

QUANTITIES AND QUALITIES

Arts and manufactures 1830-1930: a study of
the philosophy and ideology of design reform.

by

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Thesis submitted for the degree of Ph.D. to
The Royal College of Art May 1984.

ACKNOWLEDGMENTS

Everything comes out of something and out of nothing, nothing. If there is worth in what follows it comes from an engagement with certain questions, that I have shared with many others.

I owe much to colleagues and students, and to name Patrick Eyres and Raymond Buck does not exclude the rest: good colleagues are essential in times when substantial teaching and learning must often proceed in spite of Education.

I owe a specific debt to Gillian Naylor, for encouragement, admonishment and for permission to quote from an unpublished Ms. in Chapter Seven: and to Professor Christopher Frayling for particular conversations on 'craft' and 'skill'. In general terms I owe more than I can say to the Royal College of Art, its staff, its library, its students.

At a later date, the advice of Professor Kenneth Frampton enabled me to enlarge and develop the whole work.

Another specific acknowledgment for permission to quote and for many conversations. I will also mention Peter Nokes, Francis Valentine and friends in Hungary: but all of these are the debts of friendship.

Every point I have discussed with my wife Barbara Freeman, without whom.....

And those I have mentioned and those I have not bear no responsibility for errors or excesses committed below.

Introduction.

The best way to introduce this thesis is to begin with a short account of its genesis.

"Why have the English no national costume?" I was asked that question in a Balkan village, in a region where every village has a distinctive pattern and its own distinct song and dance. It occurred to me then that the English were the only people in Europe without even the notion of a national dress, and that the uniformalising of costume (and other arts) was a phenomenon that deserved to be studied. At the time I gave no adequate answer to the question; but this study here attempts to prepare the ground for such an answer, as part of its general plan. The twin concepts of hegemony and cultural autonomy are employed here with that as one of the questions in mind.

A second source arises in teaching, where one is concerned with the interaction of ideas and practices, rather than in their separation. I was concerned to develop an approach to the history of art and design that was neither a history of styles or movements, nor a history of applied technology. For this it seemed necessary to have an inclusive general theory of the material culture, and to treat what is normally called design in terms of material production as a whole, and as part of intellectual production through the embodiment of ideas and beliefs. That is to say, design history (and thereby the history of all material production) could and should be considered as embodied philosophy and expressed ideology.

The inclusive general theory that seemed (and still seems) necessary remains elusive,

but in what follows I have drawn usefully upon the writings of George Kubler and Bernard Smith in order to attempt what Smith describes as 'a balanced and adequate account of art and the industrial society.' Smith, following some ideas of Kubler, proposes a tri-partite description of production, through art, craft and industrial 'systems'. Each of these systems of production are logically differentiated by means of the differing role and status of prototypes and models within the production process; industry, for example, being treated as a system for identical replication of a changing sequence of prototypes. They are historically and sociologically distinguished by the social formations and institutions that have developed in and around them. When, in the succeeding pages, reference is made to art, craft or industrial systems, it is this Smith model that is being employed, as modified by myself in the course of teaching. No attempt, however, is made in the body of the text to develop this idea, and it is treated simply as heuristic. A more detailed discussion is presented in Appendix One, where it is suggested that an important strength of the model is, that it is not reductive; any object of study in its field will always be found to be subject to two 'axes of determination'.

Expressed in the simplest terms, the relations between art, craft and industry in the period under discussion (1830-1930) are those of three in a bed - one is always falling out. The question of design reform very largely turned upon the question -which of the three? Thus we witness attempts to twin arts with manufactures, arts with crafts, and crafts with industry: each of these three possible combinations of two represents a particular ideological moment, requiring particular conditions and embodying some philosophical scheme of ideas or metaphor. Such is the theme of this study.

Such an approach was not and is not intended as a supersession of style-history or of technological study of design. A profound and informed connoisseurship - even a connoisseurship of the trivial - is a necessary precondition of any art and design history, since it initially establishes the domain of interest: pressed further into the field of morphology and shape-grammars, the study of style and the evolution of styles is one of the essential axes of that general history of things, proposed by Kubler. The case is the same with the history of the applications of technology; it is necessary. But neither is sufficient, since the first is essentially descriptive and cannot explain without adducing concepts foreign to itself, or immanentist doctrines such as 'will-to-form'; while the second rapidly becomes a form of restrictive determinism.

Through this study I would hope to show that design history can be formed in such a way that it delivers meanings: it must therefore begin with meanings. Thus an attention to theory - to what men believed themselves to be doing, to the words they used to describe what they thought they were doing, the historiography of those ideas and their critical reception must form a central theme in an explaining and interpretive design history. Such an approach is doubly justified when we consider the reality of 'design reform'. The movements for design reform, of whatever kind, had (and have) only an oblique effect on the mass of things made. The dominant popular-commercial taste of the Euro-American world (now greatly expanded) remains very much what it was in the 1850's over a vast range of products. Though many exceptions may be found - most clearly in architecture or in new classes of objects, - there is no firm connexion between mass commodity production and those movements. But it is not sufficient to consider design reform under such a heading as 'taste formation'. The aim here is to demonstrate its ideological function and to examine its philosophical foundations : and this is appropriate to its historical reality.

In writing of a history that delivers meanings a semiological analysis is not implied. The view taken here is that concepts devised for the study of words are uncertain instruments when applied to the study of things - made, sold and owned and used things. When well embarked on this study I encountered a valuable article by P.G. Dickens. ('Social Science and Design Theory' in Environment and Planning B, Vol.7. pp. 353-360 1980.) He writes "How then might a new social theory of design be defined. A reconstructed starting point for design theory.....is the interaction between production and ideology. Such a specification allows one to integrate on the one hand examination of the process of commodity production (of which the design process forms a part) with an examination of largely shared systems of general beliefs which are partly created and sustained by design."

A similar project underpins this study, but one in which 'general beliefs' are tied to specific and quite technical philosophical (rather than ideological) considerations. Such an approach is, of course, more frequently met with in the history of art. Specificity of belief is stressed, and the continuity (or relative autonomy) of certain mental formations; it is the interaction between idea and production, as exemplifying ideology, that is the subject of this study. For this reason, the process of production itself is not considered in any depth, as such, and the stress is laid upon the systems of belief (general or specific) that informed the movements for design reform. The ideological function of those movements (which are characterised as a 'normative tradition') was to render the culture of the industrial system invulnerable: but in such a task a counter or 'critical tradition' was evoked with which normative concepts and practices were compelled to engage, synthesize and separate again. The 'critical tradition' was itself complexly embedded in the same overall ideological function.(In Britain, for

example, the ruralising tendency of critical ideas provided the forms and styles by which new industrialists were incorporated into an existing élite: in such conditions normative ideas might take an oppositional form.)

In no sense does this little work achieve that integration Dickens proposes, but I hope it pushes forward the philosophical aspect and helps to provide useful insights into the nature of design reform.

An outline runs as follows. The genesis of the normative tradition is ascribed to key passages in the Journal of Design and Manufactures, and to a summary of its ideals by the Prince Consort. Ideas of systematization and standardisation are discussed, and the use of the 'biotechnical analogy', by which the life sciences provided standards of action for designers. This follows material that will be familiar to informed readers. This first chapter is followed by an examination of the role of printed imagery in the refashioning of information in the years immediately preceding the Great Exhibition.

In the third chapter the 'critical' reaction is described. Though typically this concerns an 'arts and crafts' approach rather than the 'art and industry' approach of the normative reformers, yet the basic typology of critical theory extends beyond that historical example: it is aligned with the attempts to sustain cultural autonomy in the teeth of the industrial system and its hegemonic tendency.....

The overt aim of the normative has been defined as 'realised unity'. Such universalism must be transhistorical and transcultural: the fourth chapter discusses the pre-history of modernism, sometimes through material not widely available.

In the fifth chapter the idea of a universal 'language' is seen as attaining a form of realisation in 'De Stijl' and Purism, which are treated as culminations of the academic traditions as transformed by industrialisation and design reform. Yet universalism can exist only as metaphor; once realised, it becomes conditional. Hence De Stijl and related movements provide a form language (though not the symbolic content) for the internationalisation of design and the completion of the cultural hegemony of the industrial system. The main form and epistemological character of international style is described in the sixth chapter. Finally, the continuing problem of autonomy in the industrial system is considered in the light of contemporary experience, and as the reiteration of problems first encountered and stated in the 1830's.

The method followed is that of quotation and exegesis, except in Chapter Two, where some attempt is made at quantitative methods.

The guiding concepts should now be clear; they are the dualistic pairs of hegemony/autonomy, and normative/critical.

Design history is, on the whole, conceptually underdeveloped: because I have here been concerned with the interaction of art, craft and industry I have had to employ a sort of meta-theoretical position, as suggested by Kubler and Smith. I hope that the elusive and allusive character of the guiding concepts is offset by a convincing usefulness in further discourse: though a logical scheme, like any other, is subject to limits not always apparent. Yet abstract and logical schemes have a necessary function and purpose which is to bring certain objects of study into logical visibility, and to provide a

plausible account of them : but these objects of study, being embedded in a scheme, are not the ground of the study. That is provided by objects in themselves (artefacts, processes, events); these we may approach, but cannot understand, through ^oconnaisseurship or empirical research.

The concepts of hegemony and autonomy clearly derive from Gramsci's writings, but are not pursued in any systematic way that will be pleasing to the orthodox. This derives partly from a conviction that it is the industrial system itself and not its overt control or ownership, that is the source of its hegemonic force. The epistemology of industrialisation and the managerial concept of human affairs that goes with it have their own form of 'relative autonomy' , and to industrialise means to take part in the intellectual formations that make it possible. Whether or not this remains true in our late and conceivably post-industrial world is only touched upon in the last chapter.

The application of 'normative' and 'critical' to strands of design theory came to me in the course of writing after hearing the inaugural lecture of the new Rector of the Royal College of Art, Lionel March, and observing the reaction of students and his colleagues. The original charter of the College was designed to promote the marriage of arts and manufactures that Joshua Reynolds had assumed as a matter 'of course', yet once again, after 150 years, the same problematic had raised its head again.

From long involvement in the teaching of art and design I have come to see that questions of the sort I raise here, imperfectly, must be addressed before such teaching can regain a clear theoretical basis; without a clear theoretical basis no order of priorities can be constructed, and without such an order, substantial teaching and learning must be at the

mercy of the crass instrumentalism of 'educational management'. This problem has never seemed more urgent than it does now, at the time of writing.

In an introduction one should also state what one is not doing. I made my decision at the outset to use British examples wherever possible, and within those limits, English. The rationale for this was twofold: firstly, the experience of early industrialisation was undergone most completely and earliest in this country, and this engendered a body of still rich and vital thought that still requires further exegesis. I wanted to bring the writings of Andrew Ure and Charles Babbage into the discourse of design history (and the illuminating material concerning George Field, D.R.Hay and the 'scientific aesthetics' of the day). And by doing so, as a secondary aim, to fulfil something of an aim I had set myself before: "Criticism is weakened and dehumanised by denying nationality.....we need a form of cultural geography which might bring to art discourse some of the respect for local and particular realities which inform much of the best recent historical study.....We need to replace the epidemic theory of cultural development with a logical one. Linear accounts of artistic development based around notions of influence, connexion and precedent are only part of the story, and exclude local structures (which may be much more ancient) through which influences pass.....Each of these may receive the same ideas but realise them plastically in a characteristic mode." (D.B. in 'Artscribe' 15. 1978).

As a corollary to this I have had to exclude for reasons of time and space much interesting and relevant material: most notably I have made no attempt to include American examples, of which an annexe built to house F.L.Wright would have given the whole a more palatial aspect. Nor have I devoted much space to French material; and I am firmly convinced that an extended treatment of the notion of cultural autonomy with respect to Eastern and Central Europe would have yielded many insights.

A good deal of the original research was done in the ruck of day-to-day teaching, and has not found its way into the bibliographies. In these and other instances I have had to exercise a self-denying ordinance in order to finish, in the time at my disposal, a project that seemed to become ever more ambitious as I committed myself to its completion. The view that the reader takes of what follows will reflect his or her own sense of intellectual propriety; for my part I believe there to be a place for the fragmentary and the allusive - if only to stir up the pedants.

If this is a fruitful study it will suggest lines of enquiry that others may wish to pursue, but three at least have particularly engaged my interest though I have not had time or space to expound them. The first is the nature of modernism (and consequently, post-modernism). The whole tendency of this study is to dissolve the notion. The second is the part played by occult or hermetist doctrines in relation to academicism and how they relate to the creation of new styles (At present I am writing a short study of George Field and his 'analogical philosophy' in relation to Turner.) Thirdly, is the nature of what I call the 'vernacular of dissent', and the theological foundations of an-iconism in the craft traditions.(This I hope to make the subject of a doctoral thesis).

At those points, and at others, I felt that the main themes and concepts with which I was working were radiating outward, generating new thought: that gave me courage to continue. A degree of reckless determination is required in persisting in such an enterprise.

I would like to conclude this introduction with a quotation.

"The reader of these pages should not look for detailed documentation of every word. In treating of the general problems of culture one is constantly obliged to undertake predatory incursions into provinces not sufficiently explored by the raider himself. To fill in all the gaps in my knowledge beforehand was out of the question for me. I had to write now or not at all. And I wanted to write."

J.Huizinga foreword to 'Homo Ludens'.

A Second Introduction

The following pages developed out of an earlier thesis, the introduction to which I have retained because it still stands. In the second version I have very greatly expanded some sections, most notably those dealing with Gothic Revival, and with Purism. In doing so, I have followed suggestions made by Professor Frampton, though not, it may be, in ways that he imagined when making them. This led to a further development on the theme of the construction or invention of traditions, and to a much extended final chapter.

I have also written a short bibliographical appendix on George Field and David Hay which seems to be the only one of its kind; there was much more work here that I wanted to do, but could not without an excess of digression.

The study of the theological foundations of certain features of design history, also mentioned on page ix have developed into several chapters. It has been one feature of the writing of this thesis, that it has attracted material to it in the fashion of a magnet, causing sudden realignments.

I have also become aware of many other omissions, large and small: there is one X which is well worth drawing attention to. That is the paralell dispute on the relations between art and industry that used ethnological evidence: until the discovery of cave paintings it was normal to assume that art was a late development, but the discovery and (still more important) the enthusiasm for neo- and palaeolithic art put paid to that notion. Artistic volition could now be seen as prior to technical ability.

The connection of this dispute to the actual business of designing is to say the least, oblique; but it is very definitely an issue affecting the later reception of Semper's ideas; and it is also a factor behind the Purist deprecation of the designer's function. An important essay on this has recently been republished, in which Joseph Rykwert examines the reputation of Semper. ('Semper and the Conception of Style' in The Necessity of Artifice London (1982)).

Two other bodies of material might have been added in support of the main theses of this work; the dispute between 'conventional' and 'natural' drawing for ornament and surface pattern, as typified in the opposition between Owen Jones and John Ruskin; and some discussion of the 'abstraction and empathy' problem defined by Worringer. I chose not to introduce this material, because I felt the work was already sufficiently dense, and my interpretation of the material redundant.

In writing this thesis, both in its first and in its second states, I often had the sense of walking to the end of a plank, only to find that the plank had extended itself, deferring execution. Now once again I have the sense of standing on the edge of things.

Belfast

March 1984

Chapter One

e.g. James R.R. Albert, Prince Consort London 1983 p.194-200.

In the first week of October 1849, the Prince Consort addressed the Lord Mayor's Banquet, and the following passage was recorded by the Illustrated London News on October 11th. Recent studies have made it clear that Albert was his own scriptwriter, and the moving force behind the international ambition of The Great Exhibition.

"I conceive it to be the duty of every educated person closely to study and watch the time in which he lives; and as far as in him lies, to add his mite of individual exertion to further the accomplishment of what he believes Providence to have ordained. Nobody, however, who has paid any attention to the particular features of our present era will doubt for a moment that we are living at a period of the most wonderful transition which tends rapidly to the accomplishment of that great end to which, indeed, all history points - the realisation of the unity of mankind. Not a unity which breaks down the limits, and levels the peculiar characteristics of the different nations of the earth but rather a unity, the result and product of those very national varieties and antagonistic qualities. The distances which separated the the different nations and parts of the globe are gradually vanishing before the achievements of modern invention, and we can traverse them with incredible ease; the languages of all nations are known and the acquirements placed within the reach of everybody; thought is communicated with the rapidity and even by the power of lightning. On the other hand, the great principle of the division of labour, which may be called the moving power of civilisation, is being extended to all branches of science, industry and art. Whilst formerly the greatest mental energies strove at universal knowledge, and that knowledge was confined to a few, now they are directed to specialities, and in these again, even to the minutest points; but the knowledge acquired becomes at once the property of the community at large. Whilst formerly discovery was wrapt in secrecy, the publicity of the present day causes, that no sooner is a discovery or an invention made, than it is already improved upon and surpassed by competing efforts: the products of all quarters of the globe are placed at our disposal, and we have only to choose what is the best and cheapest for our purposes, and the powers of production are intrusted to the stimulus of competition and capital.

So man is approaching a more complete fulfilment of that great and sacred mission which he has to perform in this world. His reason being created after the image of God, he has to use it to discover the laws by which the Almighty governs His creation, and, by making these laws his standard of action, to conquer nature to his use - himself a divine instrument. Science discovers these laws of power motion, and transformation; industry applies them to raw matter which the earth yields us in abundance; but which becomes valuable only by knowledge; art teaches us the immutable laws of beauty and symmetry, and gives our productions forms in accordance with them. Gentlemen, the Exhibition of 1851 is to give us a true test and a living picture of the point of development at which the whole of mankind have arrived in this great task, and a new starting point from which all nations will be able to direct their further exertions."

* * * *

Wittgenstein (1980).p.78e.

We would do well to read this passage carefully: together with the article from The Economist which is given in full at the start of the next chapter: together they form the sketch map of the ideological panorama that we must traverse in this study. "The relations between these concepts form a landscape which language presents us with in countless fragments: piecing them together is too hard for me. I can only make a very imperfect job of it." Here we shall set the realisation of the unity of mankind in tension, not agreement, with the "peculiar characteristics...varieties and antagonistic qualities" - the hegemonic force of industry on the one hand, and cultural autonomy on the other. We will ask if Albert's resolution of this tension is sustainable, by posing the question - can an irresolvable dilemma form the basis of a policy.

See Chapter Seven

G.W.F.Hegel, Lectures on the Philosophy of World History. trans. Nisbet. Cambridge U.P. 1975. p.64.

Albert also uses a phraseology derived from Kant's "universal history" and from Hegel's philosophy of history, in which realized unity is the completion of the historical process. "The aim of world history is that the spirit should attain knowledge of its own true nature, that it should objectify this knowledge and transform it into a real world, and give itself an objective existence." The engine of this transformation is to be the triad of science, industry and art, each united to the other through value-creating laws, which are 'standards of action'; power, motion and transformation, beauty and symmetry are laws of equal nature and status.

The imperialist assumptions are obvious enough to need no comment; what concerns us is that here those assumptions are compacted with a theory of knowledge, knowledge creation, and knowledge diffusion.

Sir Joshua Reynolds Discourses
(1905 ed. ed. Fry) p.7.

The vision is also futurist - that is to say it locates the source of value and the validation of practice in the future, in that 'great end'. Yet the ruling practice of the design of the times was historicist, relating to what had been, to what was established in precedent and made available in pattern-books. Reynold's First Discourse speaks plainly of the 'accumulated experience of past ages' and though the Discourses are on painting and sculpture (those 'higher arts of design'), it is clear that these general principles were applicable in his mind, and in the mind of his followers, to the wider question of 'manufactures'.

ibid.p.5.

"An institution like this (The Royal Academy) has often been recommended upon considerations merely mercantile; but an Academy founded upon such principles can never effect even its narrow purpose. If it has an origin no higher, no taste can ever be formed in manufactures: but if the higher Arts of Design flourish, these inferior ends will be answered of course."

There is a world in that final 'of course' - a world we must explore in order to understand the tangled and difficult realtions between those "higher arts" and "manufactures". We shall see that the formation of taste is a matter of some import. Here we shall briefly remark that for Reynolds, manufactures were manual craft processes, carried out with the same tools and materials that might be used in his higher arts; he sees no problematic. But when the Prince Consort spoke this was by no means the case. We should also note that it was commonly the case that practitioners of these higher arts came from families established in craft manufacture and graduated through apprenticeships in material practices. But this was increasingly less true, and it was to supply the want of design abilities that the Schools of Design had been created after 1836.

Reynold's suppositious 'of course' underlies all art and design education in this country ever since. The conclusions of the 1835-6 Parliamentary Enquiry into Arts and Manufactures can be deduced from one of the very first pieces of evidence, from the director of the Prussian State Academy.

See Parliamentary Papers Vol.1.

80. 'What is the best mode, in your opinion, of applying arts to manufactures. ,

'In former times the artists were more workmen, and the workmen more artists, as in the time of Raphael, and it is very desirable to restore

this happy connection.'

Read H. Art and Industry 4th ed.
(1956) Introduction.

We note here that the 'happy connection' is assumed to be broken. Herbert Read has written of the first enquirers that 'Their minds and imaginations moved in an unreal realm of taste, divorced from any direct connection with the tools, the processes and the materials of manufactures.' Though men of practical experience (notably Peel himself) were prominent in government, when they applied their minds to considerations of the quality of goods, they employed a scheme of ideas from an earlier time - the pre-industrial and Reynoldsian 'of course'

See for example Reflexions on
The Decline of Science in England
London 1830 (and below)

If the relations between art and industry were subject to confusion, there was also a growing awareness of a rift between science and industry. Charles Babbage, at several places in his writings, refers to the neglect of science in respect to manufacturing development, and to the lack of support given to fundamental research.

Babbage C. The Economy of Manu-
factures London 1835 p.387.

"We must remember that another and higher science, itself still more boundless, is also advancing with a giant's stride, and having grasped the mightier masses of the universe and reduced their wandering to laws, has given us, in its own language, expressions which are to the past as history, to the future as prophecy.....It is the science of calculation....which must ultimately govern the whole of the application of science to the arts of life."

See Footnote.

See also his The Exposition of 1851 London 1851. Ch.4. 'On The Position of Science'

See Appendix Two.

Ada Lovelace described this as 'sucking the mystery out of life':but Babbage, having failed to find support and approbation for his calculating engines looked on the Exhibition with more scepticism than did those in the Prince Consort's entourage.

As to the relations between science and art, this was a field full of speculation. The idea of a scientific study of art had taken root. D.R. Hay had written of a 'science of aesthetics', and the work of George Field, Froebel and Pestalozzi was well known to the design reformers. Gottfried Semper, taking his cue from the Consort, was studying the problems of 'wissenschaft, industrie un kunst'.

The scientific aesthetics of the early nineteenth century have been rather little remarked, yet they stand behind the whole debate on quality and quantity that leads first to the founding of the schools of design, and later to the Department of Science and Art. In the fourth chapter it will be argued that these speculations (for which the term scientific would be more apt) represent the transmutation of academic traditions by the needs of industrial design. We shall argue that the academies -as represented in Reynolds's Third Discourse - are one of the sources of the idea of 'realised unity' and its accompanying universal language of form. Reynolds argues therein that the artist 'must divest himself of all prejudices in favour of his age or country; he must disregard all local and temporary ornaments,

Reynolds. op.cit. p.59.

See Footnote.

ibid. Notes to Third Discourse

and look only on those general habits which are everywhere and always the same'. He must strive to apprehend the 'common form', the 'fixed and determinate form', or the 'central form' of his objects. Roger Fry in his notes to the 1905 edition of the Discourses describes this as a theory of type forms. But the doctrine of common form fits by no means easily with that of accumulated experience as presented in the First Discourse, for the first is one of the typical, the second of the outstanding. The first is independent of circumstance, but the second is rooted in history. Both the Prince's ideology and the Academician's theory contain an aporia a continuing perplexity about the relations between unity and variety, progress and tradition, the typical and the great, history and the end of history.

We shall conclude in the final chapter that this aporia also takes the form of a policy. That because modernisation brings about an altered relationship with the past, so it is necessary to remythologise and if need be invent that past. Thus 'modernism' evokes an 'anti-modernism' and universalism is dialectically validated by a freshly created localism. And both are the products of modernisation through industrialisation. We shall, in fact, discover the Prince Consort himself - the great futurist-helping to create local 'traditions'.

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Journal of Des. and Man. Vol.4
 Sept 1850-Feb 1851. p.10 et seq.
 Attributed by Pevsner to M.D.Wyatt.
 (but clearly owing something to
 Pugin's writings.)

The Journal of Design and Manufactures was well aware of these problems. It designated 'two classes of bigots - Utilitarians and Idealists'. The former were 'cast-iron constructionists who build railway sheds ad infinitum'. When in difficulty over design he "sends straightway for one of our ideal class, and confides to him the charge of making what is called a design, believing that the artist, from his professing art, must be able to do it'. But the idealist 'who normally covers dog-kennels with crotchets....breaks down from being set to speak a language with the grammar and component elements of which he is utterly unacquainted, and so falls back upon the dreary expedient (of copying)...scroll...and shell-work.' In conclusion : 'no successful results can ever be attained until designer and engineer know each others business'. The writer notes that 'the steady course of utility..has outstripped its more poetical associates.'

X Though written with respect to design and design training, the social resonances of this passage speak of the central political questions of the day. Thus, circling round again to the Consort's speech we see that his assertion (that 'realised unity' can be the result and product of cultural autonomy instead of its annihilation) is a metaphysical way out of an urgent political and practical dilemma - and as we shall see, the schema of a policy.

X As befits its origins, we shall now look at the Great Exhibition as an exercise in marketing ; as box, contents and packaging.

The Box

Babbage.(1851) op.cit. p.63.

"A crystal envelope....simple in its construction and requiring the multiplied repetition of parts, its fabrication was contrived with consummate skill. The internal economy with which its parts were made and put together on the spot was itself a most instructive study."

So much has been written about the Crystal Palace that one hesitates to write more and does so here simply to make a particular point.

Hix.J. The Glass House
Phaidon. London. 1974.

It was in essence a kit of parts; John Hix has traced how the conservatory grew out of the cold frames and winter houses of the seventeenth century gardeners. The genius of Paxton and his engineers lay in using well tested means, not in any novelty. The repeatability and uniformity of components, the ingenious assembly, were methods tried out first in greenhouses and then in the great railway sheds. What was most original, after its great size, was its demountability and the extraordinary visual effect of its great space. Owen Jones' scheme of primary colours suffused an already indeterminate volume with a shifting bloom of light.

Jones O. An attempt etc.
R.S.A. pamphlet 1852.

"an artificial atmospheric effect of a most surprising kind". Both Jones and Paxton were working in a manner remote from academic theories of design; Darby, in an unpublished thesis, describes Jones as a Saint-Simonian positivist, imagining a 'religion of science'. Jones himself ascribed his colour scheme to George Field, whose 'Chromatics' (1817) and 'Chromatography' (1835) will be examined later in this text. (Chevreuil's work had not yet been translated, though Jones, who had lived and worked in Paris, may well have known of it.)

Darby.M. Owen Jones and the Eastern Ideal. unpubl. Ph.D thesis. Univ. of Reading 1974. (see Footnote)
See also van Zanten D. "Architectural Polychromy" in The Beaux Arts and 19c. French Architecture. ed. R. Middleton. Thames and Hudson London 1982.

M.Digby Wyatt saw in Paxton's concept a great example to be followed.....

Journal of Des.and Man.
Vol.4 p.78. also quoted
by Pevsner and others.

See Footnote.

"From such a beginning, what future glories may be in reserve when England shall have systematized a scale of form and proportion - a vocabulary of its own, in which to speak to the world the language of its power, and its freedom of thought and feeling, we may trust ourselves to dream, but dare not predict. Whatever the result may be, it is impossible to disregard the fact that the building for the Exhibition of 1851 is likely to accelerate the "consummation devoutly to be wished" and that the novelty of its form and details will be likely to exercise a powerful influence on the national taste."

W.V.Pickett. A New System
of Architecture. Longman and
Co. London 1845.

See Footnote

Such a passage fits well with the Consort's futurism, but such enthusiasm is a shadow beside that of W,V.Pickett whose 'New System of Architecture'(1845) imagines a polychrome, curvilinear, demountable, exportable and wholly metal architecture. This little know essay, like Wyatt's, imagines this new system to be wholly British and utterly original, superseding all 'masonic' building in a fantasia of invention.

Journal of Des. and Man.
Vol.2. (1849-50) p.72.

And yet - and this is the crux of the matter - the 'consummation 'did not happen. An intelligent counter-action was already in full momentum, as Wyatt knew very well, for the previous year he had reviewed John Ruskin's 'Seven Lamps of Architecture' and had written words that he should himself have heeded when writing on Paxton. "Does he not see that the creation or establishment of a style lies in causes much deeper than men's opinions."

Wyatt's perceptions were more radical than his powers of action, and he and his fellows were more convincing as critics than builders: though they imagined the idea of a normative and systematic theory of design appropriate to the industrial system, it was only the idea. Indeed, we can think of the Crystal Palace as the end of an era rather than as a beginning, for Ruskin's critical writings were far closer to the needs of private and official patrons of art, than were Wyatt's normative statements. The Idealists appeared to win out over the Utilitarians: but as has often been noticed, high Victorian design in architecture (and in much general product design as well) contains a split between 'high technology' in the services and amenities and a neo-feudal language in the ceremonious parts of the structure. It was this division that represented the true tendency of the age.

Wiener M.J. English Culture and The Decline of the Industrial Spirit 1850-1980. Cambridge U.P. (1981)

From J.Morley's 'Life of Richard Cobden' (1881) Wiener op.cit.p.14.

Martin Wiener has recently described this split very clearly, quoting Cobden to good effect....

"We have the spirit of feudalism rife and rampant in the midst of the antagonistic development of the age of Watt, Arkwright and Stephenson! Nay, feudalism is every day more and more in the ascendant in political and social life. So great is its power and prestige that it draws to it the support and homage of even those who are the natural leaders of the newer and better civilisation.....How is this to end.

The gentrification of the industrialists held up the 'consummation', and the sons of Brunel went to Eton. The Crystal Palace did not exercise that

powerful influence, and its crystal envelope marked the end of a functional Utilitarian approach to public building. We may see it as the triumph of Enlightenment aesthetics and industrial production in one superb gesture.

The Contents

John Tallis 'History and Description of the Crystal Palace and the Exhibition of the World's Industry in 1851'
London 1851.

"We should have everything in a house touched by the divining rod of the poet. An inkstand, instead of being a literal glass bottle.... might be fashioned to represent a fountain, with a muse inspiring its flow.. our goblets might bubble over among hop leaves, and stems of blossom; our decanters be composed of transparent vines, clustering in wild confusion....our water jugs be made to flatter the palate with their look of coolness, snow creaming over the edges and harts drinking at the brooks, in shadows down the sides: lively colours, tastefully toned and harmonised, might be scattered over our rooms, under a thousand pretences of necessity."

James Nasmyth 'An Autobiography'
New York 1883.
Quoted by Schaefer (1970) p.28.

"In mechanical structures and contrivances I have always endeavoured to attain the desired purpose by the employment of the fewest parts, casting aside every detail not absolutely necessary, and guarding carefully against the intrusion of mere traditional forms and arrangements. The latter are apt to insinuate themselves and to interfere with that simplicity and directness of action which is in all cases so desirable a quality in mechanical structures. Plain common sense should be apparent in the general design....and a general character of severe utility pervade the whole.

If the building was a triumph the series of exhibits entitled "Art Manufactures" appeared to a number of thoughtful critics to be a disaster.

Wissenschaft, Industrie und Kunst. 1852. As quoted by Schaefer(1970) p.162.

Gottfried Semper observed ; "Only objects in which seriousness of purpose does not permit superfluities such as carriages, weapons, musical instruments, occasionally show more soundness in perfection and nobility of their forms, strictly prescribed by function."

Pevsner (1968) p.60.

The great preponderance of art manufactures on display (with the import- and exception of textiles and wall-paper) were not industrial goods at all in a strict sense, but objects of virtuoso craftsmanship. In so far as there was any consistency in style, it was that of an inflated rococco ornament without alleviation of wit; a debased aristocratic effect. We should speak of an applied historicist styling, of adopted manners, rather than the intégral working through of proportions and treatments normally meant by the term style. Pevsner has commented on the bizarre nomenclature that was applied to these jumbled mannerisms. Such work was a parodic version of academic theory, in which 'accumulated experience' was pursued with a gross literality. Later in this study we return to the concept of parody, which in these terms results from an altered and dislocated relation with the past as the location of value.

