Aesthetics, Paris
1966	13622	89	.65	
1967	17202	150	.87	Arnheim: Towards a Psychology of Art
1968	19526	175	.89	
1969	18608	175	.94	Child: Aesthetics (in Handbook of Social Psychology)
1970	21700	247	1.14	
1971	22300	209	.94	Berlyne: Aesthetics and Psychology
1972				Pickford: Psychology and Visual Aesthetics Child: Esthetics/ (Ann.Rev.Psychol.)

APPENDIX BWarr and Knapper's Model of Person Perception.

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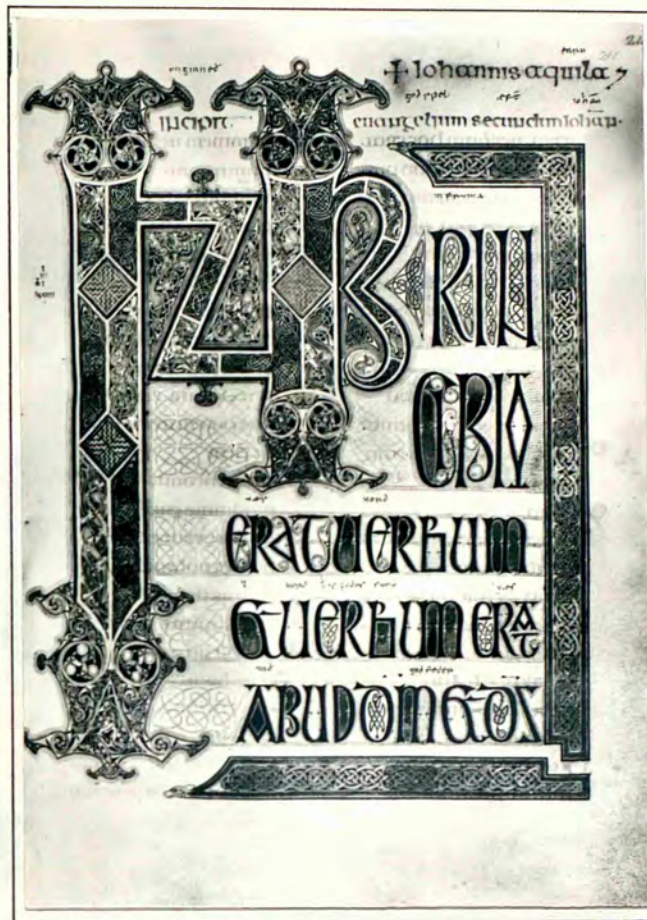


Plate I. The Lindisfarne Gospels. The beginning of St. Mathew's Gospel. Northumbria, ca. 698. British Museum.



Plate II. Le Nain (1593-1648) Adoration of the Shepherds. London: National Gallery.



Plates III & IV. Two reproductions of Leonardo Da Vinci's Cartoon: The Virgin and Child with SS. Anne and John the Baptist. London: National Gallery.



Plate VI. Le Nain (1593-1648) A Woman and Five Children.
London: National Gallery.

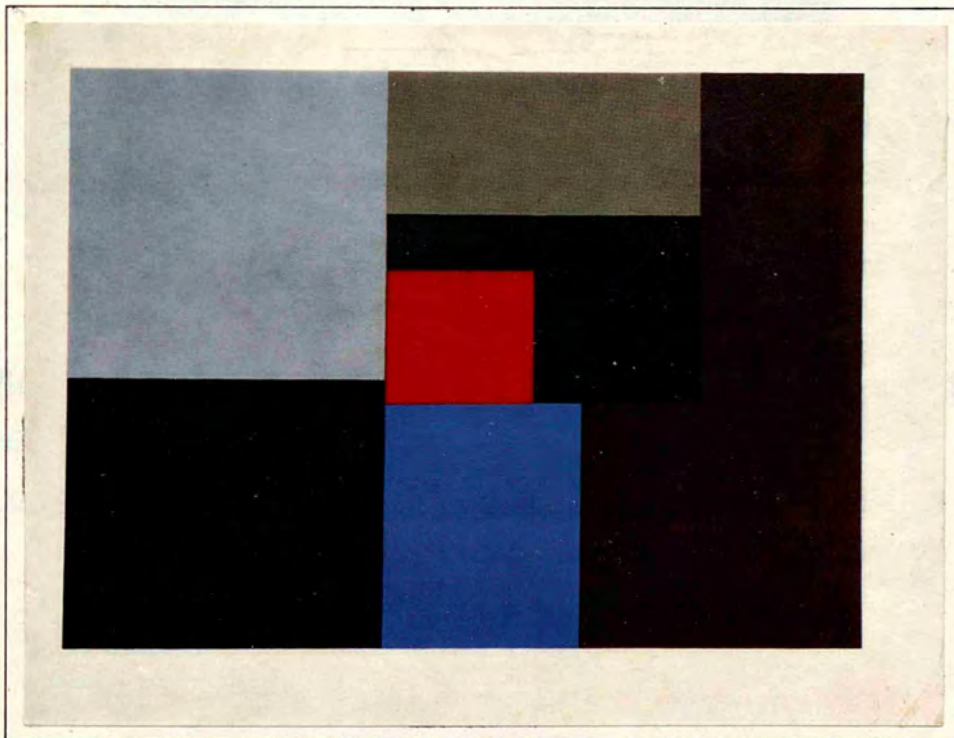


Plate V . Nicholson (b.1894) Gouache 1936.
London: Victoria and Albert Museum.



Plate VII. Ardabil Carpet (detail). Persian; dated
946 A.H. (1539/40 A.D.)
London: Victoria and Albert Museum.

Plate VIII.
Constable (1776-1836)
The Valley Farm.
London: Tate
Gallery.



Plate IX.
Gainsborough
(1727-1788).
The Market Cart.
London:
Tate Gallery.



Plate X. Matisse (1869-1954) Tree near Trivaux
Pond. London: Tate Gallery.