In crass sociological terms, the exhibits expressed the scramble of new classes and groups to assert identity through styling; at the next international exhibition rather little had changed and it took many years to purge the grossness out of English art-manufactures. The grossness was in time replaced by a domestic design which, though more elegant, was hardly

that of an industrial nation - through the refined ruralism and neo-feudal form language of country house building, by the Queen Anne revival, by the early Aesthetic Movement - all styles which were in large measure reactions against the industrialism that financed them. Yet the incoherence of the exhibits is not a trivial matter since here we see the main features of what was to become the mass commercial style of the entire industrial world,'clustering in wild confusion'.

Semper further observed, in words that suggest the application of Darwinian ideas to industrial design... before Darwin was published.

See Ettliger L. Architectural Review Vol 136. 1964 for a partial translation

"This apparent confusion is nothing but a clear expression of certain anomalies in the existing state of society....While our art industry will muddle on without direction it will unwittingly perform a noble deed by slowly destroying traditional prototypesIndustry, speculation and applied science must first complete this process of disintegration before something new and wholesome can follow."

See Footnote

It is exactly Semper's theme that is taken up by Le Corbusier and Ozenfant in the "law of mechanical selection", and in an article by Georg Muche from 1926 (given complete in Ch.6) in which it is argued that the fine arts had to transform themselves in order to transform industrial design, thus freeing industrial design to separate itself from 'arts' and end the perpetuation of the academic connexion between them, the Reynoldsian 'of course'. The trajectory of this theme forms a main part of the study here begun

Two areas of 'art-manufactures' on display afforded a different model of what might be done to improve the quality of design. The first of these was the Medieval Court, assembled by A.W.Pugin as a package within a package (and the marketing term is appropriate to the combination of artefact, scholarship and propaganda that Pugin put together). We are here less concerned with the style of Neogothic than the learned, even archaeological manner of its presentation and how this related to design practice. Pugin's Neogothicism was historicist in a new manner; he was truly learned, yet cut through the continuity of academic teaching. If his approach is applied to another body of material, its inner character becomes clear; it is quasi-scientific. Owen Jones deplored the cult of the medieval -"so many minds devoting themselves to the reproduction of a galvanised corpse" - but Pugin's pedantry has much in common with Jones'. Both were precisionists seeking an explicit and factual description and understanding of the work they admired. Jones'wide ranging interests are pursued with the same quasi-scientific accuracy. We can describe this as a shift of paradigm : from academic learning from example (tacitly), to scientific learning through research (explicitly). Thus Medieval Court -like many examples of design and theory at this period - is Janus-faced, toward the past in its location of value, and toward a future in its concept of information.

Jones(1852) op.cit.

We can only understand this in full by understanding that Pugin's manner of research presupposes a clearly articulated time scale. In this it

differs profoundly from academic teaching, in which a generalised past is not given an articulated structure. Though one hesitates to describe Pugin's work as 'progressive', yet the nature of his time scale is that which is the pre-condition of 'progress'. The Academy is incompatible with Progress, and must be transformed before it can engage with Industry.

Germann G. The Gothic Revival in Europe and Britain. Lund Humphries London 1972

ibid p.40.

ibid p.77.

ibid p.42.

ibid p.99.

The relation of Neogothic to design reform is a matter of such import that it requires a short digression. In the first place, Gothic Revival was an international event and yet, as Georg Germann has shown, whenever the Revival appeared, gothic was regarded as an exclusive and national style. For Goethe, Strasbourg Cathedral was the paramount example of 'der Deutsche Baukunst', for Chateaubriand "Ancient France seems to live again" in her cathedrals; and John Milner (writing in 1798) declared, "This style of architecture may properly be called English Architecture." Yet the revival was also the vehicle of proto-industrial functionalism in which new constructional ideas and new materials were first tried out and discussed. The literature of the Revival, from Viollet le Duc to Pugin, and the many journals, are full of such novelty. Germann observes "New ideas frequently appeared in building magazines, which in those days were still virtually indistinguishable from archaeological and architectural magazines."

See Middleton R. and Watkin D.
Neoclassical and 19c Architecture
 Abrams. New York. (1977) esp. Ch.8.

also

Pevsner. N. Some Architectural
 Writers of the 19c. Oxford.
 1972. Ch.5.

An early outcome of this twofold view of the style can be found in the life work of Thomas Rickman whose paper and book on 'An attempt to Discriminate the Styles of English Architecture' dates from the year in which he completed the church of St. George, Everton (1815), which makes very extensive use of cast-iron repeatable parts for pillars, arches and vaults. Rickman was later to bring forward proposals for standardised church designs to the Commissioners, and though these were rejected, such proposals continued to appear in succeeding years until 'The Ecclesiologist' promoted a design for a cast-iron church for missionary purposes (1856). (Cast-iron building parts were frequently used for ships ballast on voyages to the Orient). In France, Louis Auguste Boileau planned and executed a number of churches using cast and wrought iron in a 'gothic' of his own idiosyncratic devising. Rickman's example includes both a typifying categorisation of the style, and its mass reproduction in the newest high technology, and this combination is not fortuitous.

Pugin's importance is partly in his dual role of promoter of hand-crafted ornament, and at the same time the instigator of a quite enormous growth in those 'art-industries' inseparable from a building boom. His collaboration with the firms of Hardman (for architectural ironwork and glass), Crace (for general fittings), and above all Minton (for tileware) was exemplary and had consequences for the whole of 19c. interior design. This went hand in hand with the direction and instruction of the workpeople engaged on

See Ferrey B. Recollections of A.W.N.Pugin etc. (1861) reprint by The Scolar Press. London 1977.

the decoration of the new Houses of Parliament. Pugin and his builder Myers between them appear to have virtually recreated 'once-off' decorative carving in wood and stone, training a generation of skilled craftspeople that made much of the subsequent craft revival possible.

Both the industrializing of ornament and the promotion of handcraft (and Pugin was equally influential in both and always preeminent) were founded on the archaeological approach. The exact extent of Pugin's learning is now hard to assess, because his library was dispersed and because the huge collection of examples of medieval wood and stone carving he had assembled at Westminster to serve as models for his workpeople, was later dispersed into museums. But its character was indisputably that of a scholar concerned with facts.

See thesis by Darby op.cit.Ch.3.

To stress the similarity between Pugin and Owen Jones further we should recall that Jones very nearly took the contract for the ceramic work at Westminster, and that he too was a pioneer designer of tiles etc. for Minton, basing his designs upon his pioneering scholarship in The Alhambra. Once again we have the close association between archaeology and art-industry.

Pugin's enterprises also provided an important model for the preservation of the 'varieties and antagonistic qualities'; the accuracy of his research gave substance to the eclecticism of the times. Ralph Wornum wrote.....

Wornum. R. 'The Exhibition as a Lesson in Taste'. Essay in the Illustrated Catalogue of the Great Exhibition. 1851.

This essay is discussed by Pevsner (1968)

"The time has now gone by, at least in Europe, for the development of any particular or national style, and for this reason it is necessary to distinguish the various tastes that have prevailed through past ages, and preserve them as distinct expressions, or otherwise by using indiscriminately all materials, we should lose all expression.....If all...is to degenerate into a uniform mixture of all elements, nothing will be beautiful."

We can detect in this passage an interesting change in tone from that in the Prince Consort's speech. Addressing himself to the same general question of unity and variety, Wornum perceives that variety must be preserved and defended, and it becomes clear that we are beginning to touch upon the problems of the internationalisation of style.

A second area of the Great Exhibition that made a lasting impression on those professionally concerned in design, was that devoted to non-European goods, most particularly those of the near and far east.

j.Stewart in The Art Journal Catalogue of the 1862 International Exhibition. p.23.

"Never did the people, and particularly those connected with design, and manufactures, know the gorgeous power of barbaric splendour till they saw its productions in the Exhibition; and so novel and overwhelming was the sight, that even after the gathering had become a matter of history, these Indian sections had so captivated the minds of those influential in the Art-education of the country there appears no small danger of our Art-students and studies being confined to the manufactures of the East."

A very simple survey of the period and its painting, photography and panoramic displays reveals a preoccupation with oriental and Muslim themes.

Albums of illustrative material, orientalist paintings and travel stories fed the decorative arts with a continuous flow of images chiefly Islamic in origin. Owen Jones was a tireless proponent of Moorish decoration and he saw in that work, and in the work submitted by the East India Company qualities of design and colour management from which our manufacturers might learn. "We were not only behind our European neighbours, but in common with these, were far outstripped by the nations of the East." He attributed this to a unity of feeling based on a unity of art and religion, an idea he had first considered in 1835. "The perfection at which their artists have arrived is most marvellous...it would be very desirable that we should be acquainted with the manner in which, in the education of the Eastern artists, the management of colour is made so perfect." In our case "want of unity in feeling has caused a want of unity in expression...we have no principles....novelty without beauty, beauty without intelligence."

Jones (1852) op.cit.

See also Darby(1974) op.cit.
In a lecture to the Inst. of British Architects, entitled 'On the Influence of Religion on Art'.

What Jones conceives of as a unity of feeling and expression is akin to what we shall later discuss as 'metaphorical structure', that brings about a unity of arts and manufactures. What he terms of as principles, is akin to what the Prince Consort had early described as 'immutable laws' (and which Jones had encountered in the writings of George Field.)

As a qualification upon Jones' enthusiasm we should note that the goods exhibited as Indian were in fact chosen by the East India Company, with

See Chapter Six for discussion.

See Journal of Des. and Man.
Vol.6. p.8. and Vol.5.p77.

an eye to European trade (and the 'top end' of that trade). Some fifty years earlier India had been still, after many centuries, the worlds great exporter of cloth; but this vast trade had been destroyed by the printed calicos of Lancashire. A traveller had observed some years before - "We have destroyed the manufactures of India". (The Journal of Design and Manufactures has a few oblique references to this reversal of trade and gives examples of cloth 'chiefly produced for the Indian market which presents the natives with repetitions of their ancient designs at a moderate price....(and later)...we are glad to notice that although a general Eastern type has been adopted, there is no attempt at direct imitation of woven effect.')

Between the perception of 'gorgeous power' and a change in practice there is a considerable gap; just as it took many years for oriental subject matter to extend the colouristic and pictorial conventions of painting. But the inflow of non-European visual information presented a challenge to the designer. The Great Exhibition was all-gathering in intention, if not exactly so in fact. All styles, set side by side, were laid open to the new habits of research and classification and thus equalised as objects of knowledge; the academic hierarchies of taste were levelled. Thus, though the new universalism proclaimed by the Prince is a mask for European expansionism, it is also a true harbinger of world culture in some form. even if one born under the sign of cultural hegemony.

The 'immutable laws of beauty and symmetry' could not be the unique property of any one culture: this was one lesson of the Exhibition, and one most clearly taken by Jones. The argument of Reynolds's Third Discourse - that the artist must 'get above all singular forms, local customs, particularities and details of every kind' and seek out the 'common form', wins out over the argument of the First Discourse - that he must base himself upon the 'accumulated experience' of tradition.

* * * *

A third body of exhibits was outside the area of 'art-manufactures' but was influencing thought about design and had a coherent theory of its own. We have already quoted Nasmyth, whose huge steam hammer was a prominent feature in the machine hall. Nasmyth, like his teacher Maudslay, had very clear views as to what constituted desirable form; his evidence to the Parliamentary commission of 1835 is especially interesting. Wyatt had some idea as to what industrial production and materials might mean for architectural form, but here were displayed the instruments of industry that were themselves becoming industrially produceable and exactly reliable objects - the tools, machines, engines and devices that made art-manufactures possible.

de Zurko E.R. Origins of Functional Theory New York 1957

See Footnote.

Kouwenhoven J.A. 'Democracy Machines and Vernacular Design' in Half a Truth is Better than None Univ. of Chicago 1982

The beauty of the purposeful had long been part of the theoretical discourse. De Zurko has traced this 'functionalist' theory to roots in the 17c and especially to 'An Inquiry into the Origins of our Ideas of Beauty and Virtue' by Francis Hutcheson (1725). But the English language itself contains a tension between the ornamental and the functioning. Shakespeare constantly plays off one register against the other, following elaborate polysyllabic circumlocutions with plain flat tones: we can compare contemporaries such as Milton and Bunyan. The founders of the Royal Society enjoined its members to use a plain style such as artisans use and to avoid poetic language: so too does the preface to "Lyrical Ballads". Wyatt's division between utilitarians and idealists has many dimensions and at least one of them is the association between plain prose and the puritan 'plain style' of building. A severe common sense, whether in objects or in words, was a perpetual shadow orthodoxy always liable to take over the government of English taste. The monuments of this taste - this functional style - are to be found in aspects of the English Enlightenment, and in the coincidence between a simplified neo-classicism and vernacular forms. This has been extensively studied by Herwin Schaefer, and is the subject of an interesting and relevant essay by John Kouwenhoven. Such a cultural disposition was able to evolve quite easily into an early form of a 'machine aesthetic'. But if this was an outgrowth of neo-classical theories of the beauty of the purposeful, then we should expect it to share in the relative eclipse of such values after 1851.

These early machines were also, normally, not strictly industrial objects, but a new class of craft object, made with the new skills, tools and materials that were leading toward full industrial production; and they were made in a new class of craft workshop by a new class of skilled craft workers who were not yet incorporated into large scale industry. Large scale industrial production was still very largely confined to the textile trades.

See the appropriate sections of
'The Reports of the Juries'.

See A.Lipietz. 'Toward a Global
Fordism' New Left Review No.132
pp. 33-47 for a summary of this.

In the machine section there was also a small number of packaging machines, wrapping devices and folding mechanisms. Adorno's cigarette wrapping machine may be the prototype of all the packaging equipment necessary for a growing consumerism. "In this beautifully contrived mechanism, an endless sheet of paper is supplied at one end together with the requisite tobacco, and after passing through fourteen operations, those materials are delivered at the other end in the shape of completed cigarettes." It was these and similar lower-order machines that were now being made with replaceable and standardised parts - not the first-order machine tools. This distinction is premonitory of the control of 'mega-technology' by the central heartlands of the industrial system, and the export of lower-order technology to the 'periphery'. We should also take note of the 'endless sheet of paper' required for packaging, since only one area of the Great Exhibition was devoted to goods that we would now describe as being fully industrial, and the object of 'industrial design' : this was the area of printed textiles and wall-paper.

Unfortunately it is difficult to study because of the relative absence of colour

See Footnote

David Greysmith: paper contrib.
to 'Design and Industry: the
effects of industrialisation
and technical change on design'
ed. N. Hamilton. Design Council.
1980.

S.D, Chapman and S. Chassagne.
European Textile Printers in the
Eighteenth Century: a study of
Peel and Oberkampf'. London 1981.

reproduction, and because of obscurities in the reporting of it. It is difficult to get a clear mental picture of the work described in the 'Reports of the Juries'; the bulk of exhibited wall-papers, for instance seem to have been in imitation of tapestry and other effects, and the printed textiles very largely single items, such as shawls (or, once again, elaborate imitations). Yet we know very well that the wall-paper and textile printing industries were of great or very great size, and we are beginning to realise, through recent studies such as those of David Greysmith, that they were of particular importance for both the development of the profession of designer, and for the growth of a distinct visual language.

Chapman and Chassagne have described the growth of textile printing in their comparison between the Peel enterprise in England, and the Oberkampf firm in Alsace. Cheap printed calicos were one of the main means by which folk design in northern and western Europe was ousted by commercial design (and later throughout the rest of Europe and subsequently, one might add, the globe). This trade was the engine through which the Indian craft production of bulk textiles was destroyed: it was therefore of primary importance in the development of industrial (and stylistic) hegemony.

Whereas the finest quality (and the gaudiest and grossest) designs were produced by woodblock and modified hand-printing, by far the greatest quantity was printed by cylinder machines, which imposed tight restraints upon design.

Greysmith. op.cif. pp62-65.

" Despite the many factors at work bringing design into being, the new machine-produced patterns can be seen, anthropologically, as the sign language of a people changing from a predominantly rural to an increasingly urban culture.....The combination of the cylindrical, never-ending surface, with the small mill and die, tended to produce overall patterns, minute florals, geometrics and optical effects. The pervasiveness of the small repeat, in texture and motif, is so widespread that textile students today, when asked to produce a dress print, often instinctively produce designs of this sort."

Bridgeman and B.Drury. 'Encyc-
paedia of Victoriana' London.
1975.

For a discussion see Ch.2, and
Brenda Greysmith. 'Wallpaper'
London 1976. p.108.

It was this material - the subject of much comment and study in the pages of *The Journal of Design and Manufacture* that seems to have been largely absent from the Exhibition. The same can be said of wall-paper in the modern sense, continuously machine-printed onto a continuous roll. Yet we know this latter industry to have become very extensive. One authority gives an increase by a factor of nineteen in the years 1834-61; as we shall note in the second chapter there was an increase in the town of Leeds from no manufacturers in the 1820s, to five by 1847. These papers used very similar or identical patterns to those printed on cloth: an interesting speculation would be, that the same rollers were used. It is certain that without the invention of certain necessary devices for textile printing, the later paper printing could not have developed so quickly. But in this, as in much else connected with all forms of printing, there is a good deal of obscurity. (See Chapter Two.)

As Greysmith observes, here we have the question of a 'sign language' - of qualities as well as great quantities. The commercial prints, on cotton and on paper, had those qualities of flatness and absence of shadow so much admired by the design reformers. Owen Jones and Christopher Dresser continued to employ these qualities in the late 1850's, although the technology of printing permitted larger and bolder effects.

Joseph Maschek. 'The Carpet Paradigm; critical prolegomena to a theory of flatness' in 'Arts Magazine' New York Sept. 1976.

Joseph Maschek, in an important article, argues that some of the dominant pictorial conventions of the twentieth century stem from this concern for flatness; what he calls the 'carpet paradigm'. He particularly cites Pugin and Jones: but it is now clear that Pugin and Jones had before them work which had those qualities they admired, albeit at the cheap end of the trade: samples of these cheap prints are in the pages of every early issue of the Journal of Design and Manufactures. This raises the issue of technological determinism in the evolution of style; when certain desiderata are pursued when they are no longer imposed by the process. Notably, when they are transferred from printed surfaces to unprinted 'fine art' surfaces such as painted canvas; then the origins of a style are brought into question. A recurrent theme of this study is, that it may be necessary to look at 'modernism' in a very different light.

Cheap printed cottons and wall-papers were incompletely represented in the Great Exhibition, and the goods on display reflect a distinction between the quality end of the trade, and 'popular lines'. The exhibition is as interesting

in what it left out as in what it included. (The matter of selection remains obscure and apparently uninvestigated; where Britain was concerned it seems that Cole invited firms to submit their best products, and had to take what was given.)

The packaging .

This was far more than the official publicity: the Exhibition occasioned a huge range of material, from handbooks and guides to every form of copy-writing in every form of journal . The image of the Palace was printed, stamped or moulded onto every surface that could bear a picture. Souvenirs albums, picturebooks, models, songsheets and clothing and letterheads carried the image all round Europe and beyond. The Consort's ambiguous universalism was seized upon by every publisher; illustrators caricatured or described all national costumes and racial types. A 'Parlour Magazine for the Literature of All Nations' was published and on sale within the Palace. A gift book, 'The House that Paxton built' (6d.coloured) shows all the races of mankind upon the cover. An official of the ^{of} court of China appeared at the opening ceremony (only to be revealed later as an impostor). The resources of the printing industry were as fully engaged in distributing the image, as the glass and iron industries had been in supplying the original.

In the second chapter, the growth and nature of this printing industry will be discussed, in terms of an image 'explosion'. Here was a most vivid example. The Economist remarked (in an article reprinted in full below) that the Exhibition "is performing the office of a large illustrated newspaper."

See:

C. Rosner. 'A Printer's Progress'
London 1951. Contains many good
examples.

See:

C.Hobhouse. '1851 and the Great
Exhibition' London 1937. Still
the best book on the Exhibition.

The amassing of objects was accompanied by an amassing of people. The railways offered cheap return fares with the aim of attracting the working population from the provinces; very large numbers of foreign visitors were recorded. Around these masses of people a tourist trade developed in central London. The Times of Aug. 21st 1851 advertises nine panoramas or dioramas on display in the area, plus one huge model of the globe. The vistas were of the European cities, the Hellespont, Niagara Falls and the sights to be seen on the overland journey to India culminating in a view of the Taj Mahal. Tourism - our seeking out the sights of the world or our having them brought to us, first became a mass phenomenon at the Great Exhibition.

See footnote .

It is in the concept of packaging that objects and images meet. Just as the exhibition contains machines for wrapping up goods for consumption, so there was an industry to 'wrap up' the world in pictured form. Until this time, real or vicarious tourism had been as scarce and expensive as hand-crafted imagery: now it is proper to speak of the growth of world tourism. Tourism interprets the world as an unrolling spectacle : (in the case of some panoramic spectacles, a roll of pictures was indeed unrolled across the stage, to lights and music and commentary.) This reduces the status of what is seen to component parts of another's planned experience: those who are seen are (increasingly) willing to participate in their own reduction. Reality is thereby made into spectacle; and that spectacle has ideological content.

Rather, one should write that spectacle is the visual form of an ideology and that it is through the distribution of imagery, and the planned experience, that ideology is promoted, as much as by speeches at The Lord Mayor's Banquet.

W.Benjamin. quoted in 'Studien zur Philosophien Walter Benjamins' ed. Tiedemann. Berlin 1973. p.131.

The packaging surrounding the Great Exhibition, the broadcast imagery of the Crystal Palace, the burgeoning tourist trade are an early - perhaps the first true example of commercial phantasmagoria ; 'the image that society produces of itself and which it generally inscribes as its culturewhen it abstracts from the fact that it is producing commodities.'

* * * *

"The Exhibition was the means to an end. It was got up as a great show, that it might become a great teacher."

John Stewart. 'Art Journal Catalogue of the International Exhibition'
(1862)

The Great Exhibition was conceived and planned and executed by those civil servants and designers who were seeking to effect a marriage between what they took to be artistic quality, and industrial quantity production. It was the outcome of fifteen years of activity, through Schools of Design, The Society of Arts, and through the Board of Trade: through teaching, lecturing, writing, and through practical experiment. Yet in certain crucial respects, all this had come to nothing. John Stewart, looking back in hind-

J.Stewart. op.cit. p.22.

See Footnote.

Charles Babbage. The Exposition
of 1851: London 1851. p.127.

ibid. p.151.

ibid. p.174.
et seq..

ibid. p.xi..

sight was disposed to be very critical of the Schools of Design and comes near to rejecting the whole Reynoldsian academic programme (that depended upon that suppositious 'of course'). He writes of 'unwise direction and impractical tuition' and points to the difficulty of linking arts to manufactures. "The astounding ignorance revealed made the show ^lapalling and the mind sink..." He quotes Owen Jones; "We have been studying drawing from the human figure, but it has not lead us forward in ornamental design." Yet it was round the life-class that the academic mode of teaching revolved .

Charles Babbage was to see in the Exhibition a chance to begin a systematic study of industry and its needs. He proposed a British standard colour code to be made available to the world, and a mechanical notation to found a true science of machinery : "...A system of signs by which all machinery may be perfectly described, even without the necessity of explaining in words..... a universal language.....practical and philosophical rules for expressing the mutual relations of the parts of the machine." He also made the Exhibition into another opportunity to deliver a tirade against the neglect of science; "Its cultivators are scarcely recognised as a class", and to promote "machines for the relief of human intellect.....founded on the use of tools of a still higher order." He argued that the industrial power of England was more apparent than real, and that essential studies and researches were neglected, notably in the machine-tool industry. "The contrivance and construction of tools must ever stand at the head of the industrial arts". Amongst these tools he included his calculating engines, held back, he believed by "deeply rooted prejudices of the upper classes."

In Journ. of Des. and Man.
Vol.5. p.8

ibid. Vol.5 and Vol.6.

Owen Jones wrote 'After wandering through the halls of this wonderful assemblage.....(you will see...) but a fruitless struggle to produce in art novelty without beauty, beauty without intelligence'. All look backward and '.....none go forward'. Dyce wrote on 'Universal Infidelity in Principles of Design", a long and sarcastic complaint against the confusion of styles. The reaction of the writers of the Journal, and of the Schools of Design, deserves a study in itself; but for our purposes we will distinguish between two strategies for future action, both already in existence but now increasingly defined and increasingly divergent.

The first was the outcome of a range of anti-industrial attitudes, complex in origins, and whose premises were first defined in the early writings of Ruskin (notably, of course, the famous chapter 'On the Nature of Gothic). This we shall call the critical tradition. The second was the continuation of the universalizing, law-ful and analytic approach associated with the Journal of Design and Manufactures, which we shall call the normative tradition. In distinguishing between them it is also important to reassert certain deep similarities, based on a shared attention to meticulous research (into both historical sources and natural form), certain desiderata of style (such as 'flatness' in pattern), and a shared problem; that in both cases, thought outran performance. In this last respect, the reader should recall that the main object of this study is the intellectual history of design, and that thought is our theme.

Moreover, these two traditions could exist side by side in the same head and life's work. We shall note this on several occasions later, not least within the Bauhaus; but it is well to note it at the beginning too, and to point again to Pugin's ambivalent position as the creator both of 'art-industries' and of a handcraft revival. The Gothic Revival, considered as a whole, exhibits the same ambivalence through and through. It sprang from a belief in an un-industrial past, but lived in and by industrial means. What Germann writes of 'The Ecclesiologist' has much wider application: 'It helped to dispose of the moribund doctrine of architectural character by proclaiming the Gothic as a universal style, thus dispensing with the need for individual genre styles. It rejected the hierarchical values accorded to the different building materials, and so was able to come to terms with the important new iron buildingsit recognized the deep gulf which divided the traditional concept of 'original art' from the new concept of 'mass-produced'.

Germann. op.cit. pp.134-5.

Another study might seek to ascribe the Revival as an attempt at an alternative normal, and in so doing assign it a place now taken by 'post modernism' and 'technological classicism'. This is an issue to which we return in the last chapter. But we may certainly place Pugin in the position of a man seeking, not to revive the past, but to rewrite it. (And this he did most shamelessly in 'Contrasts' (1836)).

The normative tradition will be discussed at greater length in Chapter Four and what follows here is introductory to that chapter.

As already suggested, the normative is seen as universalizing, tending to 'realised unity': as such it is, in our terms, the bearer of hegemony, whereas the critical is understood as the bearer of autonomy.

The programme of the normative tradition had been announced in 1849 in the preface to the first volume of the *Journal of Design and Manufactures*: the writer (probably Wyatt) proposed 'something like a systematic attempt to establish recognised principles' for design. Wyatt's writings are full of such hopes and tentative attempts, and his phraseology re-echoes to the present day.

See also 'Prospects of Iron and Glass Edifices in Vol.6.

See also Pevsner (1968)

For the origins of *The Grammar of Ornament*, see Darby *op.cit.*

See Footnote....

The first monument of the normative tradition was Jones' great volume *The Grammar of Ornament* (1856), which opens with the famous example of the Maori tattoo'd head, carefully analysed as an 'admirable lesson in composition'. "The ornament of a savage tribe, being the result of a natural instinct, is necessarily always true to its purpose." He describes modern decoration as enfeebled, but 'the beautiful New Zealand paddle would rival works of the highest civilisation'. Jones is coming close to saying that savage tribes could be the cultural superiors of 19c Britons, which is a moment of some interest in the history of comparative culture.

The main text opens with a set of numbered propositions as to good form in ornament, and then continues, through the plates, to test those propositions against the evidence — Egyptian, Assyrian, Persian, Greek, Pompeian, Roman, Byzantine, Cairene, Turkish, Moorish, Indian, Hindoo, Chinese, Celtic, Medieval, Renaissance, Elizabethan and Italian: the book concludes with a section of 'Leaves and Flowers from Nature.' This list has not much geographical or historical sense to it; it is simply all-gathering, like the Exhibition it followed and once again it is interesting for what it leaves out. There is, one notices, no material from South or Central America, Africa, Japan, nor is there any European folk-art (as observed in the introduction to this study, the concept could hardly have occurred to Jones.) The plates are famous for their splendour.

Each body of material is presented and commented upon, and in the final chapter Jones picks up an idea started in the Preface and affirmed in the Propositions viz;

Owen Jones. 'The Grammar etc' p.2.

ibid. p.156.

"Whenever a style of ornament commands universal admiration, it will always be found in accordance with laws which regulate the distribution of form in nature..... We think it impossible that a student fully impressed with the law of the universal fitness of things in nature, with the wonderful variety of form, yet all arranged about some few fixed laws, the proportionate distribution of areas, the tangential curvature of lines, and the radiation from the parent stem, whatever type he may borrow from Nature ;if he will dismiss from his mind the desire to imitate it but will only seek to follow still the path which it so plainly shows him, we doubt not that new forms of beauty will more readily arise under his hand."

ibid. p.156,

Here 'common form' is conflated with plant morphology. Jones main concern is with ornament. but he extends it to architecture and three-dimensional design. "From the present chaos there will arise (it may not be in our time) an architecture which shall be worthy of the highest advance which man has made in every other direction toward the possession of the tree of knowledge." Notions of law, universality, fitness, type, advancement and knowledge, run pell-mell over one another in the crucial passages of 'The Grammar'. Before Nature we should not imitate, but abstract the essentials - the laws of distribution of form.

The 'Grammar' was known to Louis Sullivan, Frank Lloyd Wright and to Le Corbusier. (See March and Steadman (1975) p.38 for comment.)

The great book was distributed (free) to every school of design in the country and was a teaching text here, and abroad, until the 1950's.

To seek ultimate validation in Nature rather than in precedent was always some part of academic theory ; what is at stake here is, the concept of Nature, which is clearly derived from the life-sciences of the day.; Jones is developing upon the Prince Consort's 'immutable laws'. But he is also in tune with an older and particularly British concern with the 'picturesque'. Gilpin's 'Remarks on Forest Scenery' (1808) for example contains some fascinating passages on our perception of scale, composition and good form. Gilpin contrasts the 'general mode of growth', with the 'particular manner', making a distinction similar to that of Reynolds' 'common form' and 'particularity' .

See Footnote.

See also Hipple W.J. The Beautiful, The Sublime and The Picturesque in 18c British Aesthetic Theory. Carbondale. (1957)

Delacroix' diary for 1854 contains an entry which shows such ideas at work in the mind of the last great academic painter.

" 8th Aug. 1854. Nature is amazingly logical. When I was at Trouville I made a drawing of some fragments of rock, the irregularities of which were so proportioned as to give the impression of a huge cliff when I had set them down..... I noticed the same thing when I was at Dieppe. Among the rocks.....I could see all the natural features we find in the world around us. It is the same with waves.....which are themselves divided into smaller waves, and then subdivided into ripples, each showing the same accidents of light and the same design.....the huge billows are composed of millions of smaller waves."

See Journal of Des. and Manu..

Vol.4. p. 120 et seq.

See Footnote

This is, in effect, a theory of construction similar to that followed by Paxton; "the section of one part shows the whole", and it is a study of an altogether higher level of generalization and power than that of simple transcription and literalism.

See Footnote

Jones' 'Grammar' states a deeply and widely held conviction which, though of ancient origin, was now gaining new force and status by its connexion with botanical science. Christopher Dresser, both in his writings and in his practice, is able to sum up in his own person the fusion of natural morphology and design theory. This later becomes known as the 'bio-technical analogy' , and was already seen as the seed of a 'scientific method of design' : as such it will be further discussed in Chapter Four, as will the ideological implications of attempting to subsume the design of production and artefacts into a natural system.

From an interview in 'The Studio'
Vol.1. 1893. p.233. also quoted
by Pevsner in 'Pioneers of Modern
Design'.

See Footnote

C.F.A.Voysey sums up Jones' programme for the decorative arts thus;
"To go to Nature is, of course, to go to the fountainhead; but before a
living plant a man must go through an elaborate process of selection and
analysis". The natural forms have to "be reduced to mere symbols". If the
artist does this, Voysey continues "although he has gone directly to Nature,
.....he has become a true inventor.....We are at once relieved from restrict-
ions of style and period and can live and work in the present with laws
revealing always fresh possibilities."

See G.Kepes. ed. (1965).pp 96-104.

Quoted in 'Henry Moore' by John
Hedgecoe. London 1968. titlepage.
See Footnote.

We have here the groundwork of a new orthodoxy, in which 'selection and
analysis','reduction to symbols' prepares the ground for 'true invention'
free from the 'restrictions of style and period' . Though this is, in Voysey's and
in Jones' words directed to ornament and the decorative arts, it is much
more widely applicable. It is, primarily, a general theory of construction and
invention, rather than expression; and it is a major part of that cloud of
ideas out of which so-called 'modernist' doctrines of design and construction
were later to condense. The 'laws of the distribution of form in nature' enable
P.L.Nervi to ask "Is Architecture Leading Toward Unchangeable Forms" (1965) ;
and Henry Moore to claim " By the intense study of numerous particular
examples in Nature, one can discover certain underlying principles which can
be used, singly or combined, to produce a new and unique work which owes
its unity to the artist's instinctive comprehension of the laws of Nature."

See Footnote

Freed from the paraphernalia of required subject matter, from the social functions of the Academy and the place of 'high art' in an intensely class-ified society, speculations about visual form and projections into the future could, in nineteenth century England, be conducted more freely in and around the problems of decoration and the applied arts. These speculations, allied on the one hand to a theory of construction and on the other to theories of expression were to constitute an attempt at an 'universal language' which, being derived from 'Nature' was, in some sense, unconditioned by history and culture, and therefore a transcendent solution to unbearable tension and contradiction. And all of these efforts spring from an attempt to create a STYLE by the blending of 'arts' (the art system) with 'manufactures' (the industrial system), to solve the antinomy of quantity and quality.

In this new dispensation, there would appear to be no place for craft production.

Footnotes and Bibliography follow immediately.

Footnote to P.6. Ada Lovelace had been working night and day on the calculations Babbage required, in spite of warnings about her health. She wrote, enclosing a new folder of notes, on July 4th 1843. "That brain of mine is not something merely mortal, as time will show.... Before ten years are over, the Devils in it if I haven't sucked out some of the life blood from the mysteries of this universe, and in a way that no purely mortal lips or brain could do. No one knows what almost aweful energy and power lie yet undeveloped in that wiry little system of mine. I say aweful because you may imagine what it might do under certain circumstances" (quoted by Moseley). See also Moore, Doris Langley 'Ada, Countess of Lovelace; Byron's Legitimate Daughter' Murray, London 1977.

Babbage's remarks on the position of science and scientists are powered by his bitterness against the Royal Society but have a real interest beyond that. Wiener does not mention Babbage, which is remiss of him since the whole case that Babbage puts against 'the deeply rooted prejudices of the upper classes' is important to a study of the decline of the industrial spirit.

Footnote to p.7. In pre-emption of Ch.4.: Reynolds use of the phrase 'common form' is interesting. It suggests the 'common notions' that Lord Herbert of Cherbury held to be the bases of all religious experience and hence the foundations of eirenic religious toleration. Herbert's 'De Veritate' of 1645 is one of the foundations of later broad-church ideals. The 'common notions' are all discoverable by any sane man on introspection, and need no dogmatic teaching. But as D.P.Walker has shown, these 'common notions' represented for Herbert the inner form of the 'ancient theology' that preceded Christianity; and that Herbert was deeply involved in the Hermetist and neo-platonic speculations of Bruno and Campanella. If this is so it helps to confirm the role of the Royal Academy as a bearer of such ideas into the 19c. See D.P.Walker. 'The Ancient Theology' Duckworth, London 1972 (esp.Ch.5).

Footnote to P.8. The Journal of Design and Manufactures, founded in 1849 and appearing monthly, was staffed by an editorial team that comprised Maclise and Bell (painter and sculptor), Wyatt (architect), Semper (architect and teacher), Jones (interior and other designer), and Cole (administrator, civil servant and also designer).

Footnote to p.9. Darby's thesis is the only lengthy account of Jones. In addition to much interesting primary research on Jones own activities there is a great deal of material on the background of the Crystal Palace, polychromy in architecture, Semper, Cole, the Dept. of Practical Art etc. He shows Jones close links with French Saint-Simonism and Fourierist circles and his friendship with Jules Goury, Semper, Etienne Labrouste etc.

Footnote to p.10. See also the Journal Vol.4. p.120 et seq. "The section of one part shows the whole; for it is only by the multiplication of these parts that the stupendous structure now in progress is extended....all the dimensions of the Crystal Palace are multiples of one small manageable figure'. Compare this with Babbage's remarks on the science of calculation 'which must ultimately govern the whole of the application of science to ~~life~~ the arts of life'. This mathematical perception of the Palace was common property..see Ruskin on 'some very ordinary algebra are as much as all that glass can represent of human intellect'. (From. Works of J.R. ed. Cook and Wedderburn. 1902 Vol.3. p.450.)

Footnote to p.10. The full title of Pickett's book is A New System of Architecture founded on the forms of nature and developping the properties of metals, by which a higher order of beauty, a larger amount of utility, and various advantages in economy, over pre-existent architecture may be practically attained; presenting also, the peculiar and important advantage of being commercial, its products forming fitting objects for exportation. Nine chapters, one appendix and 143 pages. Pickett was not an architect but the designer of cast-iron fireproof safes. I know of only one ref. to his book (Germann op.cit. p.112). It is a compendium of every idea of metal architecture for the next 100 years and deserves to be better known. He treats of curvilinear forms, colour and electroplated surfaces, suspension and tension structures, prefabrication, the 'laws of distribution of form in nature', an architecture of 'perforation' rather than mass, 'uniform, systematic and optical effects', the use of papier maché, cast, wrought, rolled and corrugate iron members, bolts and rivets, and a building industry organised for export after the manner of railway and shipbuilding enterprises. Alas, the book contains no illustrations. "That which the world has never yet had, is now within the reach of ourselves - and is nothing less than a really NEW architecture - based upon different principles, employing different elements, producing different effect, and embracing further utility.....an Architecture, therefore, in accordance with the spirit of the age (which) possesses in its attributes and its essence, the greatest unity.... in the production of a new and peculiar order of beauty. (addendum: see article by P.Collins in Arch. Review. Oct.1961 for short mention)

Footnote to p.14 Semper was at this time an associate of Marx in London. This and other passages reflect an intellectual background common to both men. See Ettlinger (1964) for a description of Semper's background and intellectual interests prior to his stay in London.

Footnote to p.23. This is a topic of great interest and depth, and it is part of a study that is presently being undertaken into the connections between protestantism and domestic design.

Footnote to p.25. The Journal of Des. and Man. (Vol.5 p.17) mentions some muslins and 'useful and homely gingham, and in Vol.6 gives samples of a cheap print for 'the working classes'; and a large selection is commented upon - but nearly all of these are French. Yet earlier volumes prior to the Exhibition contain several examples of small repeat patterned printed cottons, and they are often discussed. May we assume such work did not appear in the Exhibition, at least not on British stands. The 'Reports of the Juries' are most unhelpful.

Footnote to p.29. The phenomena of panoramas and dioramas at this period needs further investigation. Owing some of their devices to the decoration of Baroque churches, and stage painting, they took their modern form with the work of Robert Blake, who patented some methods in 1787. He placed the viewer at the centre of a surrounding painting, at too great a distance to examine the painted surface. Such spectacles became both common and extravagantly large. Horner's view of the City from the top of St.Pauls required some 20,000 drawings. The Coliseum, built by Decimus Burton to house it (in 1832) was for many years the largest building in London, and contained London's first elevator. Another in Vauxhall Gardens took up three acres of canvas. (I am indebted to James Cumming for these remarks).

Footnote to p.31. John Stewart's article is of great interest and ought to be better known; it sums up the confusion and difficulty that the Exhibition demonstrated.

Footnote to p.34 The example of the Maori tattoo has a life of its own. It appears in Semper's 'Der Stil' and in John Stewart's essay already cited, and comes to rest in Loos's essay 'Ornament and Crime'. Compare the pins of Adam Smith and Ruskin, and the briar pipes of Morris, Le Corbusier and Magritte.

Footnote to p.36. Gilpin's book features again in our Ch.4. The crucial section in Vol.1. sec.5. which discusses the modes of growth of trees and the 'ramification' of twigs to boughs and sprays. "Nature seems to observe one simple principle: which is, that the mode of growth in the spray corresponds exactly with that of the larger branches" (3rd ed. 1808 p.106) This study, later called phyllotaxis, was keenly pursued by Goethe. See also the quotation from Delacroix on our p.37.

Footnote to p.37. Although Ruskin recommends minute observation rather than generality, very similar ideas of lines of beauty in nature, plant morphology etc. can be found in his writings and these in turn are reflected in Morris's remarks on surface pattern. In looking at critical and normative traditions of thought we are not examining separate (established and alternative) cultures, but at the two faces of the same phenomenon - the modernisation of a culture.

Footnote to p.37. The title page to Dresser's 'The Art of Decorative Design' (1862) is relevant reading. The author is described as 'Professor in ornamental art and botany in the Crystal Palace, Sydenham; of botany applied to the fine arts in the Department of Science and Art, South Kensington Museum; and of scientific botany in the Polytechnic Institute and the London and St. Mary's medical colleges.'. Chapter headings include 'the ministration of plants to ornament', 'The affinity of the aesthetic arts', 'Music, ornament, etc.', 'Order', 'Repetition', 'Curves', 'The power of ornament to express feeling etc.'.

Footnote to p.38. Voysey's observations were a late stage in the continuing debate as to what sort of drawing was appropriate for designers - conventional or naturalistic. Witnesses to the Enquiry of 1835-6 had agreed that the better quality of French textile patterns came from real study of real flowers, not from copy-books (See evidence of James Skeene (21 Aug. 1835, and D.R. Hay 15th June 1836). This debate continued in several places (see John Stewart, cited above), and is by no means concluded.

Footnote to p.38. Moore's Goethean remarks are discussed by C. Lichtenstern in 'The Burlington Magazine' Vol CXXII Nov. 1981, 'Henry Moore and Surrealism'. She also mentions Blossfeldt's 'Art forms in Nature' and the work of Haeckel. See also 'The Structurist' ed. E. Bornstein, Nos. 6, 7, 8. These connect Goethe with Biedermann's concept of the evolution of visual knowledge. (See our Ch.4.)

Footnote to p.39. Unfortunately we do not have space to discuss the interesting question as to why 'modernism' developed in France in painting, and in England in decorative design. But we may be sure it has something to do with the changing or ossifying status of the Academies.

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see also references.

Chapter Two

This chapter describes and comments upon the obvious, charting the wood through the trees. Its concern is with images and the industrialisation of their production and distribution in the years immediately prior to 1851. It aims to show, in a succinct form and with as little technical detail as is consistent with necessity and brevity, that the foundations of our present world of imagery were laid before 1851, and that the genetic principles of its further development were already determined. In 1800, imagery was either unique (as in paintings) or confined to small limited editions (often within expensive books). In 1851, imagery was ubiquitous and cheap. In 1800, the printer's workshop was much as it had been two hundred years before: by the time of the Great Exhibition there was a substantial and highly organised graphic industry, with elaborate division of labour and something approaching a factory system of mechanised and virtually unlimited output, employing many new processes.

This 'image explosion' has been studied in many parts, but never adequately as a single object of study. Yet when we begin to bring our attention to bear upon it we suspect that it is an event at least as remarkable as the invention of book printing (on which, of course, it was reliant); and that it may presage a modification of human communication such as we conceive of as having taken place with the invention of writing. It is also clearly revealed as an event inseparable from and necessary to the process of industrialisation and the creation of a modern state (both in Britain and abroad). That event (and it was so swift that it may decently be described as an event rather than a process), was the change from an image scarce culture to one that is image - saturated.

The following article from The Economist (No.9. 1851. p.533) presents us with the 'conceptual landscape' that has to be explored. Anonymous, it is reprinted here in full, since it contains several passages and phrases to which we shall return. Set beside the Prince Consort's speech of 1849, it helps to define our problematic.

SPEAKING TO THE EYE. Those whose office it is to dispense instruction are practising a new art. Our great authors are now artists. They speak to the eye and their language is fascinating and impressive. The events of the day or the week are illustrated or described by the pencil; and so popular is this mode of communication, that illustrated newspapers are becoming common all over Europe. If they do not supersede other journals, they surpass them in public favour. Any one passing along The Strand, between Friday and Tuesday, except on Sunday, must have seen, opposite the church of St. Clement's Dane, and at the corner of Milford Lane, a crowd of men and lads shoving and struggling, and head them joking and bawling as they fought their way up to a side door, and every now and then a man or lad emerging from the crowd bearing aloft in triumph, as if snatched from some rival, a quire or two of newspapers. Around the front of the house too, the passer by would observe people stopping to gaze into the windows of the shop hung round with pictures. This is the publishing office of the Illustrated London News, which is said to send out weekly, on ordinary occasions, the extraordinary number of between 70,000 and 100,000 copies, and on such an occasion as the opening of the Exhibition to issue nearly 200,000 copies; and thus keeps, for half the week, that part of The Strand in a tumult while the operation of distributing the newspapers is going on. Such a sale is, we believe, wholly unexampled either in England or any other country, and it is due to the pictures by which each Saturday the events of the week are illustrated. A similar and successful, though not equally successful journal, in imitation of the London paper, is published in Paris, Madrid, Leipsic, and a great many other towns of the Continent. 'Punch' owed much of its success to the illustrations, and it is the same with many other publications. Artists now dispute the palm with the most popular authors; and however greatly some of the latter are favoured, they stand below skilful wood-engravers.

The causes and consequences of this dawning and important change are worthy of notice.

The causes, though many have combined within the last few years to effect

* improvements in engraving and printing, may all be summed up in the facility with
 which these are now accomplished, and the comparative cheapness in consequence of
 illustrations. In the Illustrated News of the week before last, which, with a sup-
 plement, sold for a shilling, there were thirty four woodcut embellishments, some
 of them filling two pages of the journal, representing the opening of the Exhib-
 ition, the building itself, some of the contents, some of the pictures in the Royal
 Academy, and some of the events or interesting occurrences of the week. Twenty years
 ago the smallest of these ornaments would have been considered, with a due proportion
 * of letter press, cheap at a shilling. It is scarcely too much to say, therefore,
 that by means of improvement in the art of engraving, giving facilities for pub-
 lishing rapidly large editions, illustrative engravings can be given to the public
 at one fortieth of their cost a few years ago. Not now to advert to the several steps
 by which the art has advanced to its present state, we shall merely observe that
 since we learned how to make the sun paint for us, attention has been directed to
 the subject in all the countries of Europe; and in no art have greater improvements
 been made than in the arts of engraving and printing engravings. The result is a
 facility of illustrating passing events truly and graphically, which makes the artists
 as much or more than the writer the historian of our times.

The probable consequences deserve more notice from reflecting politicians
 than the causes of the change. Written or spoken language merely suggests thought,
 and the thing suggested, or the several parts of it for which the words stand, must
 been, as it were, in the mind before. The new thought suggested is merely putting
 together in a new form some scraps of old knowledge. But pictorial representation
 may at once convey totally different and totally new ideas to the mind. The artist
 speaks a universal language. A Turk or Chinese understands him at once, though to
 make either of them understand a written or spoken description would require a
 long time and much instruction. Hence it has become practical to establish in
 London, French and German journals, which, by means of illustrations, speak at once
 to the natives of France and Germany. Pictures, then, have the great advantage over
 words, that they convey immediately much new knowledge to the mind; they are equi-
 valent, in proportion as they approach perfection, to seeing objects themselves;
 and they are universally comprehended. They may make every one participate in the
 gathered knowledge of all. Artists cannot yet catch and portray spiritual abstract-
 ions; many of the thoughts of the great historian, of the philosopher, and the poet
 can only have symbolic and suggestive signs; but all that can be seen - all the
 material world - may be represented by the artist; and now that his skill can, by
 the improvements in art, be made cheaply available, it will in future be more and
 more employed to spread knowledge through every society.

The great extent, also, to which the art may be applied is evident from the monuments of Egypt and Assyria, which, after a lapse of three thousand years, have restored to us a knowledge of the inhabitants of those countries, and of their manners and customs. The artist has handed down to us the information that there were then different races of men - that one race conquered the other:; he has preserved records of battles won, and the number of prisoners taken, the number of scalps carried off, with something like an account of the royal prize money. It is pretty clear, from those monuments, that even statistics can be made impressive to the eye. After a long deviation - necessary, no doubt, that we may prove all things, and hold fast only to the good - we are carried back to the principles of the art with which mankind were first inspired. We again have recourse to the mode of recording events in use amongst the earliest peoples; and now find the method of communication employed by the Mexicans to describe Cortes and his ships, to be the best for diffusing knowledge amongst mankind. The art is, indeed, wonderfully improved, and the rapidity and cheapness with which an object can now be sketched, engraved, and printed, suggests the possibility of obtaining an instrument for forwarding the improvement of mankind more powerful than the press for printing words.

When Gutenberg set his first types, and Caxton began printing in England, nobody foresaw or dreamed of the many changes of which their humble art was to be the parent. Nor did any person imagine, when gunpowder was first applied to the purposes of destruction, that its ultimate destiny was to moderate the horrors of war, deprive individual strength of ferocity, and help forward a period of continual peace that should make an universal exhibition of the products of art and industry possible. Steam, too, without the foreknowledge of the gifted individual who reduced its expansive powers to our servitude, is changing the face of society. Thus it is material changes - improvements in art - discoveries and inventions that are almost unnoticed at their origin, and not any wise political contrivances, which develop civilization and bring about those great changes in society, to conform to which is the highest wisdom, as well as the duty of legislators.. If the modern improvements in the art of transmitting a knowledge of events by the pencil, be more efficacious in diffusing knowledge than the art of printing words, may we not expect it to be the forerunner of changes greater than printing has hitherto brought forward.? Will not the modern art of speaking to the eye, confined to representations of the material world, excluding abstract and spiritual conceptions, increase the influence of that world, and give the knowledge derived from it a vast preponderance over the mind?.

The Great Exhibition itself, which is a representation to the eye, is part of the same progress. It is performing the office of a large illustrated newspaper. It is the history of modern art and invention taught by their actual products. Like sun painting, it speaks all tongues. It wants the facility of spreading that history over the world, and the illustrated paper, without which it is doubtful if it could itself ever have existed, comes to its aid, dispenses the knowledge so scientifically gathered and arranged, and so graphically displayed in Hyde Park, over all the nations of the earth. The Exhibition can only diffuse knowledge by inviting persons from all quarters to come and see it at a great charge and great inconvenience; but its own classified and illustrated catalogues, and the illustrated newspaper, spread the gathered knowledge, for the charge of a few shillings, over distant lands and diversified nations. The Exhibition would be a comparatively feeble instrument for helping forward improvement, without the assistance of illustration and letter-press to convey a knowledge of its wonderful palace and its contents to the many millions who cannot possibly visit it.

Representations of the material world and of common life do not constitute what is called high art; and it cannot escape observation, that the Exhibition, though it contains a few statues, is much more a collection of products that minister to the comfort and enjoyment of millions, than of the products of high art. Instruments, from a steam engine to a bodkin, house furniture of all descriptions, and materials for clothing, from the most comfortable woollen to a gossamer web of lace, make up a large part of its contents. The common and the useful predominate far above fine and high art. In like manner, it is with common events, with subjects that interest the multitude, that illustrated newspapers fill their columns. To give illustrations they must have many customers, and the arts they cultivate must attract the multitude. Historical paintings, grand compositions, even fine groups, and above all, allegorical groups of sculpture, constituting high and fine art, have no charms for the people, and will not be encouraged. When those making large fortunes who carefully minister to the common wants, men of genius and talents will not long pursue any species of art which is less handsomely rewarded. Hitherto, though much talent has been engaged in illustrating passing events, the art has not done for it all of which it is susceptible. Now that it is becoming so extensively popular, it must attract to it the highest talents, and effect a revolution in art itself, making it more than ever subservient to the uses of the multitude, and in improving them by all the talents and genius that are now wasted on many profitless and unimproving pursuits.

See Footnote

A complete exegesis of this text, down to and including the details of style, would be an illuminating and extensive task that has to be foregone ; what follows must concern itself with a general outline of its main subjects, and this too must be incomplete. Incomplete because the history of graphic communication and illustration is a very obscure subject; and it is astonishing how little is known of its industrialisation in the years prior to 1851. Incomplete also because there are conceptual and categorical difficulties of great stubbornness involved in interpreting what we do know. The text is valuable because, amongst much else, it gives us some perception as to how the question of this 'image explosion' was perceived at the time.

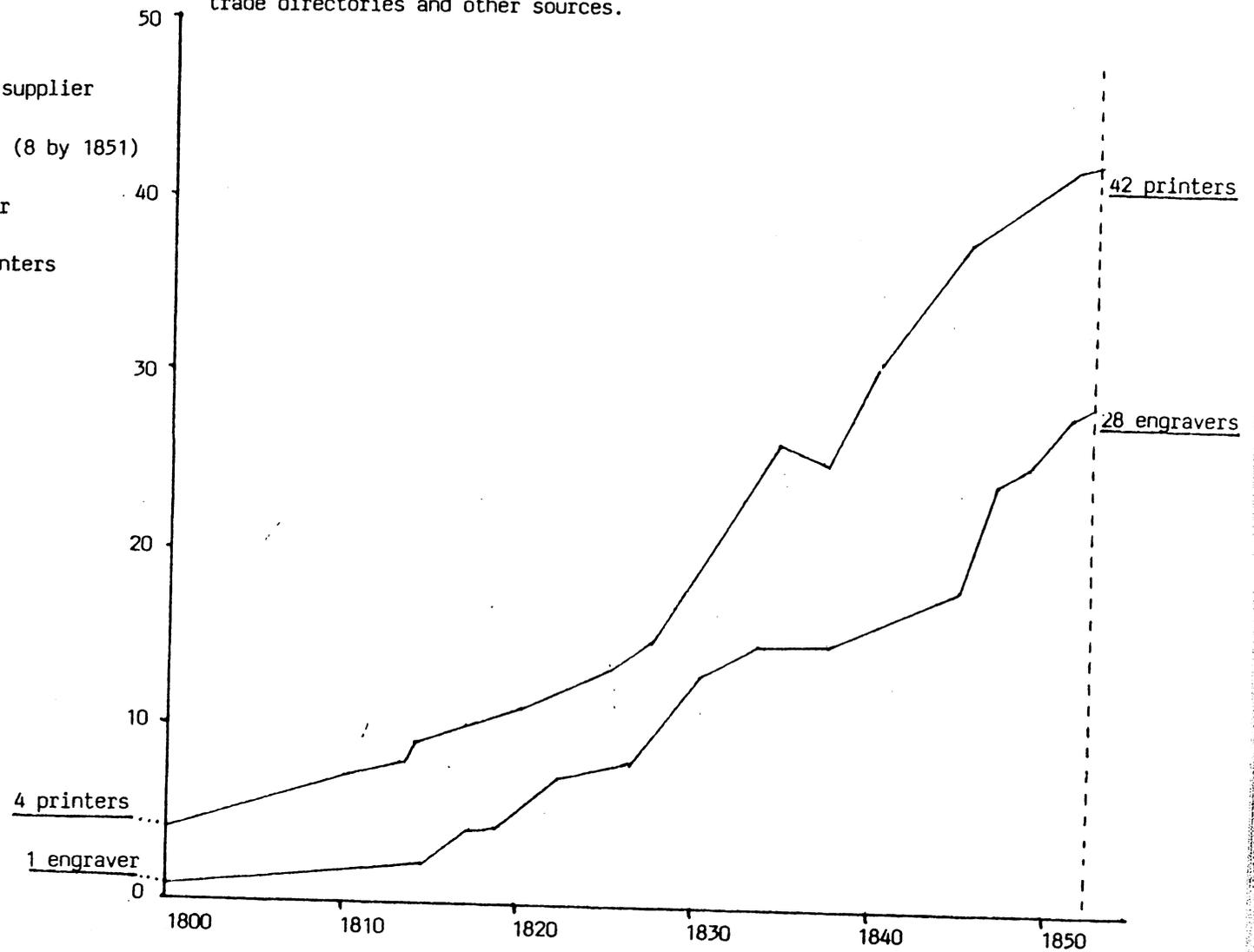
From 'A Connecticut Yankee at the Court of King Arthur '(1889).
Quoted by Marzio (p.119) in a different context.

We might first make an imaginative step into an 'image scarce' culture. Mark Twain's 'Yankee' woke up in his Arthurian lodging and the first thing he noticed was the absence of the colour reproduction. "It made me homesick to look around this proud and gaudy but heartless barrenness and remember that in our home in East Hartford, all unpretending as it was, you couldn't go into a room but you would find an insurance-ehromo, or at least a three colour 'God Bless Our Home' over the door - and in the parlour we had nine." Today, visitors to Russia and Eastern Europe have tended to notice what they call the drabness of the streets: a little observation teaches that this is due to the relative absence of commercial, pictorial advertising. (The development of consumerism in these countries has required the development of pictorial advertising to go with it.) The extension of the industrial system across the world has entailed the extension of this same visual language of information and commerce; and this visual language was first constructed in the 'gründerzeit' of the 1830's.

Additional notes:

- 1822 - first ink-maker
- 1822 - first printer's supplier
- 1823 - first paper mill (8 by 1851)
- 1842 - first press maker
- 1847 - 5 wall-paper painters

The growth of engraving and printing in Leeds (1800 -1851) : compiled from entries in trade directories and other sources.



In order to see this 'explosion' as a single object of study, complementary to the 'object explosion' represented by the Exhibition, and in order to make some attempt to assess its meanings, a simple strategy of three main themes is proposed.

- a). the means
- b). the pictorial conventions
- c). the characteristic usages.

E.Jussim. 'Visual Communication
and the Graphic Arts' (1974)

A.Moles. 'Information Theory
and Aesthetic Perception' (1968)
p.197.

The knowing reader may recognise in this something akin to the channel, code, and message of information theory and the question arose in the course of study whether or not to apply this strict terminology. Estelle Jussim has done just that in her important study of the influence of photography on illustration. But information theory declines to discuss the wider problems of meaning. "Meaning," writes Moles, "rests on a set of conventions which are a priori common to the receptor and the transmitter. Thus it is not transmitted...". But it is precisely the overall meaning of the image explosion that engages our attention.

The conclusion will be that this overall meaning is the restructuring of pre-industrial attitudes and forms of knowledge into shapes and relations suitable to the new industrial society: that is to say its meaning is epistemological and ideological. As The Economist insists, "Will not the modern art of speaking to the eye, confined to representations of the material worldgive the knowledge derived from it a vast preponderance over the mind." The artist, he notes, "speaks a universal language". and the printed image will "spread knowledge through every society". The unwillingness of American scholars such as Jussim and Marzio to discuss this dimension to their subject, reduces the otherwise considerable value of their work.

The application of information theory to graphic art, be it never so illuminating, has the limits of its positivism: it can describe states of affairs, but not explain change; it can analyse mechanism, but not synthesise meanings.

* * * *

Means

If we begin with 'means' this is not to suggest that in some mysteriously simple sense a technical invention 'causes' some cultural development. What The Economist describes as 'great changes in society' belong to a different order of explanation and nexus of causality than do the 'discoveries and inventions that are almost unnoticed at their origins'. To attempt to explain the one by the other courts confusion. For that reason we do not argue that invention arises to 'fill a need'.

The mechanisation of printing through the use of revolving cylinders, at first to bear the paper and then, after some delay, to bear the type-forme seems to have arisen because of the demand for more text more quickly. 'The Times' was constantly occupied with this problem and commissioned and spent large sums of money upon several schemes to speed their process. The 'steam-printing' machine of Koenig and Bowers (1814), the automatic feed, and the final achievement of the cylindrical type-forme arose directly from the view that there was a very large readership awaiting a very large production. In this sense, the specific technology was a response and not a cause. But the principal mechanical inventions that made cylinder printing possible took place

S.H.Steinberg. '500 Years of
Printing' 2nd ed. (1959) p.201.

See Lillien op.cit. p.14 - 15.

Wm. Maudslay also took out a patent in 1805 and later in 1808 for a calico printing machine with a moving plate that pressed the calico against a platen. See also notes to Ch.1. p.23.

See Steinberg. op.cit. p.201.

C. Rosner. 'A Printer's Progress' (1951)

in the textile printing industry several years before. Thomas Bell's patent for textile printing of 1784 "has all parts in a rudimentary form to be found on present day industrial gravure presses." Bell described himself as an engraver upon copper.

Other factors, of a quite different kind could delay or hasten the chain of invention: the tax on printed text (per sheet) delayed the continuous printing of text on rolled paper, but not the continuous printing of patterns for wall-hangings. Thus the application of textile-based mechanisms to the printing of newspapers was delayed. In other cases - particularly with photography - the relationship between invention and the supposed 'need' is enigmatic. These other factors were social (as in the desire of print-workers, and particularly the type-founders and setters, to protect their skills and livelihoods), and they were also aesthetic (Koenig's first machines were rejected in Germany because 'they will issue many impressions, but nothing beautiful'). The matter of the expectation of the readership becomes ever more important as the range of available print processes increases.

However, we can usefully isolate important inventions that created the conditions without which an explosion of imagery would have been impossible, without attempting to draw simple causal conclusions, either way.

The first of these is the mechanisation of paper production, first in single sheets and then (1837) in rolls. Rosner gives some figures for the resulting reductions in cost. A vat of hand-made paper pulp could produce sheets worth

£6 in a week: a machine could produce five times as much in a week, at a cost of £4.10s..(A reduction of 85%).

From local records in Leeds City Library.

See G.Wakeman 'Victorian Book Illustration; the technical revolution' (1973) gives details.

A second is the improvement in press design. In 1813, the new Stanhope machine used by 'The Leeds Mercury' could print at a rate of 250 impressions per hour. The iron frame of the Stanhope gave greater accuracy and its lever action greater speed. For those with more capital and a greater market, the Koenig and Bower's machines were available by 1820, when six such presses were in action in London, working at 1,000 imp. per hour, and driven by small steam engines. For higher quality printing - particularly illustrated books - the Hopkinson and Cope platen presses were available from 1830. At the Great Exhibition, an Applegarth and Cowper machine could be seen throwing off The London Illustrated News at 5,000 imp. per hour. As we have seen, The Economist calculated a reduction in cost such that 'illustrative engravings can now be given to the public at one fortieth of their cost a few years ago.'

It is to these engravings that full attention must now be turned; and to the combination of image and text that the type-compatibility of the wood-block engraving made easy.

K.Lindley 'The Woodblock Engravers' (1970) p.13.

Kenneth Lindley writes " Without Bewick there can be no doubt that the technical demands of a growing industrial society would have led to the boxwood block for printing, but it was doubtful if the standards would ever have been so high." The woodblock's decisive advantage was its type-compatibility.

See Footnote

Yet though it could be fitted into the forme along with the type, it might seem in other respects an unlikely medium for an image explosion. Engraving on wood is a demanding craft, apparently unsuited to swift production. To get engraved blocks completed on time for the new journals, teams of engravers were employed in elaborate divisions of labour. A considerable industry grew up around the creation of these blocks, whose technical complexity seems to make an improbable bearer of mass imagery.

A comparison with the development of illustration in other countries might shed light on the complete dominance of woodblock in Britain. Though there was a woodblock printing trade of similar size and skill in Paris, and interchange of skills, persons and their products - yet lithographic illustration of journals developed there and not in London, where lithography was almost exclusively linked with specialist and expensive printing. There was no London equivalent of the 'Charivari' and other great magazines of comment which, though of far smaller circulation (around 3,000 per issue for Le Charivari), appeared daily. In Germany and the United States lithography also seems to have developed quicker. The study of this question is difficult due to the lack of some basic information (what, for example, was the availability of lithographic stone in England?) But one conclusion is reasonable; that the expectation of readership played an important role in the difference between countries. From the very beginning, major continental artists used lithography, and gave it a prestige that it never attained in England. Delacroix is an obvious example of a leading painter whose lithographic illustrations lent status to the medium in the eyes of a clearly defined readership. We note that there is no English equivalent to Daumier. English painters (as opposed

to illustrators) worked always in close conjunction with the very skilled reproductive engravers on copper and steel. An educated French readership expected to see lithographic illustration; a similar readership in England did not. The consequences of this for the quality of illustration would be an interesting study. In spite of *The Economist* holding out the promise of 'large fortunes' to the woodblock illustrator, the work did not attract the attention of the 'highest talents' except in a few rare cases. Indeed, woodblock came to be less and less used as a medium for quality illustration of any kind, and there were regular crises in the relationship between artists and engravers, due in part to the division of labour, that did not exist in lithography.

See Wakeman. op.cit. p.71 et seq.

The power of the woodblock was increased by the discovery that it could be copied in metal: the process of casting stereotypes began around 1830 (though details of its invention and use and spread are obscure). The electrotype (made by electrical deposition of metal in a wax mould) followed some ten years later. By these means each original block became a master for many replica blocks from which the actual printing was done. In 1836 *The Penny Magazine* was being reprinted in New York from stereotypes of the original London edition. This genetic principle enabled the swift distribution of useful images, so that each printer could have a stock of handy blocks to which different captions might be added. Since the original master blocks were very durable in themselves (Lindley gives a figure of one million impressions from one of Bewick's blocks) the augmentation of imagery was potentially immense. These are the 'improvements' and 'facility' of which *The Economist* speaks.

See Lindley op.cit. p.34.

See Jussim. op.cit. for extensive material and discussion.

Great efforts were made to prolong the life of the woodblock in commercial printing, even to the extent of imitating with immense skill the effects of photography: but that remains outside the scope of this survey.

In the more expensive areas of printing, engraving on metal was further advanced quantitatively by the change from copper to steel: the much greater hardness of steel permitted it to be put through the press more often, and through harsh mechanical presses, enabling some thousands of 'pulls' to be taken; whereas copper was normally restricted to hundreds or less.

These details are taken from S.Houfe 'Dictionary of British Book Illustrators and Caricaturists. 1800-1914' (1978) See also B.Hunnisett 'Steel Engraved Book Illustration in England' (1980).

See Wakeman op.cit. p.33.

S.C.Hall, publisher of 'The Amulet', quoted by Houfe (p.41).

The publisher and artistic entrepreneur Rudolf Ackermann was prominent in this area of work, expanding his business from extensive hand-tinted aquatints to mass-produced albums and annuals modelled on the sentimental miscellanies produced in France and Germany. His 'Forget-Me-Not' ran from 1822 to 1847, and was the model for many others. Alaric Watts, for example, commissioned original paintings and drawings to illustrate his 'Literary Souvenir' which ran from 1826 to 1842, with an imprint of 6,000 per edition. These albums used largely steel-plate engravings. Altogether over 300 separate annuals and similar works were published between 1823 and 1855, full of adventurous and decorative printing. John Martin and J.M.W.Turner were among the very many artists whose imagery was distributed through this medium to a much wider, though still not 'popular' market. "Sums of money that sound preposterous were lavished upon the several departments..... amounts varying from 20 to 150 guineas were paid to artists for the loan of pictures to be engraved; and it was by no means uncommon for the engraver to receive 150 guineas for the production of a single plate."

W. Benjamin 'The Work of Art in the Age of Mechanical Reproduction' . (1970) p.226 (in 'Illuminations')

Wakeman. op.cit. p.35

See Footnote

An interesting enquiry can be made into the dependence of painters upon engraving, and the effect of this upon the development, or lack of development of style. Walter Benjamin was to comment; " To an even greater extent, the work of art reproduced becomes the work of art designed for reproduction."

Wakeman writes " The great spate of books illustrated by steel engravings during the 1830's led to a decline in the art in the 1840's," and comments on the details of this decline. Engravers at the time were aware of it. The 'up-market' reproductive engraver, accustomed to working on a large format for separately issued editions found his livelihood under threat from what were described as 'ignorant capitalists'. In 1836 we find the House of Commons Select Committee on Arts petitioned by engravers seeking full admission to the Royal Academy in order to advance and protect their status. Witnesses argued that there were now five times as many engravers as there had been twenty years ago, and that their importance in disseminating art had been overlooked. With Academic membership they could protect themselves at law from unscrupulous publishers and plagiarists. (This sheds further light on the final paragraph of the article in The Economist, with its discussion of 'large fortunes' and the place of 'fine and high art.)

We have touched on only those means of image reproduction that were in the line of development from Gutenberg; but this is enough to show something of the increase in capacity, and enables us to make some simple (though perhaps slightly absurd) estimates.

From the uncertain figures available we can propose the following figures:

a). For engraving on metal (up to 1836) ; a five fold increase in the number of engravers and a twenty fold increase in the number of impressions per plate. Increase x 100.

b). For engraving on woodblock (London 1817 - 1851) ; a three-fold increase in the number of engravers and a very great increase in the number of impressions from each block or stereotype. Increase x 3n.

More succinctly, for every engraving printed from a metal plate in 1800, there were one hundred in 1836 (and presumably more in 1851) : for every engraving printed from a wood block in 1800, there were many thousands in 1851. The effect of this upon the manufacture and trading of unique imagery (painting and sign-writing), and of limited edition imagery, may be surmised. We are accustomed to regarding the invention of photography as having seriously modified the role and nature of the painted picture, but with these figures in mind we should reconsider that view. The industrialisation of image making can be assumed to have disrupted the practice of painting and engraving well before the invention of photography. The consequences of this may be studied in the history and development of the Royal Academy, but it is an obscure matter. Once again, we have recourse to The Economist, who remarks that "Historical paintings, grand compositions.....have no charms for the people

See Toni del Renzio 'Art is Modern, and will not be encouraged.' The production of historical paintings and grand Bourgeois, Conceptual and Marginal'. compositions must become, in such circumstances, ever more problematic.

(1978) and below

We have still to consider the arrival of lithography. Lithography was not easily mechanised, and remained slower than woodblock until the 1850's.

But its inventor had no doubts about its eventual progress. Senefelder's 'Complete Course of Lithography' (English ed. 1819) reads " I shall not admit that lithography has made a great step toward the utmost perfection until the ~~arr~~ing work of the human hand has been dispensed with as much as possible and the printing is done almost entirely by machinery.....I have no doubt perfect painting will one day be produced by it."

The strongest impression one receives in looking at the early history of lithography in England (as opposed to France) is that no-one was certain how best to use it. It was quickly adapted to book illustration (where speed was not of paramount importance: therefore in terms of sheer quantity of imagery, it was of less importance.

See Wakeman op.cit. p.161.

Wakeman suggests that by the 1850's as much as 42% of book illustration was done by lithography. Much of this was in colour, and it is as the bearer of colour into printed imagery that lithography is most important in this period.

H.Repton. ' Observations.....on
Landscape Gardening' (1803)
The Introduction.

The expensive, hand-coloured aquatint was the normal means of colour reproduction in the first years of the century; and it was time-consuming and uncertain. Humphrey Repton notes in his 'Observations.....on Landscape Gardening' (1803) "When tempted to complain of delay, disappointment and want of punctuality in artists, I am checked by the consideration that works of genius cannot be restricted by time, like the productions of labour." To

this he adds the note "The art of colouring plates in imitation of drawings has been so far improved of late that I have pleasure in recording my obligations to Mr. Clarke, under whose direction a number of children have been employed to enrich this volume."

Lithography offered a means of overcoming the slowness of such work, but required extended research into inks and colour combination. The large number of books on colour theory published about this time may have some bearing on the research colour printing required. The first book on colour, to be printed in colour lithography, was F. Howards 'Colour as a means of art' (1838). The plates for this little production were printed by Charles Hullmandel, who was the leading pioneer of this work. For the best (and it seems only) summary of the development of colour printing, the reader is referred to Wakeman.

For a discussion of Owen Jones' role in the development of chromolithography see the thesis by Darby; Ch.2. (ref. in our Ch.I.)

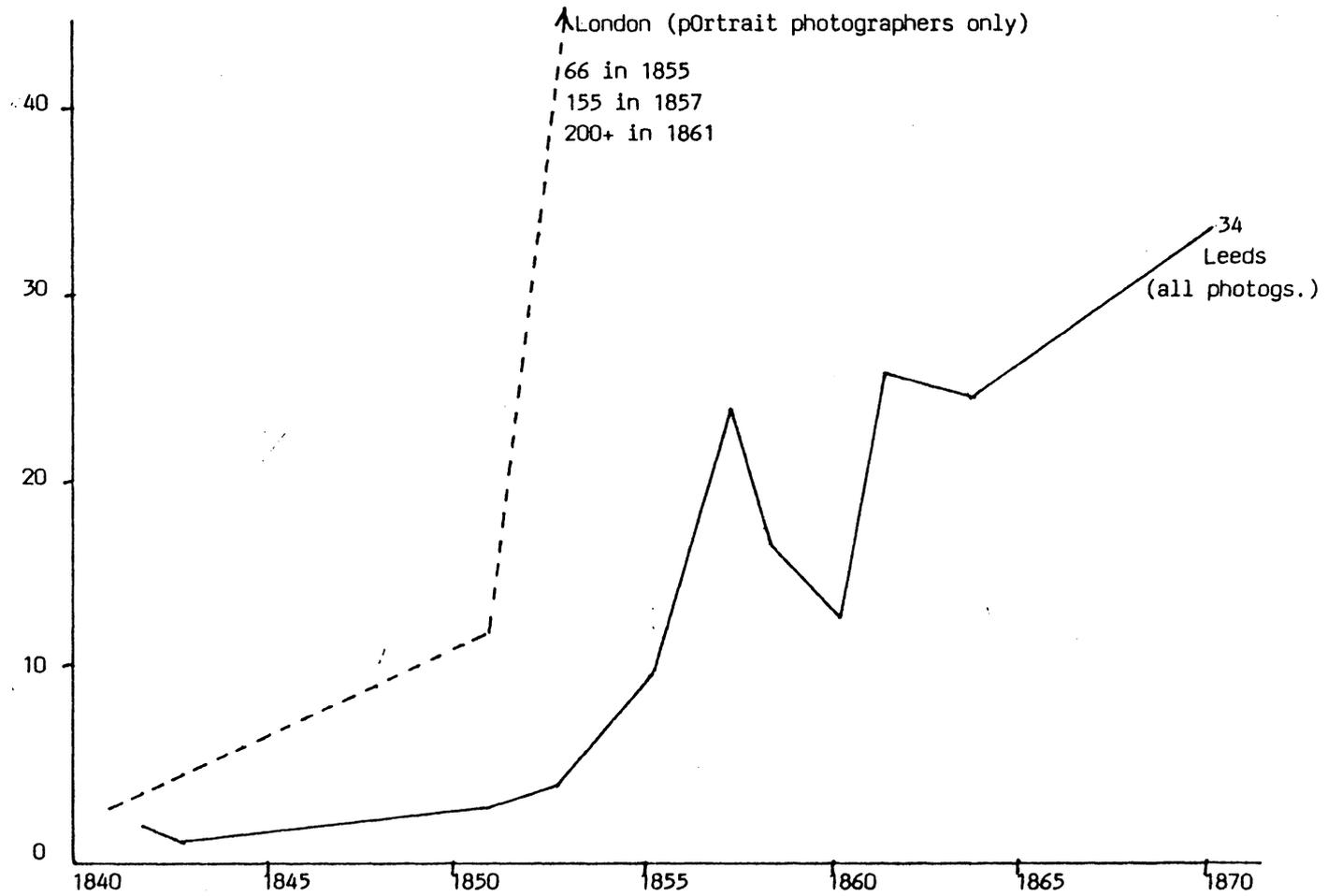
So far we have discussed only the printing of autographic images - those produced by the hand of some graphic artist (albeit often mediated through several other hands as well) Photographic imagery must now be considered.

At the time of the Great Exhibition the photographic 'explosion' had begun. But only just. Gernsheim gives a figure of 51 registered photographers in London, followed by 2,879 ten years later (with other useful figures for specialist photography). In Leeds the figures show a steep, but less startling rise, with a curious 'slump' at one period, which suggests the trade was oversubscribed.

H. Gernsheim (with A. Gernsheim)
'The History of Photography etc.'
(1955) *st. ed. p.166.

(graph follows)

Photographers in commercial practice in Leeds; and portrait photographers in London.
From ' Early photography in Leeds' (Leeds Art Galleries 1981) and Gernsheim (1955).



See 'Early Photography in Leeds' for this information.

Once again, the graph conceals information, since it comes from commercial sources only. In the case of Leeds (and we may assume like cases elsewhere) commercial photography (that is, the making of daguerreotypes) was the monopoly of one concern - that of Samuel Topham. Topham (who was also an engraver of long standing) established a 'Photographic Portrait Gallery' on the strength of a ten-year license within the city boundaries. When the patent lapsed in 1852, new men rushed into business with new processes. But in the meantime a very extensive amateur movement had come into existence. In Leeds, pharmacists found it profitable to become photographic suppliers, and in 1852 a photographic society was founded (still in existence) with an illustrated journal. In 1853 one of the pharmacists had diversified, and offered for sale a 'tourist camera' for amateur use; there was the beginning of a small industry in camera making. In the course of time, Leeds was the first city to be recorded on moving images.

The cost of photographs in Leeds decreased from 10s6d in 1842 to 2s0d in 1855 according to the bills of the 'Photographic Portrait Gallery'. The speed of the processes had notably increased: but the essential invention was the glass negative, the master image of a very large number of potential replica prints.

Though photography was some way from being incorporated into an industry by 1851, yet all the components and processes of industrial production were coming together ; a study of the previous employments of the commercial photographers of Leeds and district gives some indication of the intermarrying of skills at the start of this new aspect of the image industry. By tracing names back in the trade directories we discover that they had been, and

from information supplied by C.J.Radcliffe, and local history archives of Leeds and Bradford.

The appropriate page is on display in The Science Museum, South Kensington, London.

See Lillien. op.cit. Ch.2..

J,Poortenaar 'The Techniques of Print and Art Reproduction' (1933)

often still were, the names of engravers, pharmacists, opticians, watch-makers, cabinet-makers, booksellers (who were often printers and publishers), art dealers and artists. This is a perfect cross-section through the skills that a photographic industry would require, and also through the skills required for the forthcoming marriage between photographic and mechanical print processes, and between autographic and photographic image creation.

This marriage had been foreseen even before the birth of photography in its normal sense. Niepce had experimented with the reproduction of engravings by what he termed 'heliography' as early as 1828. The very first printed image of photographic origin was of a 'photogenic' drawing by Fox Talbot, which, having been exposed upon a woodblock, was then cut, and printed in 'The Mirror of Literature, Amusement and Instruction on the 20th. April, 1839..

Fortunately it is not necessary to discuss here the bewildering elaboration of new print processes which sought to employ photographic and photochemical means, and to harness them to the ever increasing numbers and types of mechanical presses; this lies after 1851, and in that era predicted by The Economist, when ' the art of transmitting a knowledge of events....(through images).....will be more efficacious in diffusing knowledge than the art of printing words." When " we again have recourse to the mode of recording events in use amongst the earliest peoples."

We can now propose, following the schema of Poortenaar, a simple staged description of the growth of our present panoply of image systems.

After a first primitive stage of unique, autographic image making (1), a printing system is devised using the devices and technology developed in the textile and metal-working crafts.(2).

This manual stage is succeeded by a 'mechanical' stage in the early nineteenth century, through the adaptation of machines originally conceived for textile printing: but the original image (the master block or plate) is still autographic. At the same time, a photographic process is developed. (3)(4). Shortly afterwards, a photographic printing system (the negative-positive) is invented independently of the mechanical system. (5).

After much trial and error, photographic images are rendered capable of mechanical reproduction - giving a 'photo-mechanical' stage (in which autographic images can also be reproduced). (6). From now on the distribution of autographic imagery declines relative to the photographic imagery. The invention of telegraphy and radio add a further stage (7), rapidly overtaken by the electronic media which are not strictly speaking printing media at all, but image storage and distribution channels. (the question as to whether tapes and discs can be said to be printed imagery need not detain us now.) (8).

At each stage there is a great increase in the quantity of imagery in circulation but the new means do not drive out the old (or, only briefly). Primitive autography (painting and drawing), manual printing (etching and engraving) are still with us, as is photography (whose early techniques are once again being 'rediscovered'). Later stages tend to imitate early stages. At each stage, the earlier 'superseded' media have undergone a change in function, toward a greater specialness, or 'artistic' usage. There would seem to be some general

M. McLuhan. 'Understanding Media'
(1964)

law of cultural valuation at work here, and the schema might usefully be employed to other processes and products. This schema is also clearly indebted to the writings of McLuhan.

(diagram follows)

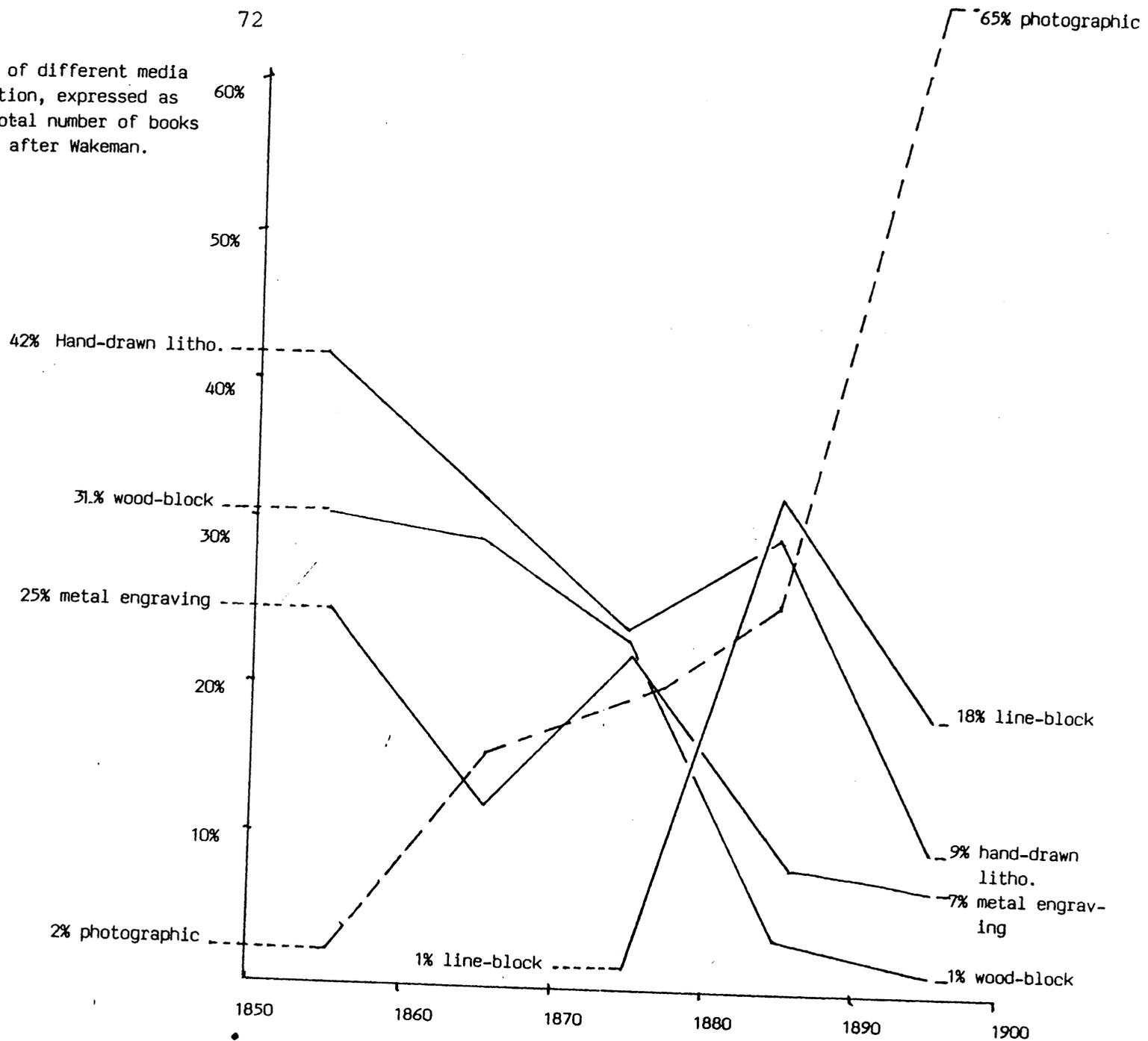
The second diagram shows the decline in autographic imagery (engraving on wood, metal, hand drawn litho etc.) and the rise of photographic imagery (= photographic and photomechanic printing) in book production only. Line block is given a separate category, as being photographically reproduced and autographically produced. This diagram should be regarded as highly generalised and speculative: it does not apply to journals, newspapers, and advertising (that is, to the bulk of imagery) where woodblock engraving survived much longer. The information is from figures given by Wakeman.

It makes clear that the decade following the Great Exhibition showed the start of steady decline of autographic imagery in visual communications.

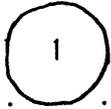
(graph follows)

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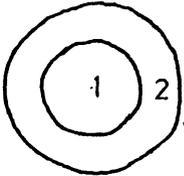
Frequency of use of different media in book illustration, expressed as percentages of total number of books in each decade : after Wakeman.



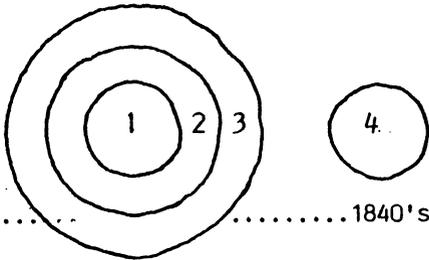
'Primitive' auto-graphic stage pre-1450.



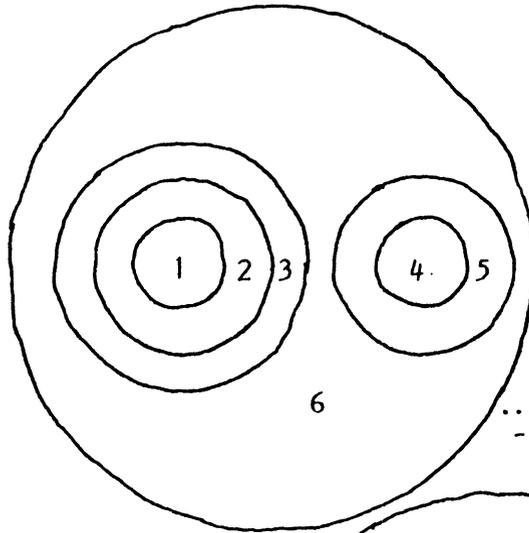
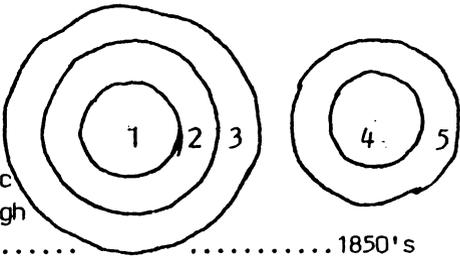
Early 'manual' printing stage..... post 1450



'Mechanical' printing and early photographic stage..... 1840's



The addition of photographic printing through the negative..... 1850's



.....Later 19c: 'photomechanical' stage

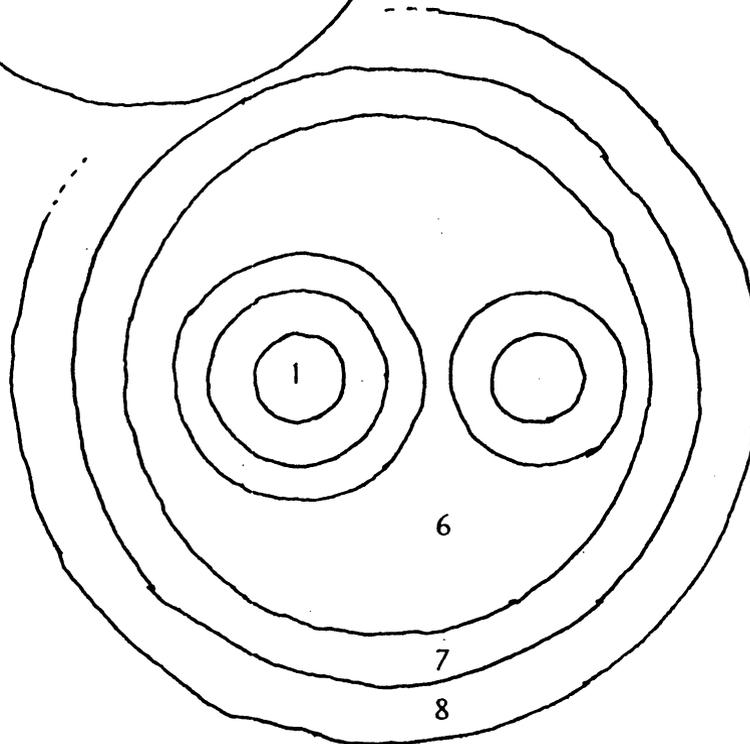


Diagram to illustrate the successive stages of image production and replication, and the persistence of older means within the overall system. (See text).

20c. Radio-telegraphic and electronic media. Film a special case.

Pictorial conventions.

By pictorial conventions is meant (at the macro level) ,those ground rules for the comprehensibility of form that enable us to 'read' an image; and at the micro level) that code of marks, lines, dots and zones out of which an image is assembled. Each print process has certain visual characteristics, but the code of any one printed image may be borrowed from or in imitation of the characteristics of some other print process.

Pictorial conventions must at some point be learnt, and so have a complex cultural character. This learning may be of the most general kind - as when a child learns to recognise a picture, or it may be highly specific, as when we learn to read a technical drawing. Pictorial conventions are also - since they are the ground rules for representation - visual forms of theories of knowledge. A study of the pictorial conventions surrounding the advent of the industrial system, should reveal something of the cultural character of that system, its characteristic account of information and enveloping epistemology.

That is certainly how The Economist saw the matter. " The pictorial representation may at once convey different and totally new ideas to the mind....Picturesconvey immediately much new knowledge to the mind.....they have a great advantage over words..... (which) merely suggest thought.....scraps of old knowledge." The Economist sees pictures as having a definite social function - of "diffusing knowledge". But above all, "the artist speaks a universal language" and pictures "as they approach perfection " are "equivalent.....to seeing the objects themselves."

What, we must ask, is meant by 'perfection'?

A main concern of earlier print makers was the problem of rendering tone: this was a consequence of the main ground rules of post-Raphael painting, of the disposition of light sources and of the chiaroscuro modelling of form. The very first printed images were made from fine and coarse lines, and solid areas of black ink or white paper; intermediate tones had to be constructed from meshes of lines (though there is an old family of 'dotted' prints, and small dots and flashes were often incorporated into seventeenth century engravings.) Ingenious tools and semi-mechanical devices were employed to create these meshes of lines. The inventions of mezzotint for dry engraving and aquatint for etching meant the substitution of a dotted or grainy code for the linear constructions. Mezzotint in particular was ideally suited to the reproduction of painting, since it rendered and built up tone in a similar manner. As we have noted, a large class of reproductive engravers of great skill worked beside the academic painters, and both were locked into a mutual dependence, both stylistic and economic. The mezzotint code of dots, qualified, strengthened and made immensely subtle by aquatint, line work and many exquisite skills was perfected in the early nineteenth century and has been the foundation of most printed imagery since, by way of the half-tone block, screened images and finally the lined array of dots that constitute the televisual image. Of all codes, when reduced to its finest, it most nearly reproduces the neurological code of the retinal image. That is to say, in information theory language, it approaches subliminality; the code does not appear in the message as 'noise'.

W. Ivins 'Prints and Visual Communication.' 1953.

E. Jussim. op.cit.

William Ivins, in his pioneer study of printed imagery, regards the pursuit of 'subliminality' as the determining factor in the evolution of the printed image: Estelle Jussim has made a fascinating study of the increasing refinement of autographic technique to that end, and the interested reader is referred to their work. Here we equate Ivins 'subliminality' with the 'perfection' of *The Economist*. We shall note that as mass-produced imagery became increasingly 'subliminal' (or 'perfect'), so unique imagery began to exploit the shaggy qualities of autography, and to rediscover the 'bite' of the etching, and the 'touch' of the brush. (The protracted academic debate about technique begins with the problem of - what sort of code is desirable?).

The imitation of codes is thus an interesting matter. We have the attempts to extend the life of woodblock by the imitation of the photographic half-tone; but the main medium for imitation was lithography. One of the earliest books to be published (in England), illustrated by lithography, was 'Rural Architecture' by P.F. Robinson (1823), which has plates printed by Hullmandel from drawings 'on stone' by J.D. Harding; these imitate engraved effects. The splendid hand coloured lithographs of the 1830's and 40's mimic, in details of landscape and vegetation, the woodblock code of little marks (itself standing in a similar relation to the discrete brush strokes of the picturesque painter in oils, with this difference - that tone in engraving must be so produced.) In the same illustrations, details of architecture or scenes of the new technology of rail and steam that these fine works often depict, imitate the code of the engineers steel engravings and mechanical drawings. In such cases, the mimicry of codes serves a meaning - the intrusion of the new geometric sublimity of industry into the older 'organic' landscape.

These observations were made at a Welsh Arts Council Exhibition 'Pontydd Menai/Menai Bridges' (Catalogue, with foreword by A. Knight and B.R. Barry. 1980)

P. Marzio. 'The Democratic Art: chromolithography 1840-1900' (1979).
fig. 3. p.25.

The adaptability of lithography, its relative absence of a determined code, could be turned to commercial advantage. Marzio gives the following advertisement..... "Duval's Lithographic and Colour Printing Establishment of Philadelphia. Drawings of all kinds executed on stone. Copper and steel plates, woodcuts, manuscripts etc. transferred. All kinds of colour or ornamented printing executed in the neatest style. Nota: engineers and surveyors, wishing to execute their drawings for transferring will be supplied with suitable paper and ink. Having succeeded in adapting for the first time Steam Power to the lithographic press, extensive orders and the largest size drawings can be printed with great despatch and moderate cost." Marzio comments that the claims for mechanization were probably an exaggeration at the time (1849) Mechanical lithography did not 'take off' until Sigl's patent in 1852.

See Marzio. op.cit. for an extended survey of this subject.

Varnished and embossed lithographs could be made that imitated oil-paint with enough success for some publishers, especially in America, to commission artists directly to work exclusively for reproduction. It was in this ambiance that art and advertising met and married. We should also note that lithography freed the printing of letter forms from typography, and brought autographic invention back into lettering - with great importance in the realm of advertising, poster design, greetings cards and music covers. The combination of image and text could be made much closer.

Thus the question of code became visible in a new way; the choice was not between print processes, but between codes within one process. Thus choice of code becomes separable from choice of process.

In so far as The Economist presents an authoritative statement of the visual prejudices of the time, then it helps us to understand the immediate appeal of photographic imagery, which, from the point of view of 'perfection' is the greatest 'improvement'. Ivens interprets the appeal of photography as due to its lack of syntax, that is, of an ordered and visible code. There was, it appeared, no construction of areas of tone - it was 'sun-painting', by 'the pencil of nature'. Within the limited possibilities of early photography, such a conception could very easily arise; but later in the century we find photographers going to great lengths to imitate the pictorial codes of autographic imagery, in the 'pictorial photography' movement. The concept of 'syntax' and its associated 'subliminality' is complex; for the purposes of this study we would wish to distinguish between those codes (approaching subliminality) which reinforce the reality of the pictured object - and of these, photography was predominant; and those codes which reinforce the reality of the viewing subject and the materiality of the picture surface (the obviously autographic codes). The painter's 'touch', the materiality of paint, ink, bare paper or canvas - the mode of affixation of the image to the surface (to use a phrase by Tarabukhin) becomes increasingly visible and increasingly the bearer of meaning and expression

See references in Ch.3 and Ch.6.

An increase in visual discrimination is therefore an important consequent to the 'image explosion', even at the early stage of 1851. In the subsequent century this discrimination has developed proportionately, with the use of yet more processes, more codes, and an extended range of conventions.

This increased range of choice and visual discrimination applies also to the 'ground rules' for comprehensibility of form. At a time when the mass-produced image, broadly based upon two centuries of academic pictorial convention, was being established as the visual language of commerce, education and entertainment 'universally' to both 'Turks or Chinese', the foundations of those conventions in the academic tradition were already being transformed. This sets the problematic of the 'avant-garde' back to an earlier date than is usually considered (as noted in the first chapter, with respect to 'the carpet paradigm'). Once again, we can usefully turn to the text in *The Economist*, which makes a number of distinctions between 'representations of the material world' and of 'the common and the useful', with 'fine and high art'. The writer is recording a real shift in the visual language of the era. "Artists cannot yet catch and portray spiritual abstractions; many of the thoughts of the great historian, of the philosopher, and the poet can only have symbolical and suggestive signs: but all that can be seen, all the material world, may be represented by the artist." (This, in nuce, is the very ~~background~~ background of symbolism and early abstraction!).

- ✗ It was suggested earlier that pictorial conventions are visual forms of theories of knowledge. *The Economist* recognises this clearly, if crudely. The theory of knowledge he invokes is the barest kind of empiricism, which must always seek some 'subliminal' visual code so that the material reality of the image, (its evidence of intellectual will and preconception) cannot interfere with the pure data of its message. Thus 'sun-painting' was expected to confirm the cognitive theory that supported the 'improvement' of picturing toward 'perfection'..."In

Publicity notice for the 'Leeds Photographic Gallery' in 1842.

See W. Vaughan. 'German Romanticism and English Art' (1979) Ch.2. for a relevant discussion. See also Chapter Four below.

Here, as in other places in this chapter, the argument is indebted to del Renzio.

such exquisite subtlety of touch and tone as might fill a Vandyke or a Lawrence at once with delight and despair." The camera appeared to be a practical vindication of empiricism, which treats the mind as a sheet of white paper which takes impressions of objects when exposed to sense data: but this is the theory the writer of the article assumes to be behind all picture making.

Yet this is manifestly not the case with Romantic painting of the previous decades: and indeed, it is not easy to reconcile empiricism with the deductive idealism of Reynolds' 'common forms', and the need to transcend all 'local customs and particularities'; nor with the historicist idealism of the Pre-Raphaelite Brotherhood - though the writer might find himself at home with Courbet or Ford Madox Brown. The pursuit of 'symbolical and suggestive signs' becomes a major - perhaps the major ambition of the autographic image maker from this point onward. The article to which we have so often referred demonstrates the cleft that has opened up, already in 1851, between the empirical, positivist visual language of the industrial system and its appurtenances, and the visual languages (many, metaphorical and existential) of 'fine and high art'. This cleft (though formally visible in an extended range of pictorial conventions) is evidently an ideological impasse of some depth affecting both the domain of production of the 'fine arts' and the domain of their reception; and it may be traced, like the fault-line of an immense geological shift below the surface of our daily landscape. Our very conceptualisation of 'cleft' is an instance of the problematic that is so difficult (and perhaps, logically impossible) to describe from within.

There is a further direction in which the pictorial conventions were extended. Throughout the early nineteenth century we can observe the progressive codification of 'mechanical drawing' into its present state. This is important not simply for its considerable intrinsic interest, nor only for the light it sheds on the development of industry and new classes and modes of employment, but for the creation of new, non-illustrative modes of depiction and instruction.

Descriptive drawing of machines, mines and buildings are, of course, very ancient types of drawing: but the mechanical drawing was prescriptive and aimed to give clear and unambiguous instructions. Industrial production required a precise and universally comprehensible code.

J.Smeaton. 'A narrative.....etc.'
2nd ed. 1813.

It is interesting to see that its purposes and conventions had to be explained to the viewer. John Smeaton, in the preface to his description of the building of the Eddystone lighthouse found it necessary to write about his plates, that "They are in reality little more than geometric lines, drawn to explain geometric and mechanical subjects. If any of them put on the appearance of anything further, it is to render it more explanatory and descriptive. They are, in reality, not meant as pictures....." The plates, splendid large engravings, cut in 1786, are a mix of mechanical drawing and picturesque detail - and some way from modern engineering drawing.

Unambiguous instructions, which left no room for craftsmanlike improvisation and invention, were a necessity of the new precision of material handling, and the new work discipline. The codification took place in naval dockyards and the workshops of the engine designers and railway builders. Here a new type of

image-maker - the draughtsman- came into being, with new powers and status.

K.Baynes. 'Drawing as Design Method'
(1980)

p.46. Stephenson complained in 1836. "They have no sooner come into an office, and become acquainted in every detail with our plans, than they leave and carry away what has cost us a great deal of money and more thought." To regularise the instruction of draughtsmen, 'mechanical drawing' became part of the offered curriculum at the Mechanics Institutes.

The prescriptive nature of such drawing indicates an important change in the flow and nature of information: it is the visual language of experts instructing operatives. This operational necessity in the production of identical replicas, within the nineteenth century factory or foundry, also indicates the appearance of a distinct social group: this is not simply a matter of professional status, (though men and women were employed on a 'staff' basis); it is an informational status. " An engineer is a mediator between the philosopher and the working mechanic, and like an interpreter between two foreigners, must understand the language of both.....Hence the absolute necessity of his possessing both practical and theoretical knowledge." Engineering drawing is the language of such mediation, as have been the innumerable other forms of diagram, chart, map and instructional sheet developed since the 1820's. The tacit understanding of the craft-working ship- or mill-wright is being replaced by the explicit science of the industrial manager and technologist. From this distinction derives most of a modern educational system: industry both requires and makes such distinctions.

Baynes. op.cit.

p.47.

H.R.Palmer of the new Institute of Civil Engineers, in 1818, quoted by Armytage. p.22. (see biblio.)

Usage

And what was the use and function of this image-mass ?

A full study of the use and function of imagery in its relation to the industrial system - as production and consumption - would concern itself with social studies of 'readership' and 'sponsorship', and match these with means, image-codes and conventions, in some complicated matrix. This would then present a further set of problems and the degree to which one could generalise from what would be already a highly general picture of English industrialisation, to that experienced in (for example) Belgium, not to mention further afield, would be immensely problematical. But the real and excruciating difficulties in the way of any authentic application of such a matrix to any detail ought not to prevent us attempting some general account . We are dealing with one of the major experiences of mankind. Enquiry must begin at both ends of the scale of magnitude so that logical theory and empirical research inform each other in their mutual progress and reciprocal dialectic.

It is well beyond the scope of this short study to begin such a task, but we can make some observations.

To The Economist, the essential function of the imagery was simply said - 'the diffusion of knowledge' by means independent of language or nationality. Mass produced imagery was taken to be an extension of the text by more efficient means.

The illustrated periodical, the serial encyclopaedia, the manual of instruction were the visual counterpart of new literacy, new schools, Mechanics Institutes and Schools of Design. The titles explain themselves: 'The Mirror of Literature, Amusement and Instruction.' (1822), 'The Library of Entertaining Knowledge' (1830), 'The Quarterly Journal of Education' (1831), 'The Penny Magazine' (backed by the Society for the Diffusion of Useful Knowledge) (1832), and 'The Printing Machine: a review for the many' (1834).

In an unpublished thesis. (see
biblio.)

Fox.

ibid.p.145.

The Penny Magazine 1833 ii p.445.
(quoted by Fox.)

Celina Fox has made a useful comparative study of the political stance of these papers, and concludes that 'The Penny Magazine' and other publications organised by Charles Knight were "thinly disguised propaganda for Whig reform and political economy." 'The Penny Magazine' contained precis and commentaries upon Adam Smith and Andrew Ure's 'Philosophy of Manufactures' (discussed in the next chapter). It looked on the bright side of the industrial system: "Although there may be great abuses in many establishments in which children are employed, extensive factories may and do exist where the light spirits of youth are still buoyant and unbroken by undue labour." 'The Penny Magazine' was one of those that did not publish the illustrations to the Parliamentary Reports on the Employment of Children in the Mines and Manufactures (May 1842). The 'Illustrated London News' was another. But 'Bell's Penny Dispatch' on the 15th May ran several pages of illustrations of harnessed and naked children under the headline 'Wholesale Murder of Working Classes'.

Chartist-oriented publications contrasted 'the knowledge that should be deeply studied by every man that desires to be free' with 'namby-pamby stuff pub-

lished expressly to stultify the minds of working people and make them spiritless and unresisting victims of a system of plunder and oppression.' (Amongst such knowledge was an item called 'Defensive Instructions to the People', which attracted the attention of the law.)

Of importance to this study is the role played by this mass of popular illustrated material in the dissemination of 'fine and high art'. The evidence of Edward Cowper to the 1835-6 Parliamentary Enquiry gives some picture, both of the scale of distribution and the manner in which it was viewed by a leading printer and the enquirers. "Now the ease with which the principles and illustrations of art might be diffused I think is so obvious that it is hardly necessary to say a word about it.

Parliamentary Papers: 17 June 1836.

Here you may see it exemplified in the 'Penny Magazine' and here are 150 cuts taken from the 'Penny Magazine', many taken from the old masters, of painting and sculpture, and many of them very well done; and these 150 cuts, printed on drawing paper and well bound, may be had for 14s. Such works as this and the 'Saturday Magazine', 'Chambers Journal' and the 'Magasin Pittoresque' and the 'Magasin Universel of Paris' could not have existed without the printing machine. And every Saturday I have the satisfaction of reflecting that 360,000 copies of these useful publications, are issued to the public, diffusing science and taste and good feeling, without one sentence of an immoral tendency in the whole.

591. Is it not probable that the great extension given to these specimens of art by the improvement in printing, is a new means of extending knowledge of art?

Yes.

592. And that to an extent that could not exist without the printing machine? Certainly not.

593. In fact may not this diffusion of taste through the press be called the paper currency of art? - Yes, it is indeed the paper currency of art, and always represents sterling value. I should say whatever means may be derived, either by public lectures, museums, etc for the circulation of art, that those means may be rendered effective by means of the printing machine.

594. Is it not important, that as the printing machine gives us such amazing facilities for circulating among the people a knowledge of art, that the works which it copies should, as far as it can accomplish them, be of the highest excellence? - It is.

595. May not a tolerably correct outline of the work of the great masters, Raphael, Michelangelo and others, by that mode, find its way into the minds of the population in general.? - Yes; in this very collection from 'The Penny Magazine' are cuts from the pictures of Raphael, Rubens, Spagnoletto, Guido, Teniers, Ostade, Murillo, Quinten Matsys; and in sculpture, the Apollo, Niobe, Laocoon etc.; and in another work of Mr. C. Knights you have for 8s. beautiful outline engravings and descriptions of the whole of the Elgin Marbles.

596. And is not this means of diffusing a knowledge of the arts (not by bringing people to places of instruction in art, but by conveying instruction to the doors of the people.) a new era in instruction in design? - Decidedly; because take the cartoons of Raphael, it is quite clear that there are hundreds of thousand of people who are now acquainted with what are the forms and figures and groupings of these cartoons, that would never have known them by any lecture or description whatever, and who would never have an opportunity of seeing the originals.

See Footnote

This is the creation of mass taste; and so thorough was the work of such publishers that the mass taste has altered very little since. We will recall that it was against the quality of work of this kind that the 'up-market' reproductive engravers were at that very time petitioning. (The chairman of the Enquiry, Ewart, also heard the petition.) The difference between a 'tolerably correct outline' and kitsch is rather fine. We shall return in the final chapter to a short discussion on the formation of popular-commercial taste in the 1830's.

The Penny Magazine on the 18th Dec. 1832 (first issue) stated that one of its aims was 'to gratify a curiosity and cultivate an increasing taste, by giving representations of the finest works of art.....in a style that had been previously considered to belong only to expensive books'. Henry Cole wrote

In 'The London and Westminster Review' 1838. pp. 268-9.

in an essay of 1838 that "The great end of the whole art of engraving is to render the spirit and genius of a great artist accessible to the thousands, or the millions, by embodying them in a cheap and portable form". In the 1830's such a hope was not foolish: major artists such as Martin and Turner had worked for the album publishers. But by 1851, this was no longer the case; the 'highest talents' were not attracted.

From these quotations we can identify a primary level of social and political debate, of which the illustrated papers were a major vehicle. But below this is a commonality of conception in which all share - the self-definition of an industrial society, a search for the understanding of the experience of modernisation, in which concepts of mass, millions, the working class are shared; in which all agree in 'conveying information to the doors of the people', by 'diffusing' and 'extending' knowledge. This is a definition of social reality and the flow of information through that reality that is shared by parties that would otherwise seem to be in contention. Information, knowledge and taste are defined as entities of such a kind that they can be diffused, extended and made available through explicit instruction: and an industrialised population can no longer rely on tacit information, tacit knowledge and 'instinctive' good taste. Indeed, social reality comes to be conceived, in certain cases, as defined by the flow of information. In a self-congratulatory final address, the Society for the Diffusion of Useful Knowledge closed itself down with the vision that "The time is comingwhen the Society.....shall be co-extensive with society itself." The explicit instruction whereby this should come about could be conveyed, better than any other means, by imagery; and by an imagery dependent upon a particular theory of knowledge, that rejected 'spiritual abstractions' and pursued 'the material world'.

Reprinted in Smith. (see biblio.)

p. 100.

* * * *

Preface to Vol.1. of 'The Ill. Lond. News'

After a year of publication, the editor of The Illustrated London News reflected "We know that the advent of an illustrated paper in this country must mark an epoch." In his first editorial a year before (May 14th.1842.) he had written.....

For the past ten years we have watched with admiration and enthusiasm the progress of illustrative art and the vast revolution it has wrought in the world of publication through all the length and breadth of this mighty empire.....with an impetus and rapidity almost co-equal with the gigantic power of steam.....there is now no staying the advance of this art into all the departments of our social system....We sail into the very heart and focus of public life."

A news journal demands a type of imagery with a putative 'high-fact-content', with a subliminal code that reinforces the reality of the pictured object; this, in time, the camera was able to supply. It also supposes a close relation between text and image; in the papers of the Illustrated London News text is increasingly caption writing and commentary upon the image. Together, text and image in one format, printed off one type-forme, develop and demand a different quality of attention in the reader.

The commercial usage of the image mass followed, with some exceptions, its informing and educational use; but the three are closely linked. Information, knowledge and taste were diffused, extended and made accessible as if they were commodities: thus a commercial usage of imagery follows naturally from its initial uses.

Although advertising as a business was well established in the 1830's, the

material was primarily textual and typographic. Illustration when used was simply iconic, presenting an image of the goods to be sold as in a shop sign. An hypothesis worth investigating would be this - that modern advertising owes its origins to the relations between text and image first established in the pages of *The Illustrated London News* and similar journals - to the habit of reading text and image as one experience. In that sense, the paper may have made good the boast of sailing 'into the heart and focus of public life' in an unexpected way. Modern commercial imagery is inseparable from industrial production and, to an even greater degree, from consumption. That is why it needs to be studied. As Marzio writes in a different context "One result of this neglect is that our knowledge of the birth of modern advertising is scandalously shallow, and our understanding of the middle class taste in art has been based on the conclusions of decorative art historians and researchers more interested in literary criticism than in public imagery. Meanwhile, the artefact that most plainly documents popular aesthetics has been ignored."

Marzio. op.cit. Preface.

In what has gone before we have attempted to outline the growth of what Fuller has described as the 'megavisual tradition' (which *The Economist* first identified in 1851.) This would seem to be inseparable from the consuming function of industrial systems "Open any glossy magazine and you will see merchandise as a fetish, The product of the machine has become the cult image of our society. Where, then, should we expect to find the artist in our society. Where he was before, where the myths are made, and there he is, in the advertising agencies, in the dream factories of the consumer society."

P.Fuller. 'Beyond the Crisis in
Art.' 1970 p.53

del Renzio. op.cit. p.23.

See K. Marx. 'Capital' *Ch. Sect. 4.* This whole area (first described by Marx in his comments upon the fetishization of commodities) involves imagery in the stimulation and sustaining of demand, and of fantasy. The spectacular, even phantasmagorical character of our apprehension of social reality in the late twentieth century begins here in the early 'image explosion', and has fed upon the multiplication of imagery, ever since.

Imagery contains the possibility of emancipation or control. Without imagery the creation and sustaining of long term and deferred expectations may be very difficult; thus imagery is a force in the formation of behaviour. The image explosion presented the British people, and at later dates the rest of the world's population, with the visual form of the knowledge, attitudes and hopes necessary to undergo the psychic transformation that the creation of the industrial system required.

As The Economist observed, "The causes and consequences of this dawning and important change are worthy of notice."

- Footnote to p.52. It is as well to warn the reader about this and to quote Otto Lilien. "Every day an endless stream of printed products threatens to drown the world. Details of the technical development that was required to make this possible are practically unknown, because the development of modern printing techniques has been very much neglected by the scholars of the history of technology. There are many histories of printing in all languages. They, however, deal predominantly with the printed product. They discuss the printed book, the page, the illustration, type, or layout, but very rare are publications on historical investigations into the technical development of the printing processes, the printing presses, or the production of printing surfaces. (Lilien p.9.) He writes later of 'very sparse and unreliable reports!', 'sketchy details', etc.. Leo de Freitas, of The Royal College of Art, (to whom I am indebted for some good general advice), commented to me in the course of my research "Certainly, as a general statement, there were more illustrators around in 1851 than in 1800, but as to the questions of quality, diversification, technique and so on - we do not know in detail what was going on."
- Footnote to p.53. Thomas Bewick in his memoir (p.47) says that his first master 'refused nothing', and lists steel stamps, brass clock faces, bookbinders letters, arms crests and cyphers, banknotes, invoices and cards." At least one of the Leeds firms was chiefly concerned with fine metal work.
- Footnote to p. 53 These three stages are suggested by Poortenaar and by Wakeman. These are, of course, printing categories not means of image creation: for that we need two artistic categories, namely autographic and photographic. With the invention of the glass negative, however, photographic printing (i.e. image replication) muddies the terminology.
- Footnote to p.59 The exact nature and extent of the woodblock engraving business is hard to determine. Fox, who has made a count, writes...the number of firms (as opposed to individual craftsmen) rose from 24 in 1824 to 42 in 1851 (in London only). Wakeman gives 14 in 1817, 24 in 1842 and 47 in 1852. Fox suggests a figure of 4,200 persons employed in the Holborn area around 1851, but writes that the figures are unreliable since the criteria for recording altered in different years. This workforce was unionized in some degree, but a 72 hour week might be worked. (This sheds some light on Bewick's insistence that country life and good health was necessary for good work.) Fox also describes an apprenticeship system. Later the firm of Dalziel Bros. set up a small school for apprentices; and the School of Design had wood engraving classes, including one in the Female School that was opposed by the trade. Wakeman gives a graph of firms of wood engravers that rises very rapidly to 82 in 1860 and 183 in 1883 and thereafter declines sharply: this implies that the nature of their work changed, since the decline in woodblock illustration for books begins in 1860-65 according to his own survey. Clearly, woodblock maintained its position in newspapers, cheaper journals, catalogues etc, but lost it in books, expensive periodicals and elegant ephemera.

Footnote to p. 62 From the evidence of John Landseer to the Parliamentary Select Committee on Arts. The use of the term 'capitalists' is interesting here since it helps to bring out the political background to the criticism of the Royal Academy which surfaces in this period. Landseer is identifying the publishers of the illustrated journals (probably Charles Knight in person) with the Whig industrial interest, and the Academy with pre-industrial values. This evidence was collected by John Pye and published in pamphlet form, and in his study of patronage some reference is made to it.

Footnote to p. 85 Outside the area of popular taste there was a further function to the reproduction of 'arts'. Ivins argues persuasively that the study of the history of art depends very heavily upon the availability of high quality reproductions and indicates that the photograph was essential before the discipline could gain credibility. But, as noted in the previous chapter, Pugin and others were able to conduct their propaganda campaigns in and through copiously illustrated books. Engraving was entirely adequate for most of this, and early chromolithography was adequate for the books on ornament and decoration. It may be argued that the availability of good illustrative material of this pre-photographic kind was one of the conditions that made the new quasi-scientific attitudes of Pugin and Owen Jones possible.

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Chapter Three

The Politics of Art and Craft

'I'm truly sorry Man's dominion
Has broken Nature's social union.'

(R.Burns.)

We have now to consider critical and theoretical reactions against the industrial system: these reactions have usually been studied under the heading of 'arts and crafts' movements. The intention here is to treat these movements (and the fact of their plurality is important) as being part of larger utopian or millennial impulses that manifest themselves during the stress of industrialization; and as a characteristic and continuing syndrome, visible in all people afflicted by swift and apparently uncontrollable social and technical change. This should enable us to see the arts and crafts movements as firmly embedded in the central concerns of society and not, as easily appears, paradoxical and often misguided reactions that merely 'minister to the swinish luxury of the rich'. Their Janus-faced nature - looking back to preindustrial values but projecting forward to 'modernism' and beyond - is mirrored by their ambivalent range of political and economic beliefs. Because these movements concerned themselves with a theorising of craft practice and values, and with attempts to reconstruct or salvage institutions and work-disciplines that sustained the craft system, social criticism was generated out of aesthetic criticism. According to circumstances, this social criticism could present a reactionary or progressive face; and equally, be retrospectively treated either way by succeeding generations. But whatever the precise historical circumstances, it is suggested here that there is a common logical form to each particular movement that enables us to speak of a 'critical tradition', to set against the normative tradition outlined in Chapter One.

Wm. Morris' words, quoted by Lethaby
in 'Phillip Webb and his Work' (1935)
p.94.

This logical form, or argument, is in five stages.

- a). The reaction against industrialised production.

At this stage the argument has much in common with that of the normative 'design reform movement'. Industrial production lacks unity of style. But this (aesthetic) judgement is haloed with the fear that the industrial system may not only be ugly, but wicked, and ugly because wicked. (The growing belief that this is, in very fact, the case, is what separates Pugin and Ruskin from Wyatt and Jones.)

See Footnote

b). The search for an alternative model - what we shall sometimes describe as 'the ideal prototype'.

This alternative model is not simply a style (medieval, peasant etc.) : it is also a mode of practice and a pattern of organisation, with a different set of transactional attitudes rooted in a different set of values. (here the critical radicals part company with the normative reformers.)

c). A period of practice attempting to follow this alternative model, during which institutional problems come to the fore.

How to practice in an alternative model, when all around pursues another course? How to organise cash flow? Are we in competition? What is the right use of machines? What is the right use, if any, of hired labour? What do all these problems, arriving together in this form, mean? (this is epitomised in the change from 'The Firm' to 'Morris & Co.' and in the change in Morris's own work (as distinct from the sales of the company), from neo-gothic to neo-vernacular and cross-cultural.

d). A second stage of analysis, entailing social criticism.

In the English experience this meant a change in conscious political orientation and activity. Morris became a leading, active Marxist. Ruskin, Ashbee and others pursued a guild socialism, based upon intentional communities. In Germany a very different direction was taken.

e). A synthesis, intended to mesh with industrial production. This is now theoretically possible because the relations between art, craft and industry have been re-defined.

The critical and the normative traditions may find they have arrived at the same place from different directions. At this point, all production can be seen, in Tarabukhin's words as 'aesthetic mastery....an organic liaison between work and liberty'.

See notes to Ch.6.

Letter to John Hardman, quoted
by Phoebe Stanton (1971) p 194.

See Footnote...

This argument can be halted at any one of its five stages and the process toward synthesis and the redefinition of production halted. A number of individuals never passed stage (c). Pugin's achievements were, we have noted, ambivalent and Janus-faced but there are signs of self-disatisfaction at the end of his career "My writings, much more than what I have been able to do have revolutionized the taste of England. My cause as an architect is run out..." William Burges remained faithful to a very personal 'ideal prototype' and so, through commissions, did Ludwig of Bavaria. The English Arts and Crafts Movement, as a whole, rejected advance to the next stages and the 'modern movement' had to be imported into England: the decisive sign of this is its rejection of Art Nouveau and C.R. Mackintosh's lack of success in London. The stylistic tendency of the English movement came to provide for the refinement and 'ruralisation' of the industrial managers, and to demonstrate what Wiener has called 'the decline of the industrial spirit'.

In Germany the force of the craft reaction was expended in a very different milieu, and in time took on nationalist and even fascist overtones. Here as elsewhere we shall see demonstrated that construction or reconstruction of 'traditions' based upon slender evidence - retrospective utopias. Though it lies a little outside our theme, we shall note how in Holland and Scandinavia a final stage was achieved at a more than theoretical level

See Footnote

See Ch.6 below; 'an economic appendix'.

We will not attempt any comparable work on craft revivals outside northern Europe, but this scheme of argument may be found to hold good elsewhere and provide a means of analysing the persistence of craft revivals within the industrial system. In Chapter Six, attention will be drawn to the connexion between Indian nationalism and 'arts and crafts' ideals.

* * * *

The advent of the industrial system made the specific nature of craft values and practices visible; and hence distinguishable from, on the one hand 'fine and high art', and on the other, industrial production and its related 'design'. Whereas before (as in Reynolds' 'Discourses') craft production was conflated with art production through such terms as 'applied' and 'decorative'; and the relation of art to manufactures was seen as unproblematical, now it came to be seen that stubborn categorical distinctions having deep consequences underlay the difference of terms. These distinctions had been hitherto obscured by the shared base of all production in hand-craft. When this base began to be eroded - and in some areas of work replaced - by manufacture, then the logical distinctions were revealed and the social distress could be given theoretical explanation.

The problem of copying and replication was central to the mid-century theorising of craft, since it is exactly in copying (variably) or in replication (identically) that essential differences between craft and industrial production consist. Ruskin's famous examples of glass-beads, or of Venetian glass-ware focus

unerringly on the qualitative levels, the nature of the work and the right use of the respective technologies of copying and replication, of hand and machine, that these differences entail. The cautious approach to the limited use of machines advocated by Morris and Ashbee arises from similar theorised concerns. The theorising of craft values - a major critical activity in the nineteenth century - arises from this new visibility of the craft system, and its vulnerability.

The vulnerability of the craft system involves the nature and the definition of crafts skills, and their relation to economic status; and this is a matter of great difficulty and complexity. The very concept of skill, which is central to all craft theory, is full of difficulty. Here we want to distinguish between 'a skill' (noun phrase) and 'being skilled'. In this sense, we can say that industrial production rendered certain skills (particularly those involved in copying) vulnerable and sometimes redundant: in this respect it makes sense to speak of the creation of a 'de-skilled' class of industrial operatives. But industry also required special new skills and rapidly developed within itself special craft-like enclaves (with protective social habits and arrangements): in this sense there is no loss of 'skill', but the condition of 'being skilled' has been given a new social definition. 'To be skilled' (verb phrase), is socially constituted, and changes its 'skill' content (noun phrase) in periods of technical change. Charles More, however, indicates a third⁴ aspect of work which can be subsumed under the heading of skill; that is, the possession by the worker of the opportunity to plan his work. The amount of opportunity he has to do this might be referred

C.More. 'Skill and the English Working Classes 1870-1914' (1980) p.22.

to as the 'discretion content' of work, and the degree to which the worker possesses or lacks discretion can be related to the idea of the division of labour." The more divided the work, the less opportunity for discretion in it. To this we should add that some processes, such as weaving, may have less intrinsic opportunity to exercise discretion than, for example, cartwrighting; in this case we are concerned with, as More emphasises, the planning of work rather than its execution or design. In either case, 'the discretion content' is clearly a part of the broader concept of autonomy with which the critical tradition is centrally concerned, and to which we return in the last chapter. For More's 'discretion content' we will usually refer to 'mixed patterns of work' and to 'autonomous work discipline', in order to stress the broader cultural consequences of the exercise of discretion in actual productive process.

In attributing 'autonomous work discipline' to the craft system, and in particular to the 'unproblematic' pre-industrial craft system, we must avoid what Frayling and Snowdon call 'the myth of the happy artisan'. In commenting upon the number of recent studies of skill in early industry and before, they draw attention to the powerful and persistent element of 'self exploitation' that autonomous work discipline can accommodate; and of how more recently what are taken to be 'the values of craftsmanship' have been invoked to sanction toil.

Yet this myth is central to the arts and crafts movements, which are central to the critical tradition. Its most complete expression will be found in 'News

C.Frayling and H.Snowdon
in a series of articles in 'Craft'
magazine. (see Ch.7)

See Footnote.....

from Nowhere' in which mixed occupation and autonomy in work are seen in an Adamic light, as the source of happiness.

The intention of this chapter is to treat the critical tradition as the bearer of a myth, describable now as Adamic, now as utopian or millennial: the history of the tradition being the collision between that myth and the concrete reality of production - whereby both are modified. The process of modification has been described above as the argument or logical form of the critical tradition.

* * * *

X The Gothic Revival has been described as quasi-scientific and archaeological in character (in its research and account of knowledge). The alternative model proposed both by Pugin and by Ruskin was located in a distant past; but it was an historically real model that could be researched. The difficulty of trying to resurrect it ('galvanise a corpse') were not those of knowledge, but of production; and these were insuperable except where aristocratic or church patronage made a small space for the visionary or the crackpot. On any large scale, neo-gothic could only be the very thing it had (in Pugin and Ruskin's version) not to be - styling. As such it could be, and was, applied to all the very utilitarian structures lampooned by Pugin in the plates of 'Contrasts'. To create a non-industrial style, the alternative model had to be shifted from the historically real object to a generalised ideal prototype....a neo-vernacular not located in any precise area of time or space.

See Footnote.....

In so doing, critical theory and practise were proposing their own brand of a-historicism, since the vernacular (as opposed to the 'high'style of the formal culture), approaches a 'natural' category, and as such is an historical, real object on a much longer and vaguer time-scale. The search for vernacular values in design, therefore, opens doors both ways - into a 'natural' folk (or volkisch) past, and into an 'unconditioned' anti-historicist future.

The shift coincides with the change from the amateurism of 'The Firm' to the professional business of 'Morris and Co.', selling a wide range of material independently of Morris' own design practice; and with a change in that practice. In furniture, the change was from painted settles and neo-gothic chests, to ladder-back chairs and comfortable rockers. In fabrics, the change can be caught 'on the wing' in a letter from Morris to Thomas Wardle (13 April 1877). "The tapestry is a bright dream indeed; but it must wait till I get my carpets going.....much may be done in carpets: I saw yesterday a piece of ancient Persian, time of Shah Abbas (our Elizabeth's time) that fairly threw me on my back." This exhilarated eagerness to absorb and transform new source material, is directly comparable with the absorption of Chinese, Indian and Middle-Eastern motifs by handcraft workers of the seventeenth and eighteenth centuries. It is a long way from the learned paraphrase and adaptation of the Gothic Revival.

The shift also coincides with a reawakened interest in Queen Anne and Georgian domestic building, which also redirected attention toward vernacular design.

'Letters of Wm. Morris ' ed. Henderson. (1950) p.89.

In so far as a comprehensive English folk art can be identified, it is in eroded fragments surviving the Civil War and the growth of a mercantilist economy. The folk art of that deep past (and it is difficult to form a picture of it, it is so deeply past) was replaced throughout the seventeenth and eighteenth centuries by a complicated plurality of styles which, though hand.craft and popular, cannot be described as folk or peasant. They reflect a changing plurality of occupations and classes, of imported fashions filtering through the social mesh from many different sources and to very mixed clientele. They reflect both mercantile and land-owning patronage, and the tendency of the one to become the other; they reflect religious distinctions, between anglican and dissenting traditions. They also begin to display some features of semi-industrial production.

See 'Introduction' and the title page of Ch.6.

In clothing, the very concept of 'folk costume' seems never to have developed (though occupational and to some degree regional costume was recognised). The absence of sumptuary regulations and 'kleiderordnung' which played a great part in preserving continental folk-styles into the industrial period, contributed to the erosion of such styles in England.

The details of this 'erosion' remain obscure, and are likely to be understood only in terms of detailed social history; moreover, the oppositional contrast suggested here and below with Central Europe is itself within suspicion, since folk costume (and certainly 'national' costume) may itself be retrospectively synthesized. Yet the direct comparison of artefacts illuminates the contrast and gives it substance.

Set the fine needle-work on British bed-hangings, covers and samplers, beside that on Polish or Romanian costume, in the Victoria and Albert Museum. The English work is individually expressive and loosely 'coded', whereas the Polish or Romanian is communally expressive and strictly 'coded' : the first is eclectic, the second traditional. Sarah Thurstone's coverlet of 1694, for example, combines Persian phoenixes with Welsh dragons in a setting that includes timbered cottages in a Chinese manner (complete with 'willow-pattern bridges), in-set with both observed and invented vegetation: this variety if held together by a composition that owes very little to the customary architectural lay-outs.. Abigail Pett's bed-hangings draw upon the imagery of wood-block bestiaries. Other pieces employ the lay-out of Baroque ceilings but fill them with invented flower arrangements. All such influences and images can be found in folk arts, but there they are drawn into the overall and only slowly changing form-language of the whole style.

See Footnote.

See M.E.Jones 'English Crewel Designs' (1974) for useful ill..

The existence of a large and varied middle-class supported this work, which was by no means dependent upon aristocratic patronage and style-models - though it did, significantly - receive patronage from aristocratic families. Substantial sums of money changed hands, so we may assume the needlewomen were respected - though the role of needlework as a pastime within those wealthier households seems mostly to have been to render the womenfolk docile.

See Footnote

See Footnote

From E.Ikle 'La Broderie Mechanique; The mechanisation of needlework, however, imposed firm architectural lay-outs and borderings, compressing the open compositions into frames of an aristocratic provenance. The first patents for machine embroidery devices were

taken out in 1775 in London, but the first serious production did not begin until around 1828. It was against the background of this debased mechanical style that William Morris, May Morris and Lewis Day promoted their 'art - needlework'.

See Footnote.....

Throughout the seventeenth and eighteenth centuries, the skilled work-people who produced the pottery, lace, furniture, fabrics and buildings of this rich and plural vernacular had, quite often, distinct aesthetic criteria of their own to match their religious and political beliefs. We can reasonably speak of a 'vernacular of dissent' expressed in meeting houses, chapels, clothing, literature and music, and even in deportment and speech. Even at the harder , and indeed brutal end of these trades, in the primary production of cloth, ceramics and iron-ware (all of which by 1750 were proto-industrial in scale, if not method), there is still a strong element of mixed work discipline and autonomy.

(The author has formed the opinion that the 'manufactures' of the mid-eighteenth century exhibit much greater inventiveness and technical and stylistic curiosity, than do the 'arts'. If this is so, then the relation of arts to manufactures as defined by Reynolds in the First Discourse is more complex than he admits. Taste can be formed in manufactures, but by foreign manufactures that present a cultural challenge.)

Here we would want to be on our guard against the 'myth of the happy artisan' were it not that it was to this plurality and the autonomy that in some degree underpinned it, that those disabled by industry looked back with longing.

Wm. Blake 'Jerusalem' Ch.3.

" Then left the sons of Urizen the plough & harrow, the loom,
 The hammer & the chisel & the rule & the compasses
 And all the arts of life they chang'd into the arts of death.
 The hour glass contemn'd because its simple workmanship
 Was as the workmanship of the plowman & the water wheel
 That raises water into Cisterns, broken & burned in fire
 Because its workmanship was like the workmanship of the shepherds
 And in their stead intricate wheels invented, Wheel without wheel,
 To perplex youth in their outgoings & to bind to labours
 Of day and night the myriads of Eternity, that they might file
 And polish brass & iron hour after hour, laborious workmanship,
 Kept ignorant of the use that they might spend the days of wisdom
 In sorrowful drudgery to obtain a scanty pittance of bread,
 In ignorance to view a small portion & think that All,
 And call it Demonstration, blind to all the simple rules of life."

See Footnote.

The argument here is much indebted
 T. Veblen and to E.P. Thompson.

See Thompson. 'The Making of the
 English Working Class' Esp. Ch.3.

The degree to which the mass of the population were better fed and housed as between 1800 and 1851 is a matter for dispute among historians. Our concern is to grasp at an understanding of the psychic requirements of industrialization: the industrial system was not simply a new way of making things - it required an industrialization of behaviour. It meant the change in centuries-old habits of mixed occupation, attitudes to work and leisure (indeed, the concept of leisure had to be invented to explain what was not work), food, sleep, care of the young and old, the nature of marriage and family life, sexual manners. In any such re-forming, the sensibility is shattered and re-formed with all else that constitutes social life. The experience of the peasant craftsman cannot be incorporated into that of the skilled urban artisan; the experience of the skilled man is lost in his transformation into the 'hand' or operative. This has been described as 'psychic transformation', and one symptom of that was the loss of coherent sensibility .

By what it may have been replaced we shall touch on in the final chapter.

Blake's lines need to be compared with the following passage from the introduction to Andrew Ure's 'Philosophy of Manufactures' (1835).....

" The present is distinguished from every preceding age by a universal ardour of enterprise in arts and manufactures. Nations.....no longer send troops to fight on distant fields, but fabrics to drive before them those of their old adversaries in arms, and to take possession of a foreign mart....every process, peculiarly nice, and therefore liable to injury from the ignorance and waywardness of workmen, is withdrawn from handicraft control and placed under the guidance of self-acting machinery.....The most perfect manufacture is that which dispenses entirely with manual labour.....It is in a cotton mill that the perfection of automatic machinery is to be seen; it is there that the elemental powers have been made to animate millions of complex organs, infusing into forms of wood iron and brass an intelligent agency. And as the philosophy of the fine arts, poetry and painting and music may be best studied in their individual masterpieces, so may the philosophy of manufactures in this, its noblest creation. But mechanical invention.....is not of itself sufficient to found a successful manufacture..... The Factory.....in its strictest sense, involves the idea of a vast automaton composed of various mechanical and intellectual organs acting in uninterrupted concert for the production of a common object, all of them being subordinated to a self-regulating moving force."

(and later)

'The main difficulty did not, to my apprehension, lie so much in the invention of a proper self-acting mechanism.....asabove all, in training human beings to renounce their desultory habits of work, and to identify themselves with the unvarying regularity of the complex automaton....Even at the present day, when the system is perfectly organized, and its labour lightened to the utmost, it is found nearly impossible to convert persons past the age of puberty, whether drawn from rural or from handicraft occupations, into useful factory hands. After struggling for a while to conquer their listless or restive habits, they either renounce the employment spontaneously, or are dismissed by the overlookers on account of inattention.'

A.Ure 'Philosophy of Manufactures'
(1835) pp. 14 - 20.

(and later)

Adaptation of labour to the different talents of men is little thought of in factory employment. On the contrary, wherever a process requires peculiar dexterity or steadiness of hand, it is withdrawn as soon as possible from the cunning workman, who is prone to irregularities of many kinds, and it is placed in charge of a peculiar mechanism, so self-regulating that a child may superintend it..... On the automatic plan, skilled labour gets progressively superseded and will, eventually be replaced by mere overlookers of machinery.....By the infirmity of human nature it happens, that the more skilful the workman, the more self-willed and intractable he is liable to become, and of course, the less fit a component of a mechanical system.The grand object, therefore, of the modern manufacturer is, through the union of capital and science, to reduce the task of his workpeople to the exercise of vigilance and dexterity - faculties, when concentrated to one process, speedily brought to perfection in the young.'

See E.P.Thompson. op.cit. for several references.

'The Philosophy of Manufactures' is one of those texts that seem to transcend comment - like those of Machiavelli and Clausewitz, or Taylor's 'Scientific Management'. Like the latter, like 'The Prince' and 'On War', readership of 'The Philosophy of Manufactures' has usually been confined to the interested professional. The language of these passages, however, repays close study for the 'landscape' it presents us. Amongst other matters, it would seem to be the starting point for a vast literature and body of imagery that has developed since that time - the imagery of Fritz Lang's film 'Metropolis', of science fictions and 'dystopias'. Marx used the text extensively in Chapters 12 and 13 of 'Capital'. Ure, in his turn, had been influenced by Babbage's 'The Economy of Manufactures and Machinery' published three years earlier: in particular the concept of the 'automaton' would seem to derive from that book.

At the same time, we must be on a guard against identifying Ure's ideal factory system with the reality of industrialization. He is largely concerned with the cotton industry which was not typical, being the most extensively 'self-regulating'. Cotton spinners were widely recognised as the most wretched of the new factory operatives. In other areas of production, the 'automatic system' took a much slower pace and was less massively centralized. The system of 'putting-out' contracts to the 'little masters' in the metal trades, (for example) meant that the process of de-skilling and technological unemployment was spread over decades, enabling the work force to adjust and be adjusted with less social violation. We have already noted that the ceramics trade was 'proto-industrial' at an early date, yet it too was divided into small units. A discussion of the uneven pace of industrial development has to lie outside the scope of this study, but we must note here that the skilled autonomous smith or metal-worker might more easily become the skilled employed man, than the hand-loom weaver become the factory hand. The metal-worker might well extend the range of his skills (noun-phrase), solidify the social condition of 'being skilled' (through unionisation) whilst steadily losing the 'discretionary content' of his skill. The factory hand lost everything at once.

But no matter how uneven the spread of the industrial system, and its consequent social disruption, it was homogeneous enough to be experienced as catastrophic by those who underwent it. Psychic transformation through misery has always been the concomitant of industrialization.

See M. Barkun. 'Disaster and the Millennium' (1974) p.35 et seq. also studies by Mannheim and Tureson. (see biblio.).

The relationship of milennial and chiliastic movements to catastrophe has been well charted by social historians. Well before the utopian socialism of 'News from Nowhere' we can find examples of similar impulses expressed far more directly, and poignantly lived. In the condescension of a backward view some of these are merely bizarre (though the followers of Joanna Southcott, and the 'Ancient Deists of Hoxton' were remarkable in their day, and many men and women lived by their light,) But three distinct groups have an epigenetic relationship with the 'critical tradition'.

For an interesting but quaint account of the Blake-Rossetti connexion, see P. Kerrison, 'Blake and Rossetti' (1944)

William Blake and his younger associates form an important knot in this net of ideas and practice, through their attachment to mythic subject matter and Gothic 'living form'. The link with the arts and crafts movement is direct, since one of Blake's manuscripts found its way into Rossetti's library. Blake's lifework is both the lived and the mythically expressed record of that psychic transformation; his biography is that of technological unemployment, and of the destruction of mixed work patterns (Ure's 'desultory habits'). A very slight study of his imagery in the context of the religious enthusiasm of the day is enough to form a further connexion with the movement toward 'intentional' communities and alternative models of social life, which links backward in time to the dissenting sects and to 'levelling'.

For the concept of an intentional community, see C. Nordhoff, 'Communitistic Societies of the United States' (18).

We think of the Shakers as American, but their origins were in Manchester and their furniture and architecture is in that 'vernacular of dissent' already mentioned. Like most dissenting sects, they were iconophobic; their aesthetic

See Footnote.

invention went into household goods, furniture, building, music and ritual dance. The recurrent enthusiasm for their design coincides with an 'arts-and -crafts' formed taste for neo-vernacular simplicity and robustness. Shaker elegance, however, is a spiritualised functionalism, and cannot be reduced to 'functionalism'.

The Shakers are cited here as examples because evidence drawn from admittedly extreme spheres can shed illumination upon problems central to, but hidden in, the turmoil of the norm. The Shaker migration to New England in 1762 was not a simple reaction against early industry (it was too early to fall within that category); it was the recrudescence of much older traditions. But their persistence in maintaining community and mixed occupation is part of the wider span of the critical tradition. 'The World' against which they maintained themselves, was the world described by Blake and Ure: their celibacy and their feminist theology was designed to restore sexual equity and dignity, and their ethic of worship through craft to build an 'organic liaison between work and liberty.'

The feminism of the Shakers, which finds a weak counterpart in the feminism of the arts and crafts movements, arose (conceivably) from the destruction, not simply of the craft system, but of womens place in that system. The tradition of Thurstone and Pett is sustained in the few examples of Shaker Embroidery: the vast, anonymous and ubiquitous realm of beautiful housekeeping rises into religious art in the Shaker interiors and songs.

In E. Andrews 'The Gift to be Simple'
(1940). Compare George Herbert's hymn
'The Elixir' - 'Who sweeps a room, as
for thy laws, makes that and the action
fine'. The alchemical references in 'The
Elixir' are not fortuitous.

See also the 'House Beautiful'
episode in 'Pilgrim's Progress'.

"I have come
And I've not come in vain
I have come to sweep
The house of the Lord
clean, clean, for I've come
And I've not come in vain
with my broom in my hand
with my fan and my flail
this work I will do
and I will not fail
For lo! I have come
And I've not come in vain.

(sung by the Saviour and Mother Ann
New Lebanon. Sat. even. Feb 21st. 1845.)

See Footnote

Shaker theology, though feminist, codified work and roles in work. The sister's made a spiritual discipline out of the role of the farmer's wife. (Though not invariably, since a Sister Babbitt is credited as one of the inventors of the circular saw.) The extreme purity of their design can be described as a sublimation and internalisation of the same principle of utility that also went into the first industrial design. What Henry Maudslay was wont to say about the problems of making a machine, applies well to Shaker furniture.....

K.R. Gilbert. 'Henry Maudslay,
machine builder' 1971.

'Keep a sharp lookout upon your materials: get rid of every pound of material you can do without; put yourself the question 'What business has it to be there?' Avoid complexities and make everything as simple as possible.'

See Footnote

These separatist groups have importance in the history of design, since they preserved and spiritualised some very ancient traditions and fed them, with appropriate hand-craft skills, into the receptive vacuum of middle America. Just as English folk music survived and was transformed across the Atlantic, so was the 'vernacular of dissent'.

Other groups of *more* recondite lineage *yet* were Mennonites, Hutterites, Amish and Doukhobors, fleeing at different times from an industrialising and bureaucratising Europe, along with many other skilled workpeople by the millions, seeking mixed occupation and autonomy. Ford Madox Brown depicted these people, and his subject was ~~was~~ a skilled man and his wife and child, leaving England in the attitude of the 'flight into Egypt'. "They emigrated because it is impossible to live in this land.....unless every year a few hundred thousand human beings are exported."

See Footnote.

Endre Ady in 'Budapesti Naplo'
23rd March 1906.

A third group is the Owenites. The important feature of Owenism, among the varied forms it took, was that it attempted to provide an alternative model to capitalism, that was yet industrial in some measure. On the one hand, it encouraged the growth of communes and cooperative movements, and on the other sketched out a paternalist state economy that might begin to provide the welfare and sheltering protection of social norms that industrial revolution had stripped away. These contradictory models were developed in and through the arts and crafts movements as they progressed through the subsequent century, linking up (on the left) with intentional and separatist communities, and (on the right) with 'scientific socialism' and the planned state economy.

The 'new town' and 'garden city' movements owe much to Owenite ideals, and like the paternalist strand in Owenism, have positive and negative aspects. Through the arts and crafts movement Owenism helped to contribute a ruralising tendency to the first planned suburbs at Hampstead, Letchworth and Bournville, which became models for the council building of the post Great War period.

See M. Swenarton. 'Homes fit for
Heroes' (1971) for discussion.

(And this paternalism was both industrial in origins (Saltaire. Port Sunlight etc.), and governmental). Through syndicalism and continental traditions of centralised town-planning, Owenism contributed to the modernism of 'The Radiant City.' What makes Owenism quite distinct from the Shakers and from William Blake, was that it contained a scientific claim, a futurism which in time enabled it to bring a direct influence to bear upon the final synthetic stage of the 'critical 'argument'.

See Footnote

From an Owenite pamphlet entitled
'Herald of the New Moral World and
Millennial Harbinger' New York 1841.

'WE BELIEVE THAT THE ONLY MILLENNIUM SPOKEN OF IN THE
SACRED SCRIPTURES IS THAT WHICH SHALL GROW OUT OF A
SCIENTIFIC AND GENERAL KNOWLEDGE OF MAN'.

* * * *

The ideal of mixed occupation needs to be put into a wider context, by no means confined to England, into a wider formation of ideas and practice. Three aspects have already been discussed, but all these share, to some degree, in the radical tradition that identified resititution of working class rights with the restitution of land. (In the late nineteenth century, 'News from Nowhere' describes such restitution in extremely remote and symbolic terms, because by then, mixed occupation had become a distant memory.) This is a very important issue. Rural independence was idealised by political radicals before the development of the arts and crafts movement in England. Ruskin and Morris were second-order critics - the alternative model to industrial capitalism was already in existence, and had mass currency.

This account is taken from
A.M. Hadfield 'The Chartist Land
Co.' (1970)
See Footnote

See T. Veblen 'The Instinct of Work-
manship' (1914) pp.311-2.
See Footnote.

The Chartist Land Company identified machine production as the enemy of the people. "It must be destroyed, or its injustice and inequality must be curbed by the possession of The Land." (Northern Star, 10th Jan. 1846). Only by independent possession of small-holdings could a decent life be maintained in freedom. Feargus O'Connor's rhetoric drew upon the fear of the workhouse and unprovided old age - those signs of anomic disintegration. He stressed the vast improvement of life for women and children, freed from the new work disciplines ('the tyranny of the factory bell'). The majority of subscribers to the Land Company were from the industrial north.

The Company had as its aim the creation of estates of small-holdings, and five such enterprises were begun before the scheme collapsed through O'Connors idiosyncratic management and an insufficient flow of funds. The settlements struggled to survive: a Poor Law Board Report compared the settlers on the estates with handloom weavers, struggling against the power loom of the new modernised agriculture. But the estates survived and are there still today.

O'Connor was criticised by other Chartist leaders for weakening the movement and deflecting its energy: his scheme was not cooperative, indeed, like later schemes in Germany, it was specifically anti-socialist. But it was emphatically ruralising and anti-industrial. The completed buildings were identical model cottages built to a high standard, sturdy, functional and the predecessor of many a council house. They are interestingly comparable with cottages designed by Tessenow in similar settings, much later in Germany.

See Footnote.....

S.Volkov. 'The Rise of Popular
Anti-modernism in Germany' (1978)
See Footnote.....

See Footnote.

In 'Das Hohe Ufer' I. 1919,
quoted by Pehnt (see biblio.) p. 32
See Footnote

In Germany, the ruralising tendency of the critical tradition was strong and in time developed a sinister tendency. Shulamit Volkov has described the growth of a strong and articulate anti-modernism among the skilled handcraft workers of the late nineteenth century. Handcraft came to be identified with national culture and national culture with rural and small-town models. Heinrich Tessenow, the architect and town planner, and the teacher of Albert Speer, wrote in 1919, "Ultimately our children will build us as craftsmen a world of small towns that will be characterised by great external modesty and yet be the products of the highest skill - a world so rich and splendid that nothing can compare with it." This anti-modernism became part of a larger 'Heimat' tendency, which was itself conceived as a 'lebensreform' - a reform of life tending toward the assertion of a particular German identity in the face of the growing internationalisation of culture. Art and craft settlements, such as that at Worpswede, were part of this tendency. Volkov's study is chiefly concerned with urban artisans, by no means all of whom were skilled craftsmen in the design historians sense. but who constituted a distinct and formally recognised class of self-employed workpeople; the so-called 'Mittelstand'.

Volkov. op.cit. p.23.

"Perhaps the most powerful link among the small urban craftmasters was the consciousness of their shared past. The memory of the Guild Age was a vital factor in making them into a modern social group. This collective memory had little to do with the actual history of the craft guilds. It was a mythical view of a historical period relegated to an indefinite past. It was faithfully preserved by the master craftsmen, repeated endlessly in public lectures and at artisan's clubs, reiterated in numerous articles in their newspapers and at practically all their local and national meetings. Almost without exception, the national

congresses of master artisans held during the later decades of the nineteenth century opened with addresses wholly or partially devoted to this topic. Curiously, every generation of artisans during the nineteenth century claimed that the ruin of this ideal past was part of its unique experience. Even at the end of the century the masters still insisted that they had experienced something of that glorious time in their youth. This imagined memory was eventually turned into a powerful ideological and organizational tool by men probably deluded by their own propaganda. It may have had little to do with their historical past, but it certainly became a fundamental instrument for shaping their future."

'Deutsche Handwerker Zeitung'
Feb. 10. 1894. quoted by Volkov.
op, cit. p. 30.

Handcraft as such was given a high value in 'Mittelstand' rhetoric. "Handwork is freedom, morality and justice. Those who are against handwork are in fact standing against freedom, against morality, against justice."

Volkov. *ibid.* p. 299 et seq.

This small but substantial political entity was economically and socially damaged by the speed of German industrialisation in the 1870's and later. Volkov observes that they developed 'general social resentment and a hostility toward everything modern...often vague and confused, but at the same time, radical and powerful.' 'Popular anti-modernism' she concludes, 'was the mental response of men who found themselves overwhelmed by material hardship and psychological pressure.....suffering a sense of homelessness and desperately trying to overcome it.'

Volkov. *ibid.* p. 326.

'Anti-modernism' was present within the Deutsche Werkbund from its inception. Although the simpler versions of history have stressed the modernising role of that organisation, it is much more accurate to see it as a battlefield in which disputes between hand and machine, between national and international and between the modern and the traditional were fought out on complicated and shifting terrain.

See J. Campbell 'The German Werkbund' (1978) p.26 et seq.

Campbell. *ibid.* p.16.

Campbell. *ibid.* p.10. The keynote speech at the founding of the Deutsche Werkbund.

Members of the Werkbund were also members of the Dürerbund, an art-educational society, and of the Bund Heimatschutz, the main proponent of 'traditional values'. The first president of the Werkbund, Naumann, advocated policies he described as 'national-social' whose aims were to raise the status of the workmen through raising the quality of their work (thereby circumventing the appeal of socialism). In 1908, Fritz Schumacher wrote that "the task of the Werkbund would be to overcome the alienation that had arisen between those who invent and those who carry out, and to bridge the gap." Such programmes, moved forward thirty years, were to find unexpected alignments. Schumacher himself died of hunger in 1945.

In 'To all Artists' (1919) quoted by Pehnt. (see biblio.) p.32

See Footnote.

It is easy to assume that the handcraft values treasured by the Heimat movement were automatically appropriated by the political right, yet this is far from the case. Apart from the well-known example of the early Bauhaus, we can cite Kurt Eisner, leader of the brief Bavarian Socialist Republic. "I have learnt to wonder whether the creative artist ought not to take as his point of departure his own craft, whether or not he ought to found his economic existence on that."

See Footnote.

In the 1914 Cologne Exhibition, at which Muthesius attacked the Heimat tendency, there was a 'rustic' estate for workers - the Niederrheinische Dorf. Contemporaneously with the Weissenhof Siedlung was the Kochenhof Siedlung, on which Werkbund architects collaborated in an exercise in 'germanic' timber construction. Paul Schultze-Naumburg of the Worpswede community, whose work as builder and arbiter of taste for the extreme right is the direct opposite

See 'The Urban Garden Colonies of L.Migge' by I.M.Hülbusch, in Burckhardt. (see biblio.)

of the progressive internationalism of 'The Ring' architects, was the teacher and sponsor of Leberecht Migge. Migge was a most interesting speculative architect who planned 'socialist residential communities' based on urban horticulture: he argued that "genuine civic sentiment can only grow out of the soil, then it logically follows that the citizens should be educated to a solid civic consciousness only on their own urban soil."

See A.Speer 'Inside the 3rd Reich' (1970) p.15.et seq. also Chipp. pp474-483.(see biblio.) Quoted by Volkov. op.cit. p.352.

It is not surprising that the Werkbund - as a heterogeneous collection of men and ideas held together by a devotion to 'quality' (which meant different things to different people) could not withstand National Socialism. Hitler's speeches on art, architecture and craft are very well designed to take advantage of this confusion. He could appeal directly to the beleaguered craft artisans of the 'Mittelstand' - "The German handcrafts, rooted in a dignified tradition, will proceed to a new blooming, sheltered by Volk and Staat." The Werkbund itself was absorbed with undignified ease into the organs of the new state. Under the economic and political pressures of 1931-33 the contradictions in the association 'crystallized': the industrial, experimental and internationalist wing separated from the craft, traditional and nationalist wing - and the Werkbund collapsed.

The 'argument' of the critical tradition involves a stage of social criticism: this criticism developed communitarian and ruralising ideals. National Socialism offered a version of 'community' and 'dignified tradition', therefore it might support the craft system - and vice-versa. In fact the new regime inherited and arose from a complicated critique of the modern world, which has been

By H.A.Turner, quoted by Volkov *ibid.* p.350. See also Stern J.P. Hitler, the Fuhrer and The People (1970) Chs.9,10,11. See also Ch.7. of this study

described as 'utopian anti-modernism'. It was at the same time 'modernising' and 'anti-modernist'. Such a contradiction - a late form of the aporia first described by the Prince Consort, could only be overcome in a rhetoric of national unity. This was a unity at the point of the gun, inflated with an irrationality expanding out of the original contradiction. This was the exact opposite of the individual or group autonomy which craft was held to promote, and which the arts and crafts movement sought to reconstruct in the face of the industrial system.

This study will increasingly suggest and argue that this 'contradiction', this aporia is the constituting condition of the modern, and that 'tradition' is as much a creation and result (even invention) of the modern, as 'modernism'. It is a profound error to see the one as in flight from the other; both are condemned to circle around one another, like twin stars.

It has been normal, since the study of Pevsner, to treat the arts and craft movement in England as a forerunner of social-democratic modernism. Yet a pertinent question may be asked of it, and of William Morris in particular. Granted that we attribute ethical qualities to handcraft; what are the ethical consequences of the materialism entailed. In particular, to Morris's de- Christianized romantic materialism. The devotion to Icelandic and Nordic epic, the depreciation of existing society and the highly inventive approach to medieval history place him at time (Marxism notwithstanding) in the same mental world as Richard Wagner.

Harbison R. Deliberate Regression Knopf. New York (1980).
p.104.

Robert Harbison notes, with reference to the style of The Red House "By going a little further back one discovers a style almost styleless....but when one simulates the life attached to it, one must disguise its pre-Christian savagery" (As Morris did in his poetic works.)

See Chapter 7.....

This point is made in order to assert the contrary (and anti-Pevsnerian) aspect of the Arts and Crafts Movement, which further helps to link it with the neo-feudalism of certain country houses, and to remind us forcibly that the movement was not by any means social-democratic in ideology. It must emphatically be linked with nationalism - with the 'antagonistic qualities' - for good or for ill.

See Volkov. op.cit. p.15 who cites Reboul, Rudé and other writers.

In France, handcraft masters played an important role in the revolutions of 1830 and 1848, but thereafter swung to the authoritarian right. In Russia, handcraft revival was partly inspired by Pan-Slavic nationalism. In Scandinavia, the Baltic countries and Central Europe, craft revivals were part of a general synthesizing of folk traditions, as part of the process of national definition. We shall note later the connections between Ruskinian ideals and Gandhi's ruralising independence movement for India. The 'politics of art and craft' reveal not only a common logical argument, but common ambivalent social/ ideological functions, creating, from country to country, different conditions for the mental life of craftsmen, leading them to form different

See Footnote.....

See Ch. 6; 'an economic appendix'.

alignments. The social forces obtaining in each particular case would operate upon the same dilemma with locally peculiar results.

It is possible to locate the occasion on which the Janus face of the English arts and crafts movement swung round to face the future rather than the past, (though still remaining ambivalent). On Nov. 14th. 1883 William Morris gave his lecture 'Art and Plutocracy' at University College, Oxford. John Ruskin was on the platform beside him. After noting that "there lies in the minds of most thinking people a feeling of mere despair as to the prospects of art in the future " he asked the audience to extend the idea of art "to the aspect of all the externals of our life." He speaks of a time when there was a 'healthy' and 'intimate' connexion between 'Intellectual' and 'Decorative' art - when "the best artist was a workman still, the humblest workman still an artist". (And at that moment echoing almost the exact words of the opening evidence to the 1835 Parliamentary Enquiry). He then draws a line of demarcation that he saw existing, a barrier of class as well as of artistic category, concerning 'the social position of the producers'." So then it comes to this, that not only are the minds of great artists narrowed and their sympathies frozen by their isolation, not only has cooperative art come to a standstill, but the very food on which both the greater and the lesser art subsist is being destroyed: the well of art is poisoned at its spring." The argument develops; "So long as the system of competition in the production and exchange of the means of life go on, the degradation of the arts will go on." He rapidly sketches out the history of art and craft as social products, in which 'the unit of labour was an intelligent man", to a time when "Commercialism had by now well-nigh destroyed the craft-system of labour", replacing "the fully instructed craftsman" with "the workshop system".

For a comment on this, see Appendix.
One.

The workshop system is then replaced by "the factory system". "This system is still short of its full development, therefore to a certain extent the workshop system is being carried on side by side with it, but it is being steadily and speedily crushed out by it...." The factory system produces "the death of art and not its birth....the degradation of the external surroundings, so simply and plainly, unhappiness....from the poor wretches....up to the cultivated and refined person who (cultivates) unhappiness as a fine art."

See Footnote.

Machinery as such is not the cause of this, but the control and ownership of the means of production. Morris rejects the reformist solution with a blast of scorn well worth reading today. "It is ~~is~~ not the accidents of the system of competitive commerce which have to be abolished, but the system itself." "I tell you the very essence of competitive commerce is waste: the waste that comes of the anarchy of war. Do not be deceived by the outside appearance of order in our plutocratic society.....this is the mask that lies before the ruined cornfield and the burning cottage." This he describes as the 'education of discontent' that must lead to Socialism.

'Communism' March 10 1893.

Events have not dealt kindly with Morris's confidence; and the argument of the thesis presented here is that the industrial system itself and its enveloping epistemology transcend questions of control or ownership. He himself, in one of his last lectures wonders whether "the tremendous organization of civilized commercial society is not playing the cat and mouse game with us socialists". Nor indeed, was the English arts and crafts movement to move forward to the final synthetic stage of the argument. By 1890 it had become a sort of orthodoxy, entrenched in the schools of art and design; above all,

providing a form language for the gentrification of industrialists, through the romantic neo-feudalism of Lutyens, Shaw and others, or through the moneyed elegance of the 'Queen Anne' revival. The critical tradition had become enmeshed with a wealthy and powerful clientele. This process of enmeshing has been very well described by Lambourne. Of particular interest is the establishing of arts and crafts values in design education in Britain, where the critical tradition became an orthodoxy; but an orthodoxy opposed in many points to the industrial system. Thus a dilemma became institutionalised.

Lambourne L. Utopian Craftsmen
(1980): esp. later chapters.

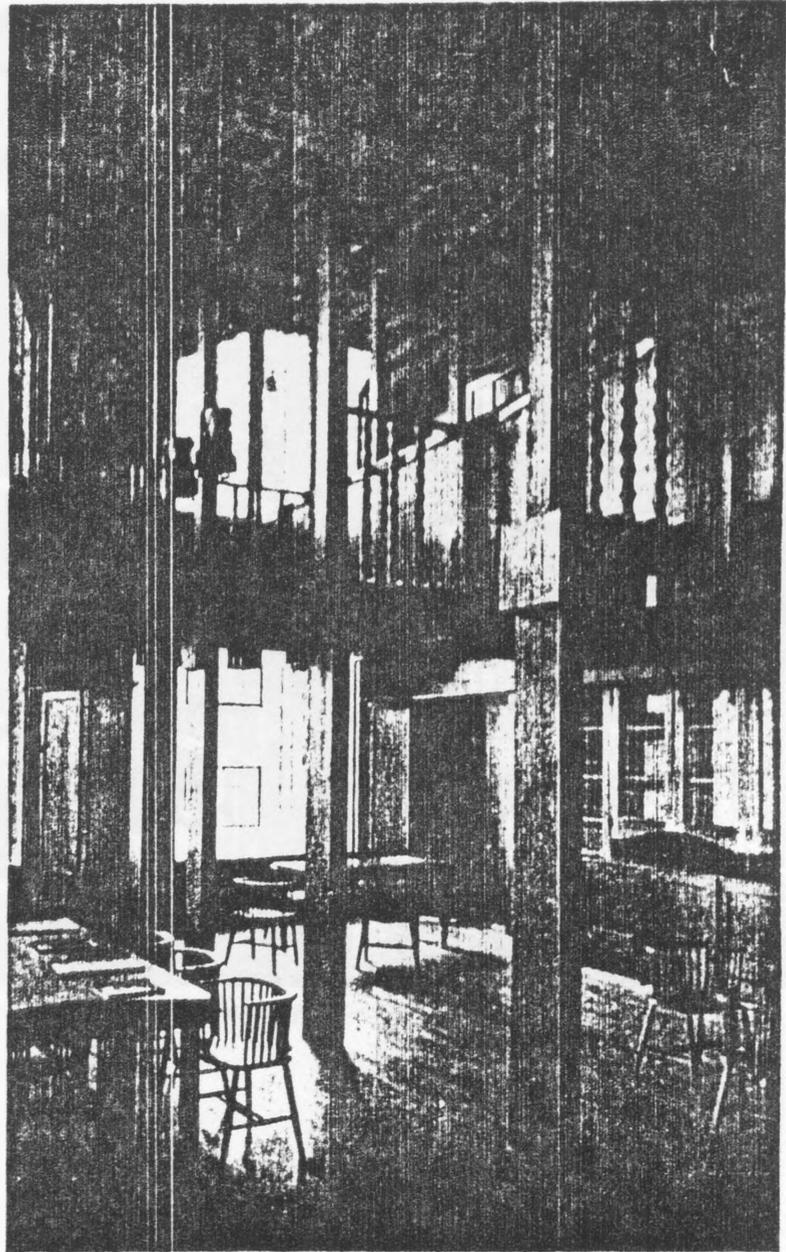
Morris's outbursts of exasperation are well known, but Ashbee felt much the same. " We have made of a great social movement, a narrow and tiresome aristocracy, working with great skill for the very rich." Their movement was projected into a social world of increasing stability. not to say ossification. The socialism with which it might have allied to create a demand for 'discretion' and control at the point of production, had espoused managerial and utilitarian values and reformist policies hardly to be distinguished from those of the more progressive employing class.

Quoted by Lethaby op.cit. p.94.
also quoted by Naylor.

See Footnote.....

The inability of the English arts and crafts movement to develop further can be illustrated by a comparison between C.R.Mackintosh's Library for the Glasgow School of Art, and Ernest Gimson's Library and Hall for Bedales School.

The latter were designed by 1919 and built in the next two years; both are sturdy buildings of brick and masonry, modelled on the barn structures Gimson had studied for their rustic nobility.



C.R. Mackintosh. The Library: Glasgow School of Art.



E. Gimson. The Library, Bedales School.

The Glasgow library, built twelve years earlier (though designed before then), uses similar materials to quite different ends. Though simple in its main form, the Glasgow room is enriched by the practical but visually intricate jointing and some very carefully executed details and ornamental shaping of a kind not seen before outside the work of the Glasgow designers. The effect of the room is exhilarating rather than noble, tense rather than simple. Yet it is the outcome of an 'arts and crafts' scrupulousness and care for materials. The nearest Mackintosh ever came to the Gimson treatment of timber will be found in the stairwells of Scotland Street school, with their twinned double beams.

This contrast can be taken down into small details of workmanship, the differing use of joint pegs, the tapering and chamfering of both main and subsidiary members, the open plan or the enclosure of reading spaces.

Gimson's style grows out of Morris's neo-vernacular teachings: his interiors are 'fixed' upon a vaguely saxon ideal prototype. It represents the end of a development, and the rigidity of a clientele formation for which he was working and which had abused and rejected Mackintosh's work and the 'excesses' of Art Nouveau. What had been revolutionary had become complacent. This is the end of a localism that has rejected innovation.

See G.Naylor. 'The Arts and Crafts Movement' (1971) p.115.

Voysey, for example, regarded Art Nouveau as 'distinctly unhealthy and revolting' ; Walter Crane described such styles as 'a strange decorative disease'. Over eighty years later we are more aware of the similarities than the differences, and we have to look rather carefully for the underlying deep change in the mental culture; as between Crane and Voysey, and Mackintosh.

N.Pevsner (1968) op.cit. p.161.

An interesting comparison with
Shakerism ?

See Footnote.

J.Delville. 'The New Mission of Art'
(1910) Ch.6. 'The spiritualising of
art'. p.182.

"How Mackintosh's art struck sensitive continental observers can best be seen in a passage in Friedrich Ahlers-Hestermann's book 'Stilwende'. 'Here we found the strangest mixture of puritanically severe functional forms and lyrical sublimation of the practical.'" Such a remark (quoted by Pevsner) is a key to the explication of this deep change. It has not been sufficiently remarked that the Glasgow School was a considerable centre of late symbolism. Whilst the Library was being planned and built, the governing body of the school took the unusual step of appointing a Belgian, Jean Delville, as head of the painting school. Delville, a significant figure in Belgian symbolism, was a close associate of Edouard Schuré, the theosophist. In his book 'The New Mission of Art', published in English in 1910, we find him writing that "the time has arrived when genius will no longer be unconscious: the genius of the idealist will, we boldly prophesy, be superconscious!" At the risk of oversimplification we can assert that the change in mental culture, summarised in that sentence and given material expression by Mackintosh, (for whom the word 'superconscious' seems very apt,) is the precondition of the synthesising stage of the critical argument'. Mackintosh's Scots localism was transformed by this mental culture into a universalism, or at least internationalism. Voysey, Mackmurdo and Ashbee were all designers on the edge of that synthesis; yet unable to make the conceptual step forward. The stress upon practicality and vernacular 'common-sense' which they inherited from Morris (and the general surrounding mental culture) is exactly what prevented them from taking that step forward - into a conscious theory. Such a step required (in the conditions of that time) some supporting structure of metaphor, or inspirational doctrine. We shall return to discuss such structures, and the abandonment of them, in the following chapters.

Ashbee's writings chart a movement between opposites. 'Craftsmanship in Competitive Industry' (1908) states the problem: 'Should we Stop Teaching Art' () proposes a solution - reentry into a carefully regulated industrial production. His practice too was a continuous shuttling between the most refined handcraft and the beginnings of industrial design, and between the ruralism of the Cotswolds and the wide international scale of Darmstadt or Chicago. Yet he could not see, or only briefly, that industrial production would not be carefully regulated. He wrote ...

'Craftsmanship in Comp.Industry' p.123.

"But in the last fifty years there has entered into our western consideration of standard a new factor. There has come the knowledge that behind our conceptions of good and evil, of right and wrong, stands a power, inscrutable, irresistible, continually moving, that tells us human nature is not fixed and that at any moment, as we ourselves change, changes for us our standards.....our western conceptions of standard are still determined for us by the old gods. Constructive socialism is about to change them, but only within the limitations laid down by modern science.....that dark(force) moving irresistibly behind what we suppose to be the will of heaven."

Here, though obscured by a taoist tone of mystification (itself an interesting phenomenon) is the moment of dialectical transformation and synthesis with a normative tradition of 'immutable laws'. It is the realignment with a transformed progress - but on paper only.

W.R.Lethaby's writings, a little later, signal this synthesis even more clearly in words that have been much quoted, and for varied purposes, ever since.

From 'Form in Civilization' (1910) .Essay
entitled 'The Architecture of Adventure'.

"What we most need at the present time is the accumulation of power; we want high mechanical training, wide practical experience, and great geometry. And then we want to cover the field by a systematic research into the possibilities.....investigating, as Lord Kelvin investigated, the geometry of crystalline structures, the 'packing of cells'.....such a training would not include the whole of architecture, but it would, I believe, open the way to the best we can attain. We might hope thus to give up hugging the coast of the known, to sail boldly forth under the stars.....the living stem of building-design can only be found by following the scientific method."

See Footnote

This perfect normative statement from a man deeply attached to the critical tradition, might have come from Dresser or Jones, or earlier from Babbage or Wyatt; it signals the expected synthesis that did not arrive - conscious theory.

The external and material causes of English culture's failure to achieve a modernist style lie deep within the financial and industrial structure of the country and the cultural expectations of its owning, employing and investing central formations; more readily observable in the anti-scientific bias of their private education. Brunel's sons, we may recall, were sent to Harrow; and Babbage wrote of the 'deep rooted prejudices of the ruling classes'. This important subject is outside the scope of this study and the interested reader is referred to Martin J.Wiener's 'English Culture and the Decline of the Industrial Spirit' as a light introduction to a heavy matter.

See bibliography

There was no adequate material or cultural infrastructure to support an English 'modern movement': so although a version of 'international style'

became part of the rhetoric of reform and social democracy, and although a version of 'Bauhaus' teaching became the orthodoxy of its colleges of art and design in the 1960's, no creative industrial or scientific endeavour was left to take up its products. In the field of housing and urbanism all that existed was managerialism, whose results are all around us today.

But a further cause, internal and of a metaphorical character, may help to explain why the synthesis of critical and normative traditions did not take place in fact but only in writing in England. It is not a matter for which evidence can very easily be called, but by it is meant the original mythic structure of the critical tradition and the absence of a concrete and available alternative model. Creative synthesis took place first in those countries where an alternative in the form of folk or peasant traditions still had some level of reality.

Where the ideal prototype had to be evoked through research and asserted through lecture and literature, the synthesis could only remain in research, in literature; and the practical connexion is not made. And that research and propaganda had always something of the quality of a pre-industrial intelligentsia seeking a pre-industrial artisanate.

I am indebted to Dr. Brian
Maidment for this insight.

Ruskin's advocacy of craft values, as outlined in 'The Nature of Gothic' presents his reader, at the beginning with a stark choice, and at the end with an unsustainable conclusion.....

"Understand this clearly. You can teach a man to draw a straight line, and to cut one; to strike a curved line, and to carve it; and to copy and to carve any number of given lines or forms, with admirable speed and perfect precision: but if you ask him to think about any of those forms, to consider if he cannot find any better in his own head, he stops; his execution becomes hesitating, and ten to one he thinks wrong; ten to one he makes a mistake in the first touch he gives to his work as a thinking being.

But you have made a man of him for all that. He was only a machine before, an animated tool.

And observe, you are put to a stern choice in this matter. You must either make a tool of the creature, or a man of him. You cannot make both. Men were not intended to work with the accuracy of tools, to be precise and perfect in all their actions. If you will have that precision of them, and make their fingers measure degrees like cog-wheels, and their arms strike curves like compasses, you must unhumanize them....."

(and later)

"Though some Venetian glass is ugly and clumsy enough when made by clumsy and uninventive workmen, other Venetian glass is so lovely in its forms that no price is too great for it; and we never see the same form in it twice. Now you cannot have the finish and the varied form too. If the workman is thinking about his edges he cannot be thinking of his design; if of his design, he cannot think of his edges. Choose whether you will pay for the lovely form or the perfect finish, and choose at the same moment whether you will make the worker a man or a grindstone."

The power and humanity of these lines should not blind us to the nature of the argument, which with bludgeoning force, makes us choose either-or. Either man or tool, form or finish : understand this clearly, and observe, and choose, you are put to a stern choice. Ruskinian prose, regardless of the truth of it, allows the reader no independent mental space: the words rush in and close off access to our thoughts as we read. His use of the word must is as presumptive as Reynolds' 'of course'.

The argument rushes headlong forward to challenge the Prince Consort's rhetoric.....

"We have much studied and much perfected of late, the great civilized invention of the division of labour; only we give it a false name. It is not, truly speaking the labour that is divided, but the men: -divided into mere segments of men - broken into small fragments and crumbs of life; so that all the little piece of intelligence that is left in a man is not enough to make a pin, or a nail, but exhausts itself in making the point of a pin or the head of a nail.

Now it is a good and desirable thing, truly, to make many pins in a day; but if we could see with what crystal sand their points were polished, - sand of human souls, much to be magnified before it can be seen for what it is - we should think there might be some loss in it also. And the great cry that rises from all our manufacturing cities, louder than their furnace blast, is in all very deed for this - that we manufacture everything there except men: we blanch cotton, and strengthen steel,, and refine sugar and shape pottery; but to brighten, to strengthen, to refine or to form a single living spirit never enters into our estimate of advantages. And all the evil to which that cry is urging our myriads can be met only in one way; not by teaching or preaching, for to teach them is but to show them their misery, and to preach to them, if we do nothing more than preach, is to mock at it. It can be met only by a right understanding, on the part of all classes, of what kinds of labour are good for men, raising them and making them happy; by a determined sacrifice of such convenience, or beauty, or cheapness as is to be got only by the degradation of the workman; and by equally determined demand for the products and results of healthy and ennobling labour."

then plunges to its bathetic conclusion.....

"And how, it will be asked, are these products to be recognized, and this demand to be regulated? Easily: by the observance of three broad and simple rules:

1. Never encourage the manufacture of any article not absolutely necessary, in the production of which Invention had no share.
2. Never demand an exact finish, for its own sake, but only for some practical or noble end.
3. Never encourage imitation or copying of any kind, except for the sake of preserving records of great works."

Compare with Reynolds' "of course".

It is the word EASILY that betrays the essential weakness of Ruskin's argument. This mental world is voluntaristic and assumes the power of thought over things. Such voluntarism requires an ideal prototype, an alternative model that is not realisable, so that the omnipotence of thought is not threatened by material success and all the ambiguities of real action (as opposed to intellectual fantasia). Only the very strongest spirits can live with such voluntarism and not fall into a syndrome of withdrawal. This observation should not be read as part of Ruskin's biography. His voluntarism is akin to that of William Blake and before that of Gerald Winstanley. That is to say, it is a social phenomenon directed toward, in this case, an immediate practical matter - how, and by what organisations and transactions, are things to be made. In the face of an apparently irresistible historical tendency, only voluntarism can keep up creative morale. In the absence of a concrete alternative, what else could be done, but to exhort.....?

Though was this folk art too not an invention of sorts?...se Ch.7.

See N.Gabo. 'On Divers Arts'
(1959) p.131.

In Scandinavia, Russia, The Low Countries and Central Europe there was - and in some measure still is - a folk style, communal in expression, strictly coded according to traditional iconography and symbology, and employing a wide range of highly developed craft skills practiced by autonomous crafts-people. A concrete alternative to industrial production was there, under the noses of the design reformers and the critical reactionaries. There too were alternatives to academic figuration in the fine arts, and a profoundly different concept of artistic expression. This is especially true of the church art and design of Russian Orthodoxy. Naum Gabo described this as 'idealistic in

See A.Kopp. 'Town and Revolution'
(1975) Ch.8.

spiritual function, utilitarian in social function, abstract in formal content.' The achievement of these values in 'production art' was the synthesizing aim of Russian constructivism and 'De Stijl'. The anti-urban bias of the critical tradition reaches a new level in the technological de-urbanising theories of the 1920's.

See G.Naylor. op.cit. Final Ch.

Gillian Naylor concludes that 'arts and crafts' values have been best expressed by the relations between art, craft and industry in the Scandinavian countries, and that here a systematic accomodation was most seriously and effectively attempted. What is hardly to be found in Western studies is the whole field of 'secession' design in northern and eastern Europe, from the 'Transylvanian' style to the City Hall at Oslo. Romania, Hungary, The Baltic States, Finland all had indigenous and independent arts and crafts movements as part of their national self-definition and political autonomy. We normally see this only in disconnected glimpses: in the final chapter this subject is touched on again.

In this chapter we have sought to enlarge our picture of the arts and crafts movements. By stressing the logical form of the reaction against machine production, the aim has been to link the whole 'argument' to continuing problems of the hegemony of the industrial system. The questions of the right use of technology, the relation of hand to machine, of changing patterns of work discipline and 'discretion', of productive and cultural autonomy show no sign of going away. These questions are the substance of critical theory. By trying to form a clear logical picture of art and craft in relation to industry we may move some way toward asking these questions in a right, or at least answerable, form.

Footnote to title. Robert Burns. To a mouse: on turning her up in her nest with the plough .Nov. 1785.

Is there a better description of the dispossession of the poor by a changing economic order than this poem, or a more succinct statement of the ecological problems of exploitation.?

Footnote to p. 95

It is, of course, relevant that Pugin was a Catholic and thus from a tradition of social disadvantage, and that Ruskin was an Evangelical, intensely critical of received modes of feeling.

Footnote to p.96.

A good account of Ludwig's architectural plans will be found in Wilfrid Blunts 'The Dream King' (1970), and the last chapter, written by Michael Petzet. There is no real comparison with Burges, since Ludwig employed a variety of designers at different times. But part of Ludwig's importance is that he kept so many skilled craftsmen employed for so long. Munich remained a centre of the handicraft movements, where it was strongly associated with the right in politics. E.g. Peter Behren's "Dom bau hütte" was closed down after demonstrations by Nazi and conservative groups in 1922, without any protest from the Deutsche Werkbund, then headed by the Bavarian Richard Riemerschmid.

Footnote to p. 97.

The idea of a craft revival is not always clear. In Germany it is certainly the case that craft production continued unabated on a large scale into the later half of the 19c, and that craft artisans were able to maintain themselves as a distinct social group and a political constituency (as studied by S.Volkov). Thus 'craft revival' in Germany means something different from 'craft revival' in England in 1890. In what is written in this study, the term is used to denote any positive revaluation of craft, and theorising of its position in the productive system.

Footnote to p.100.

The mythical elements in 'News from Nowhere' are worthy of close study: the voyage up-river, the boat, the return to the house, the reference to garden symbolisms and other aspects fit carefully and curiously with some very acute observations of later developments in social democracy.

Footnote to p.104

This will be the subject of a further study entitled 'Heaven's Vernacular: protestant theology and the history of design.'

Footnote to p.103. . As early as 1640, this extreme eclecticism was noted by John Taylor, whose popular (many times reprinted) manual entitled 'The Needle's Excellency', lists embroidery designs that were.....

'Collected with much praise and Industrie
From scorching Spain and freezing Muscovy,
from fertile France and pleasant Italie,
From Poland, Sweden. Denmarke, Germanie,
Sndf some of these rare patterns have been set
Beyond the bounds of faithless Mahomet,
From spacious China and those kingdome East
and from great Mexico and Indies West,
Thus are these works farre fetched and dearlt bought
and consequently good for ladyes thought.'

Quoted by Jourdain, but sceptically.

Footnote to p.103. . For example, from the 'Boston Gazette' in 1749. 'On the 11th Nov. last was stolen out of the yard of Mr. Joseph Cort, a woman's fustian petticoat with a large worked embroidered border, being sheep, deer, houses, forests etc.. Whoever have taken said petticoat and will return it to theowner shall have 40s. reward and no questions asked.' See also many interesting pages in Jourdain's 'History of English Secular Embroidery'.

Footnote to p.103. The decline of embroidery from its very high status in Tudor and earlier times, to a mere device to discipline the daughters of the middling rich, is a melancholy study. Here it is asserted that because we know the names of some seamstresses, and know they were paid well, we can assume that we are dealing with a skilled and respected class of craftspeople (by that time - mid 17th cent. - mostly women). This class is to be distinguished from that of the domestic needleworkers for whom embroidery became, increasingly, an alternative to whist. When hand embroidery began to be replaced by the machine, then the punitive function of the task became ever more visible - and 'art-needlework' became a part of the craft revivals. The history of the social function of embroidery is of immense interest and the studies of Roszika Parker are awaited with interest.

Footnote to p.105. At the popular ballad level, J. Harland has collected a song, quoted by Thompson (p.306).

'So, come all you cotton weavers, you must rise up very soon,
For you must work in factories from morning until noon:
You mustn't walk in your garden for two or three hours a day,
For you must stand at their command, and keep their shuttles in play.'

See also Blake's compensatory vision in 'The Four Zoas' (Night Nine).

'Then seized the sons of Urizen the Plow: they polished it
from rust of ages; all its ornament of gold and silver and ivory
reshone across the field immense, where all the nations
Darkened like Mold in the divided furrows, where the weed
Triumphs in its own destruction. They took down the harness
From the blue walls of heaven, starry, jingling, ornamented
with beautiful art, the study of angels, the workmanship of demons
When Heaven and Hell in Emulation strove in sports of Glory.'

Compare Blake's use of the word 'demonstration' in 'Jerusalem' with that in *The Economist*, and with his attitude to specialized knowledge as compared to that of the Prince Consort.!

Footnote to p.110 The Shakers used some imagery, notably a tree of life symbol, which can be explicated by a reference to Winstanley's pamphlet, 'Fire in the Bush' (1650) "And when this tree of life is fed upon and delighted in (by the five senses, which is the creation, mankind, or the living soul), then these five rivers are called pure rivers of the water of life; for the life of truth and peace is in them, and they are the sweet conveyers of the waters or breathing of life from one to another, through the whole body; and so bringing all into a oneness to be of one heart and one mind." This imagery was created in embroidery and 'gift drawings', inspirational spiritual diagrams which have been occasionally reproduced (e.g. Patterson p.420.) Such imagery should not be reduced to 'unconscious symbolism'; it was a coherent and semi-continuous tradition of drawing, originating in 'figurae' of Joachim of Fiore (to which tradition the Shakers had access ~~to~~ through their Camisard background) (see text and notes to Ch.4 and Ch.5). The whole question of iconophobia lies behind the belief that the useful can be spiritually significant; and is thus part of the deep foundations (one might say, theological foundations, of design reform.)

- Footnote to p.112 Mother Ann Lee was held to be Christ's sister, and identified as 'Holy Mother Wisdom'. We might see this as a compensation for the appalling collapse of social and sexual relations brought about by the first wave of industrialisation, finally described in the Parliamentary Reports of May 1842., and in the extent of prostitution in early 19c. cities. It was only in a specialised, celibate, exiled and utopian commune that a restitution could be achieved. At the same time. the Shaker theology of work, and their extreme functionalism of design can be described as a sublimation and internalisation of the industrial ideology. For the opposite strategy - the practice of 'community of affections', coitus reservatus etc., see the account of the Oneida community given by Whitworth and others.
- An interesting sidelight on this, is that women's clothing in the Arts and Crafts circles was free-flowing and uncorsetted. In the words of another Shaker hymn .."Shake out all the starch and stiffening."
- This particular hymn (not included in Patterson's selection) is a song from an inspirational source. Other songs were received from visionary birds, and from 'people' of all races.
- Footnote to p.112 This suggests that we can see both Shakerism, the vernacular of dissent, and the neo-classicism of early industrial design as all being forebears of later theories of design, and as all sharing in some common social and possibly theological basis.
- Footnote to p.113 Brown's painting 'The Last Sight of England' specifically relates to his friend, the sculptor Woolner, but more generally to the skilled rather than indigent emigrant. A study of Brown's themes is overdue.
- Footnote to p.114 A connexion between Shakerism and Robert Owen is recorded by Andrews (1974 p.190 see biblio.) Shakers, Owenites, Mormons and others all shared an ideal prototype for their settlements; that described in Revelations, the New Jerusalem descending from heaven, orthogonally laid out.
- Footnote to p.115 Winstanley's writings are, once again, a fountainhead. 'true religion is this, and undefiled is this, to make restitution of the earth, which hath been taken away and held by the common people by the power of conquests formerly, and so set the oppressed free. Do not all strive to enjoy the land?' from 'A New Years Gifte to the Parliament and the Army.(1649.)
- Footnote to p.115 This estimation of the origins of the 'allottees' is as follows. Of the 35 families at Heronsgate, 29 from the N.of England (mostly Lancs and Yorks.). Of the 40 at Lowbands, 18 from industrial Lancs. 5 from Yorks.. Of the 73 at Charterville, only 13 from southern counties. The Great Dodford settlement was of varied provenance and the census returns give a more rural origin for these families (11 gardeners or farmers out of a list of 25 names and occupations.)

- Footnote to p.115 For further mention of Tessenow, see Speer's 'Inside the Third Reich' (pp 14-15); also 'Oppositions' Spring '78 No.12. K.Frampton 'A synoptic view of the Architecture of the Third Reich', and material in 'Architectural Design' 52. 5/6 1982. The quoted remarks illustrate very interestingly the different but similar directions taken by the British and German critical traditions, when set beside the visions of 'News from Nowhere'.
- Footnote to p.115 .An account of the 'Heimat' tendency and its influence on the Deutsche Werkbund will be found in 'Distant Goals, Great Hopes', by Wolfgang Peht , in 'The Werkbund etc.' ed. L. Burckhardt (see biblio.)
- Footnote to p.118 . The Mittelstand craft masters had rejected the left solutions much earlier, and had demanded the introduction of obligatory guilds and compulsory master-examinations. The idea of craft cooperatives were rejected emphatically (see Volkov pp292-3) The compulsory guild option became part of law in 1897. But for artists such as Eisner was speaking for, and such as Gropius employed, the craft solution to alienation was conceived in 'left-utopian ' terms. The architects point of view can be found in Hans Poelzig's 'Address on the Occasion of the revival of the Werkbund' (1919) reprinted by Sharp in his 'Modern Architecture and Expressionism' (1966) But 'Mittelstand' does not equate with 'craft' exactly, since it included all independent tradespeople e.g. butchers.
- Footnote to p.118 . A brief account of Schultze -Naumburg's political evolution can be found in Campbell (pp.212-3). He took over the school at Weimar after the ousting of the Bauhaus staff, and was responsible for painting over Oscar Schlemmer's murals. In his later years he solicited Hitler for commissions, but lost them to Peter Behrens.
- Footnote to p.121 In the case of Central Europe it is particularly the case that national identity and a synthesising of folk traditions found expression in music: and this too is paralleled in the work of Cecil Sharp and the use made of folk music by Vaughan Williams and successive British composers. But the differences are very striking as between Vaughan Williams and Bela Bartók. (See Ch.7 for a further comment on this.)
- Footnote to p.123 Note that Morris must still use a rural image to express devastation.
- Footnote to p.124 But no less ruralising, either. For the persistence of anti-industrial sentiment in the Labour movement, see Wiener op.cit. Ch.6.

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Chapter Four

The Idea of a Universal Language

Part One



Section d'un câble.

- At the end of the first chapter a distinction was made between critical and normative traditions in design theory. The normative tended toward that 'realized unity of mankind' imagined by the Prince Consort: it concerned itself with the establishing and following of 'laws', making a connexion (more by assertion than by argument) between the notion of law in art, and law in science. The 'lawfulness' of the natural world provided, in the Prince's words, standards of action. Jones, Dresser and others, practical men and theorists, developed this into a doctrine in which natural form provided standards of beauty and fitness for manufactured form because (as Dresser quoted M.D. Wyatt) 'infinite variety and unerring fitness govern all forms in nature'. This goal - of the manufactured world as nature - remains a central image in the normative tradition, sanctioning and validating human effort. Through this, too, human arts and manufactures could become a legitimate object of a study founded on the methods and concepts of the life-sciences, and it becomes possible to speak of a 'scientific aesthetics', or even a 'scientific method of design'. Dresser wrote "Nothing can be more important.....than the scientific study of art." His slogan for the normative tradition was 'Truth, Beauty, Power'.
- C.Dresser. 'Principles of Decorative Design' (1873) p.20.
- ibid. p.14.
- ibid. Title Page.
- See P.Steadman. 'The Evolution of Designs' (1979) p.2.
- Today we would want to distinguish carefully between the scientific study of the field, and a scientific method of design.
- A.Colquoun. 'Typology and Design' in 'Perspecta' No.12. (1969) also quoted by Steadman.
- The promotion of 'scientific methods' of design begin with the biotechnical conception of manufactures. Colquoun comments "Ultimately (operational needs and the operational techniques) would fuse in a kind of biological extension of life, and function and technology would become completely transparent."

See 'Circle' p.256. et seq..

An expression of this idea will be found in the anthology 'Circle' (1937), in the essay by Karel Honzig entitled 'A note on Biotechnics'. We return later to the problematic aspects of 'scientific method'; not least to the assumption that such method is always and unvaryingly the same.

See Footnote.

Philip Steadman has made an extensive survey of what he calls 'the biological analogy' in his 'The Evolution of Designs' (1979). In these pages similar material, arrived at for the most part independently, is put to a different purpose. The concern here is with the ideological force of such analogy. As we shall see, the analogy has an important but not exclusive place in the normative tradition; the central ground is held by the concept of a universal language of form, through which 'the realized unity of mankind' might be given material expression and invoked. Such a 'universal language' would have to comprise both a constructional aspect (for which the biotechnical analogy was employed), and a theory of expression (which claimed trans-cultural validity). With 'realized unity', not only would function and technology be as necessary as that of nature, but meaning and expression would be equally candid and equally unconditioned. For this to occur in a synthesis of construction and expression - of 'manufactures' with 'arts' - both had to find forms of existence congruent with each other. That is to say, there would have to be a perfect coincidence between the means of construction and the aesthetic effect; so that though these are not in the same logical category, yet we cannot explain the one without describing the other.

The notion of a universal language of form is clearly highly abstract and general; in what follows we shall regard it primarily as part of a structure of metaphor.

We do not ask of a metaphor - is it true?: rather we ask - does it help us to work, does it usefully concentrate thought.? It is only when the same mental formation is put forward as a statement of belief, with ontological claims, that we have to ask - is it true?

In what follows, we are concerned with the growth, expression and collapse of a related series of metaphors that enabled designers, architects and artists to link 'arts' with 'manufactures', and to propose the idea of a universal language. This chapter is in two parts; the first being devoted to 'construction' and problems of morphology, the second to 'expression'. What links both is the theme of symbolic representation, which may (in codified form) link with Babbage's 'science of calculation'.

It must be clear that such an argument can only be supported in so small a space by a presentation of unusual density and succinctness; one that makes up in concentration what it lacks in completeness. But this task must be undertaken if we are to unpick that knot of problems handed down to us in the Prince Consort's speech.

* * * *

Part One

'What we want to know is art's fatal history, its morphology.' J.Schillinger.

As applied to construction and morphology, Dresser's 'scientific study of art' proceeded in two ways. The first of these was classificatory; the student worked like a collecting naturalist concerned with taxonomy and typification: in this he imitated the great classifiers of the natural world, such as Linnaeus (d.1778). The criteria of classification were variable, and the schemae of ordering might change, but the aim was always comparison by means of collation. In architecture the great monument to this approach is J.N.L.Durand's 'Recueil et Parallele des Edifices' (1801), which in due course became the foundation of the teaching method of the French polytechniciens. In studies of ornament (where we have seen that a certain freedom of speculation was made easy) there is a long series of books beginning with Wilhelm Zahn's 'Ornaments of all Classical Epochs, from the Originals ' (which was commissioned by the Austrian government as an aid to design education in 1831), to Jones' 'Grammar of Ornament'. As argued in Chapter Two, the development of illustration played a large part in this classificatory endeavour, by making research and visual information more widely available.

The second direction which a scientific study might take was more specifically analogical - through the study of 'laws of distribution of form in nature' to arrive at design solutions. Both approaches had clear prescriptive intentions and both had firm roots in contemporary scientific theory and method. This is a significant shift in paradigm, from communion with the intrinsic 'precedents' of academic tradition, to seeking sanction for method outside that tradition - indeed, outside the whole field of making .

Quoted by A.Arber in her 'Natural
Philosophy of Plant Form' (1950)
See Footnote Ch.5.

See esp. p.162 of that book, for
Whewell's comments on the Gt.Exhib..

Quoted by P.Ritterbush in 'The Art
of Organic Forms' (1968) p.164.
(Davy. Vol.V111 pp.306 - 9 'Parall-
els between art and science 1807')
See C.Rowe 'The Mathematics of the
Ideal Villa' (1976) p.8.

By classification one could deduce a generality from a mass of particular examples, the outcome being a type. The sanction for this (for English contemporaries) was provided by William Whewell in his 'Philosophy of the Inductive Sciences' (1840) : Whewell perceived that a natural class of objects "is determined, not by a boundary line without, but by a central point within; not by what it strictly excludes, but by what it eminently includes; by an example, not by a precept; in short, instead of a Definition, we have a Type for our director." Whewell's description gains interest in that he wrote upon architecture and was a translator of Goethe, as well as being a noted scientist and a giant in academic politics. Pevsner devotes a chapter to him in his 'Some Architectural Writers of the Nineteenth Century' (1972).

The study through analogy could be sanctioned by a like recourse to the philosophy of scientific method. Humphrey Davy, in a lecture of 1811, argues that "The foundations of chemical philosophy are observations, experiment and analogy.....analogy, confirmed by experiment, becomes scientific truth." We shall see later that in some areas, the study by analogy was to lead into strange territory; but for architects in particular, biological analogies were sanctioned by still earlier authority - Alberti. "Nature is sure to act consistently and with a constant analogy in all her operations." We may say that in general, all through renaissance and subsequent academic theory, there is an appeal to 'Nature'. The difficulty is, that the Nature of which Alberti (and Reynolds) speaks is not of such a kind from which analogies can be confirmed by experiment. This 'Nature' bears in her train neo-platonic, not to say occult inferences. This will be discussed below.

But there is ample evidence to justify the assertion that the 'scientific study of art' that was intended to develop along the lines of the life sciences was confused by powerful elements of an earlier natural philosophy. This was true in the classificatory aspect of this study, deriving as it did from earlier ideas of the 'ladder of being' extending up from minerals to man, or employing the ancient schema of the 'tree'. This has been noted both by Steadman and especially by Ritterbush, but neither have indicated the indebtedness of these 'ladders' and 'trees' to very much older and pre-scientific sources.

See Footnote

The general conclusion will be, that the normative tradition of design theory, when it claimed to pursue scientific study or method, drew heavily upon an older, idealist natural philosophy; and more lightly upon empirical, experimental and 'normal' science. Indeed, both the constructive and expressive strands hold within themselves this struggle between natural philosophy and normal science, and that the study of these strands of thought is very largely that of the struggle between rival epistemologies.

Both classification and analogy were (and are) valuable as means of conceptualisation: they enabled artists, architects and designers to see and order their collaborative and unifying efforts through organising structures of metaphor.

* * * *

The typifying approach to art and design is of great antiquity, but its entry

Quoted by Ritterbush op.cit. on the title page.

See Footnote

into English discourse can be conveniently placed in the writings of William Harvey (1578 - 1657). " On the same terms, therefore, as art is attained to, is all knowledge and science acquired; for as art is a habit with reference to things to be done, so science is a habit in respect to things to be known: as that proceeds from the imitation of types, or forms, so this proceeds from the knowledge of natural things."

See Ch.I.

Allowing for the modulation in meaning of the term 'art', we can see that this is a significant statement. Harvey's 'types and forms' are clearly related to Reynolds' 'common forms' of the Third Discourse, which Fry referred to as 'type-forms' in his commentary (the meaning, too, of that term having modulated by its use in design theory.) Harvey's anatomical investigations are relevant here since the use of 'type' in respect to design comes to its fullest fruition, as in Muthesius' concept of 'typisierung', from a source that seems to be located in comparative anatomy. The use of 'type' in respect to ornament and the decorative arts, however, has its origins in botanical morphology.

Ritterbush. op.cit. p.8 et seq.

At a date contemporary with Harvey, however, Nehemiah Grew's speculations on botanical form expound a constructional theory of great interest for this study. Grew 'regarded regularities in natural forms as evidence that the processes of growth consisted in the repetition of simple steps, into which forms might be successfully analysed.....regular mechanical processes and nothing more would account for their achieved forms.' Such a bold speculation was based upon no microscopical evidence: Grew's drawings of stems and leaves

constructed of simple crystalline units represent an idea, not an observation. but as forms of symbolic representation they are highly original, and in the growth of a theory of construction, symbolic representation is an issue of great importance. Without some manner of symbolic representation, theory may be impossible to use.

Ritterbush op.cit. p.9.

Phillip Ritterbush (to whom this argument is indebted) makes a distinction between such representation, and the illustrative mode of morphological description. "An illustration is a sensory rendering such that the viewer would recognise -x- if it were depicted. Representation abstracts from phenomena only those aspects which conform to accepted systems of scientific explanation."

But before systematic scientific explanation was possible, description by illustration was the normal means of representation. Botany was largely developed in and by illustration, even when it became speculative. Thus Goethe's 'primeval plant' (Urpflanze) could be deduced and then drawn, and what was deduced and drawn was an originating type of all plants. One suggestion arises from this, that the very notion of type could not be explored without comparative illustration.

J.W.von Goethe. in 'Conversations with Eckermann' entry for 1st Feb. 1827.

"To pursue botany further into details is not in my line. I leave that to others who far surpass me therein. My only concern was to trace back the separate phenomena to a general and fundamental law." This idealised and deductive approach to the notion of type we would now hesitate to describe as scientific, but it describes very well the form the 'scientific study' of art took in the middle of the nineteenth century.

Arber. (1950) Op.cit. Ch.5.

J.W.von Goethe. Letter to Charlotte von Stein, 8th June 1787.

For reprint and discussion, see A.Arber in 'Chronica Botanica' 10. 1946.

See Footnote

See Footnote

See below p.

See D.P.Walker 'Leibniz and Language' in Journ. of Warburg and Court'ld Inst. Vol.35 1972 pp.294-307.
(and references below).

As Agnes Arber has pointed out, "Goethe's whole conception of plant structureis permeated by the idea of type". But it is equally informed by a sense of the generative power of nature. He supposed it was possible to deduce the primeval plant forms and, as it were, invent from them an infinite variety of possible plants from an understanding of a few simple and typical principles: the results, real or imaginary, would all be "imbued with inner truth and necessity." The anonymous fragment issuing from the Weimar circle, known as 'Die Natur', speaks of Nature as "sole artist; from the simplest material she passes to the extremest diversity." 'Die Natur', in a translation by T.H.Huxley, headed the journal 'Nature' in 1869. Another important Goethe text, 'The Metamorphosis of Plants' was published in the 'Journal of Botany' in 1863.

In the 'Urpflanze' and its deductively constructed offspring, Goethe had arrived at the notion of a generative system; but one imbued with emotive force and religious significance. His Nature is something akin to the generative power of the Divine Nature, described in the 'Bhagavadgita'.

The notion of a generative system which, by the combination of simple elements can create an immense wealth of complex forms, is of importance to this study, since the rules of a system can be expressed algebraically; thus the notion lies close to the heart of automation and Franz Reuleaux 'science of invention'. Here we shall simply observe that by means of a 'combinatorial art' Ramon Lull and Leibniz were able to speculate on the possibility of compiling a register of universal knowledge and inventing, or discovering a universal language: and

See Footnote.

and that through the application of such ideas to music, mathematicians such as Kircher were able to discuss and even invent 'composing machines' which with Leibniz' calculators are the forerunners of Babbage's mathematical 'engines'. Durand's method of architectural instruction as described in the 'Lecons d'Architecture' of 1819 has also something of this character, and is a source of the recent study of 'shape grammars'.

See Footnote...

The question here is not one of the influence of Goethean ideas on English design reformers - though this is clearly not to be discounted - but rather of a shared web of ideas and intuitions, for which Goethe used the term 'Anschauung'. The same intuitive grasp is brought to bear by Jones upon Islamic ornament when he describes how, from the simple underlying grids employed, "the number of patterns that can be produced would appear to be infinite." But for Goethe and for Jones the grasp remains intuitive because they have no adequate system of explanation (and hence no symbolic representation). Variety (in nature or ornament) must be illustrated, because it cannot be explained. Jones' notion of geometrical construction is fairly primitive. (for a general discussion of this, the reader is referred to 'The Geometry of Environment' by March and Steadman.(1971)).

See Footnote

'Anschauung' is part of the wider formation of romanticism which employed biological analogies to great effect. Young's 'Conjectures on Original Composition' (1759) claims that "an original may be said to be of a vegetable nature; it rises spontaneously from the vital root of genius; it grows, it is not made."

A.W. von Schlegel's lectures on art and literature in 1801 speak of art 'creating spontaneously, like nature': Similar ideas are present throughout Coleridge's writings. The work of Erasmus Darwin, both as an illustrative poet of great popularity and as a descriptive scientist brings both the study of nature and the analogy from nature together. "The romantic nature philosophy of the Enlightenment.....revived the ancient, the pagan sense of cosmic organism."

C.C.Gillispie. 'The Edge of Objectivity' (1960) p.182.

(also quoted by Steadman p.125.)

See Ritterbush op.cit. Ch.3..

At the same time, a normal science was separating out of natural philosophy. The practice of drawing through the microscope - though full of ambiguities about knowing and seeing - showed that organic tissues were extremely complex and not resolvable into simple elements such as Grew had proposed. Studies such as Dutrochet's 'La Structure Intime des Animaux et des Vegetaux' (Paris 1824), filled with fascinating illustrations, occupies a middle ground. What could be seen could not be understood because the concepts that enable understanding still did not exist. The optical distortions of early microscopes gave further opportunity for the projection of aesthetic preference onto evidence; and the preference was that of the traditions of drawing. One might say, that because drawing was a primary and necessary investigative tool of science, so the immanent traditions of drawing permeated research and created a new body of visual information for designers. As Nasmyth said of machine design, that " the line, the plane, the circle, the cone and the sphere are the elementary forms of good design", so elementary forms continued to be seen and drawn. The advice of Cezanne to Emile Bernard, to treat nature by cylinder, sphere and cone, was well taken by the scientific illustrators. A striking example of this complex process, relevant to the iconography of modern painters, to the decorative motifs of Art Nouveau and to the constructional theories of 'space frames', are the wonderful plates

See references in Schaefer, note to Ch. I.

in Ernst Haeckel's 'Die Radiolarien' (1862). These beautiful drawings of minute sea creatures were widely disseminated and often reprinted, up to this day; but they are notorious among marine biologists for their inventive character and excessive regularity of form.

The whole subject of scientific illustration is of great interest to the art historian to whose province much of the work properly belongs.

As the normal life sciences became distinct from natural philosophy, so the precise study and measurement of living things began to provide 'standards of action' for the designer or architect. The logarithmic spiral is such an example. The work of Owen and Mosely on the shell of the nautilus (again, widely published) spread an idea that seems to originate with Leslie's observation "This spiral exactly resembles the general form and septa of the nautilus, which might be adopted with great effect in many architectural ornaments." (Visitors to the Sir John Soane Museum will recall finding nautilus shells among the many examples of ornament on display). John Goodsir, the anatomist, placed a logarithmic spiral on the cover of his 'Annals of Anatomy and Physiology' (Edinburgh 1850) and expressed a hope that such study would lead to 'Newtonian laws of organic growth'. According to a memoir, Goodsir had 'his grand ideal, a physiological law ruling the form and growth of organisms as gravitation is held to prevail in the physical world'. Goodsir was a leading member of 'The Aesthetic Club'; an Edinburgh discussion circle in which the constructional principles of nature were studied and compared with the beauties of art, in the search for a 'science of aesthetics'. D.R.Hay was another member, to whom Goodsir deferred.

See Ritterbush op.cit. p.48.and
J.Leslie 'Geometrical Analysis
and Geometry of Curved Lines.'
Edinburgh 1821.

See Footnote

See references in Ch.4 Pt.2.

Botanical research in the 1830's also established the importance of the Fibonacci series in the 'laws of the distribution of form in nature' In time these studies were to engender a large and frequently trivial literature on 'golden sections,' 'curves of life' and 'hidden geometry': but at the time of their inception they were the underpinning of early normative ideas. Through a study of natural form, and most particularly by what Goodsir called 'mathematical modes of investigation' constructional principles might be discovered that were congruent with desired aesthetic effects. The 'lawfulness' of science and art, combined, might give 'standards of action' to industry.

But law in science and in art are not logically equivalent concepts: we are viewing a structure of metaphor here, not veridical propositions. Moreover, the whole tendency of science was to erase the traces of metaphor from its own internal arguments, and to replace them with postivist 'fact'.

In the development of a normal life-science, the work of Darwin and Huxley is of primary importance. The idea of a morphology of artefacts had its roots in the same natural philosophy and in the same growth of evolutionary ideas as helped Darwin toward his account of the origin of species. But within these life sciences Darwinism succeeded by destroying the metaphorical structure: the nature of species and their individuation became 'a phenomenon to be analyzed rather than a mystery to be plumbed.' Peter Collins, in an attempt to tackle this subject historically observes that Darwin's elimination

C.C.Gillispie op.cit. p.317. also
quoted by Steadman. p.78.

P.Collins. 'The Biological Analogy' of obsolescent forms is the application of industrial criteria to nature.
in 'Arch.Review' Vol 126. 1959 p303.

The expulsion of metaphor from science is summarised neatly by A.H.Church, in the introduction to his 'On the Relation of Phyllotaxis to Mechanical Laws' (1904). The question of phyllotaxis - Gilpin's 'ramification of leaves to branches' was a preoccupation of the decorative designer as well as of the natural philosopher. Church writes " In the doctrine of Metamorphosis and the enunciation of the Spiral Theory we have handed down to us two remarkable generalisations which, originating in the fertile imagination of Goethe; have passed through the chaos of natural philosophy and emerged in a modern and purified form....."

That is to say, science has shed those extensions by analogy, from descriptive to prescriptive, from indicative to imperative, that natural philosophy maintained.

See Footnote.

Goethean botany lived on in the writings of Christopher Dresser. "Vegetable nature may be viewed in another light....and this is a poetic and artistic or ornamental light." The full title of the book from which that quotation is drawn is "Unity in Variety ; as deduced from the vegetable kingdom, being an attempt at developing that oneness which is discoverable in the habits, modes of growth and principles of construction of all plants." (1860). Schematic illustrations from this book are reproduced in his 'Principles of Decorative Design' (1873). But what gives Dresser's writing its authority and interest is not its Goethean language, but the evident relation of idea to practice, which moves from a literal and illustrative use of natural forms as motifs (as in the early wall-papers and friezes), to the employment of 'modes of growth and principles of construction' (as in his glassware).

In 'Architectural Record' No.4.
1894 pp. 1-13. quoted by Steadman
p.47.

e.g. David Barr, 'Notes on Growth'
'Structurist' No.8. 1968.

See Footnote

J.Schillinger. 'The Mathematical
basis of the Arts' (1948). p.7.

The idea of learning from 'modes of growth', 'laws', or 'principles' becomes a constantly re-iterated theme. The American architectural writer, Schuyler, writes in 1894 of 'imitation, not of the forms of nature, but of the processes of nature': similar terminology appears in the writings of Hans Richter (discussed below), and in Charles Biedermann's 'Art as the Evolution of Visual Knowledge' (1948), and throughout the issues of the magazine 'The Structurist'. It has also, of course, some bearing on the the genesis of Le Corbusier's 'Modulor'.; and the same ideas and phraseology appear in F.L. Wright's essays in numerous places.

The concern with botany as a source of ornament produced a profusion of books in the late nineteenth century English press, which being more pedantic than useful, weary the conscientious scholar. But these and their many continental counterparts prepared a way for the most immediate outcome of the normative concern with 'laws of distribution of form'; namely. Art Nouveau.

As already noted, a universal language is necessarily highly abstract: it must achieve what Schillinger calls 'emancipation from local dependence'. Art Nouveau had something of the qualities of a-historicity, 'emancipation' from the local and particular, and internationalism, that a universal language of form would have to have, were it to exist. It is not surprising that we find it patronized by just those social formations that were tending toward the 'realized unity' of mankind - if from different directions - high capitalism and socialism (for example, the Palais Stoclet and Horta's 'Maison du Peuple'.) The style was adaptable to high ~~high~~ technology amenities (the Paris Metro) or to the most expensive luxuries (Tiffany Glass).

Collins. op.cit.

The second outcome of the normative concern with the life-sciences was the application of the concept of 'type' to artefacts, largely through the analogy with comparative anatomy. Steadman has studied this analogy, from animal to machine, in some detail and draws attention to the great importance of Cuvier's studies and publications. Collins, however, notes that Cuvier's pupil, Henri Milne-Edwards, reversed the analogy." I have been trying to grasp the manner in which organic forms might have been invented by comparing and studying living things as if they were machines created by the industry of man."

Quoted by L.Ettlinger. (See Ch.5).
Architectural Review, Vol.136. 1964.

Cuvier's method - of isolating essential functions in order to compare like with like - was considered an important idea by Gottfried Semper, whose inaugural address to the Dresden Academy makes reference to 'Palaeo-zoology' and to the scientists investigations into skeletal structures. After praising this work he continues " A method analogous to that which Cuvier followed, applied to art and especially to architecture, would at least contribute toward getting a clear insight over its whole province, and perhaps also form the base of a doctrine of style , and a sort of topic, or method - how to invent." (Italics added). This may be likened to Lethaby's 'systematic investigation', and be taken to be the initiating impulse of the whole normative tradition.

Quoted in E.S.Russell 'Form and Function' (1916) p.123.

Another source, not extensively pursued by Steadman, lies in the work of van Baer, who wrote in 1828 (as part of his work in embryology) "I call the Type, the spatial relationship of the organic elements and organs." An investigation of this variant of the concept of type leads to the methods of geometrical analysis and synthesis followed by March, Steadman and the 'shape grammarians' in recent years.

This area of study leads to the use of D'Arcy Thompson's "On Growth and Form" as a standard text for design education: it can usefully be studied in a short book by E.F. Russell entitled "Form and Function : a contribution to the history of animal morphology" (1916). Once again, however, as Steadman indicates, the traditional sanction for the anatomical analogy was Leon Battista Alberti:

Steadman op.cit. (title page) "The most expert artists among the ancients....were of the opinion that an edifice was like an animal, so that in the formation of it we ought to imitate nature." A main difference, in the later nineteenth century, was that the concept of evolution had been added to this original analogy, the whole idea enlarged further by comparative anatomy.

Steadman op.cit. Ch.9 for many interesting pages.

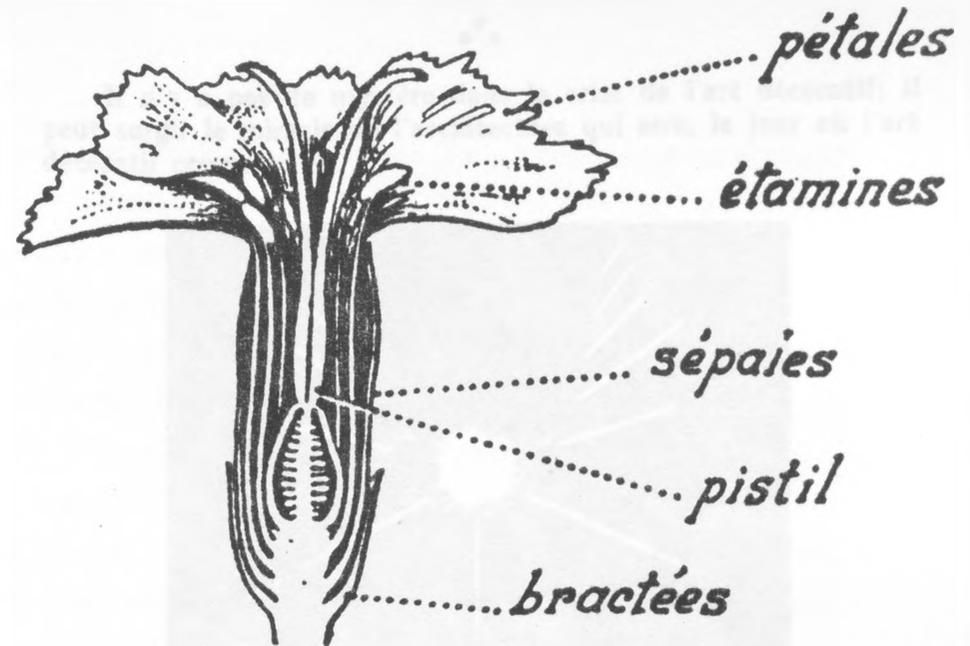
The application of anatomical typology to design theory was more thoroughly followed in Europe than in England, both in Germany (through 'typisierung') and in France, where the writings of Le Corbusier and Amedee Ozenfant were at one time almost wholly concerned with the 'evolution' of industrial and architectural forms. In 'L'Art Décoratif d'Aujourd'hui' (1925) Le Corbusier applies ideas acquired in part from Semper and Loos, to the exhibits of the 1925 'Exposition Internationale des Arts Décoratifs', much as Semper and others had done to the Great Exhibition of 1851 - and with very similar results. Le Corbusier, in effect, charts that process that Semper had identified in 'Wissenschaft, Industrie und Kunst', the 'disintegration' of traditional prototypes by 'industry, speculation and applied science'.

Le Corbusier

'L'Art Decoratif d'Aujourd'hui'

(1925)

page 180

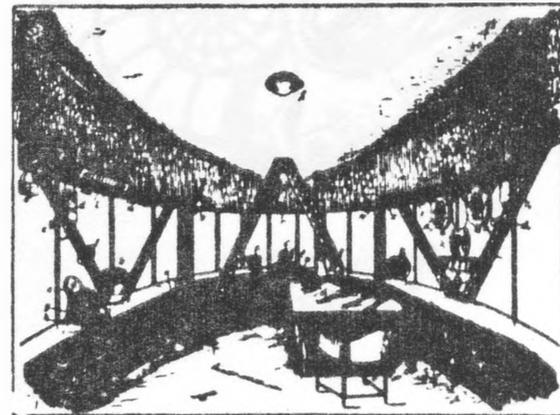


La nature : des organes qui fonctionnent.

quelques espèces. Les lois de la physique astreignent ces systèmes à des aventures rigoureusement fatales.

Destinées, causes, raisons? Mystère; ce n'est pas notre affaire.

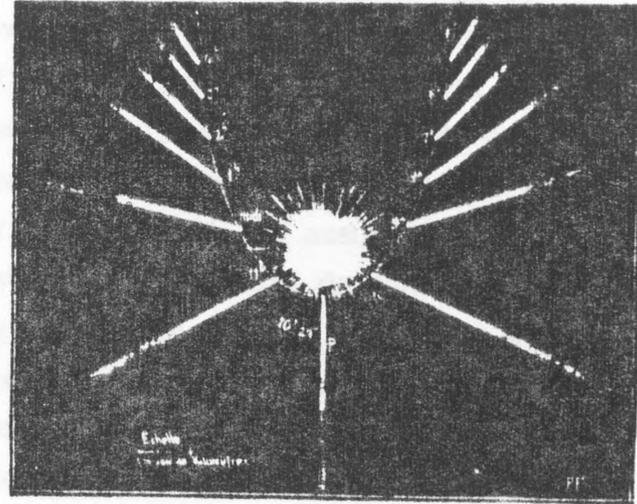
La nature et l'événement sont étrangers à notre force créatrice; ils sont en dehors, il leur arrive de se mettre au travers. Mais dans ce qui concerne notre œuvre, le travail humain, l'organisation humaine, le monde humain, rien n'existe ou n'a le droit d'exister qui ne soit explicable. Nous nous mettons au travail : tout doit être clair, car nous ne sommes pas des fous. Nous travaillons ayant un but... si bête puisse-t-il être.



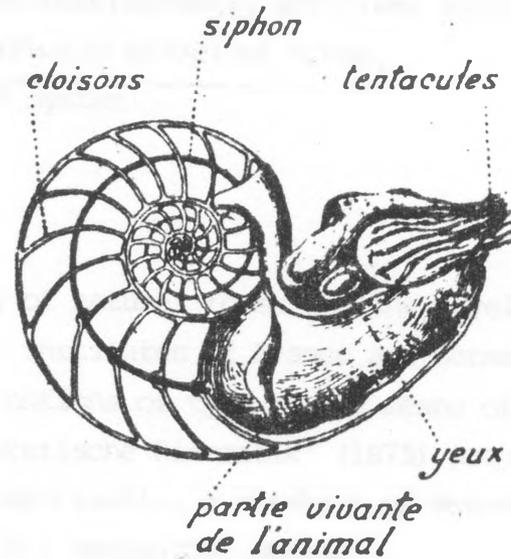
La nacelle d'un dirigeable.

Il n'y a pas de mystère dans la crise de l'art décoratif; il peut surgir le miracle de l'architecture qui sera, le jour où l'art décoratif cessera.

and page 184



La comète de 1843...



l'Art Decoratif. p.xix.

The book is full of relevant material, and written in Le Corbusier's highest vein of rhetoric and wit. It proposes a developed theory of types, as forms produced inevitably by industry and its more or less anonymous designers which creates "des objets de parfaite convenance, parfaitement utile et dont un luxe véritable et qui flatte notre esprit se dégage de l'élégance de leur conception, de la pureté de leur exécution et de l'efficacité de leurs services." In the important chapter 12 ('Esprit de Vérité') he assumes a future when, as architecture takes up the typification of industrial design, the decorative arts will die away. Le Corbusier's admiration for the anonymous and 'natural' processes of industry link him interestingly with Henry Cole and the Prince Consort, who had little time for architects, and leads him to deprecate the role and training of so called 'industrial designers' (see Ch.5 and Ch.6 of this study). His logic, however, is easily lampooned thus.....

The natural system produce perfectly efficient forms
 Industry produces perfectly efficient forms

 Industry is a natural system

* * * *

Contemporary and parallel to the study of natural forms was the development of 'Maschinenlehre' in the polytechnic institutes of France and Germany. This systematic study of machinery applied notions of type to the means of production themselves. Franz Reuleaux 'Theoretische Kinematik' (1875) proposed a general theory of machines, and most importantly, a notation of means of symbolic representation applicable to all mechanical action.

Reuleaux acknowledges a debt to C. Babbage.

F.Reuleaux 'The Kinematics of Machinery' (1st English ed. 1876.)
pp.1-2.

Reuleaux *ibid.* p.22-3

Reuleaux *ibid.* p.582.

He begins with a short (and rather Reynoldsian) discourse on the supposed opposition between theory and practice. "The popular antithesis should rather be between theory and empiricism. This will always remain, and the more theory is extended the greater will be the drawback of the empirical as compared with the theoretical methods.....He who best understands the machine who is best acquainted with its essential nature, will be able to accomplish the most by its means." A science of kinematics " will release the inventor from minute and often worrying search for solutions of his problems by rendering it possible for him to work systematically...."."So far as our special problem is concerned, the question is, to make the science of machinery deductive. The study must be so formed that it rests upon a few fundamental truths peculiar to itself. The whole fabric must be reducible to their strictness and simplicity....." Reuleaux hopes that "the process of invention might become a scientific one."

Here, combined with Semper's 'topic - how to invent', or with Voysey's 'process of selection and analysis' that enables the artist to become 'a true inventor' we see sketched out a possible programme of immense expansion, of 'infinite variety and unerring fitness' on which, by means of an ideology of perpetual innovation and progress, the industrial system was able to proceed into the twentieth century. For an 'arts' to combine with such 'manufactures' an artistic avant garde had to make visual invention 'deductive' in some sense, 'resting upon a few fundamental truths peculiar to itself. The whole fabric must be reducible to their strictness and simplicity.'

Here we begin to approach the ideological centre of the normative tradition.

To anticipate: the following quotation from Henry Ford's autobiography is offered for consideration.

H.Ford 'My Life and Work' (1924) p.3.

"The ideas we have put into practice are capable of the largest application.....they have nothing peculiarly to do with motor cars or tractors, but form something in the nature of a universal code. I am quite certain that it is the natural code, and I want to demonstrate it so thoroughly that it will be accepted, not as a new idea, but as a natural code."

Franz Reuleaux was a director of technical education for the Prussian Government and thus an (indirect) mentor of Herman Muthesius and Peter Behrens.

As early as 1901 Muthesius had begun to develop his ideas about machined form and types.

Quoted by Posener in 'The Architects Yearbook' No.10. (1962).

"Let the human mind think of shapes the machine can produce. Such shapes, once they are logically developed in accordance with what machines can do, we may certainly call artistic. They will satisfy because they will ~~be~~ no longer be imitations of handicraft, but typical machine -made shapes."

Thus logical development becomes identified with 'artistic' quality. But Muthesius does not explain just what logical development' means. His statement is a half-way stage between Wyatt and his 'language of freedom and power' and Ford's description of the production line as a 'natural code'. Muthesius, in this statement, is giving machined form a self-generating inventive power, and identifying that with aesthetic satisfaction (though perhaps not the only one).

By the time of the Werkbund debates of 1914 these remarks have hardened into the 12 propositions which occasioned such argument at the time and which remain continuously relevant in any industrial society.

J.Posener. 'From Schinkel to the Bauhaus' Arch.Ass. Paper No.5.
(1972)

The propositions advanced the idea that the type-form was the source of 'cultural harmony', 'wholesome concentration', 'criteria of taste' and 'expression of style'. The type form prevented a 'sliding back into imitation'. His ninth proposition was particularly offensive to his 'critical' opponents yet was a great importance to the force of the argument.

" 9. A precondition for export is the existence of efficient, big firms whose taste is impeccable: particular single objects designed by artists would not even cover the demand inside Germany."

Peter Behrens supported him with the assertion that "type-art.....represents the highest goal in every branch of artistic activity.....an artists best designs will always constitute types." Such an art was "mature and lucid, free from the incidental."

In the ensuing debate Muthesius attempted an historical perspective on what was otherwise dogmatic.

J.Posener (1962) op.cit. p.10.

"The way from individualism to the creation of types is the organic way of development....the type discards the extraordinary and re-establishes order. The difficulty is how to include the particular which is desirable. the personal, the original within the established type..... For as our life is becoming international, a certain uniformity of architectural forms will spread across the globe. We have this uniformity already in our dress. From pole to pole people wear the same jacket and the same blouse. Associations for the conservation of folk-dress will not alter this tendency, nor will movements to conserve folk -art stand in the way of the internationalistaion of forms."

Though ^daddressed to the supporters of the 'Heimat' tendency, the relation of these words to the central theses of this study will be quite clear, and the succeeding chapters will be all, in some measure, their exegesis.

Van de Velde's reply includes both an assertion of the modernity of handcraft, and of individualism in design, with the argument that 'only after a whole epoch of effort can there be any question of establishing types'. This argument, we can now see, employs the same general 'evolutionary' concept of design and marks a point in the intersection of the two traditions, as well as of their opposition. It also recalls an obiter dictum of Lethaby; " Modernism conceived as a style is only inverted archaeology: it will not be real until it is unconscious."

See Footnote,

It will have become clear in these pages that through the previous hundred years the notion of type has undergone a shift in meaning. From being an ideal form reasoned out of the confusion of actual forms (sometimes with the force of a platonic archetype) 'type' has come to mean the necessary result of certain industrial/mechanical means of production. And yet the industrial type-form, so conceived, retained the prestige of the Ideal Type and in many writers -e.g. Ozenfant and Le Corbusier in the pages of 'L'Esprit Nouveau', the industrial object is portrayed as the purified ideal. By such sleight-of-mind industrial society and its organisations become idealised and made to seem logically necessary

For further discussion, see
Ch.5.

See Footnote.

* * * *

With the application of 'typisierung' to machine production and design theory, and the codification of mechanical action itself we arrive at a moment of some significance. That it should be on the eve of a great war is not accidental since the connexion between war and industry, weaponry and standardisation, needs no comment.

But see Footnote

The codification of a process enables us to reduce it to a routine, for either men or machines; to Harvey's "habit with a reference to things to be done..... the imitation of types or forms." Some areas of manufacture had already created notations having the effect of a formal language -punch card for looms and mechanical drawing for the instruction of workmen. Notation, of course, is not exclusive to machine production; for example, embroidery and knitting can be perfectly specified in code. But the encoding requires us to see it afresh. The relationship between the machine and schemes of symbolic representation is mutually reinforcing, since to invent some machine we have already abstracted some sequence of operations and re-presented it - first in design and then in the making of it. In order to use the machine we have to devise unambiguous instructions, or self-regulating mechanism; the object so produced returns to us as the physical form of our initial abstraction. The production line can be meaningfully likened to a string of symbols, each an operator. Thus the type-form is the necessary product of the production line as well as the logical deduct from morphology. Seen thus, Ford's description of his system as a 'natural code' or Muthesius 'logical development' demonstrate a conception of manufacture as nature.

See Footnote.....

Bertrand Russell in his 'Introduction to the Tractatus Logico-Philosophicus' of L.Wittgenstein. p.xviii.

Automation, through machine intelligence, is the natural conclusion of this theme in the normative tradition. Automation requires forms of symbolic representation which in turn create a 'science of invention' ."A good notation has a subtlety and suggestiveness which at times makes it seem like a live teacher a perfect notation would be a substitute for thought."

By these means, design and manufacturing were able to effect a link with what Babbage called 'the science of calculation'; with the most general and universal system of symbolic representation of all; creating the possibility of a generative system working by free combination. The 'infinite variety and unerring fitness' that Wyatt had ascribed to Nature; the progression from the 'simplest material' to the 'extremest diversity' - at that moment of juncture becomes a possibility open to practical speculation. Here we have what Ada Lovelace called the 'aweful energy' : in the words of Nehemiah Grew "We are come ashore into a new world, whereof we see no end."

See Ch. I. Footnote to p.6.
Ritterbush op.cit. p.75.

From this we must now turn to the problems of expression.

Footnote to p. 143

'The Evolution of Designs : the Biological Analogy in Architecture and the Applied Arts' by Philip Steadman (Cambridge Univ. Press 1979) came to my attention when most of the research for the first part of this chapter had been completed: his first three chapters draw on very similar material. The book is of considerable, though diffused interest. Particularly notable is his introduction to the work of 19c. archeologists and ethnologists who first proposed the idea of 'evolution' in design; and his Ch.13 which argues that in so far as there is evolution, it is a Lamarkian evolution through interaction with environment, than a Darwinian selection. Reference is made to these arguments in the Appendix.

Two points of serious contention should be mentioned here. The first is the nature of theory in craft production (Steadman p.233 et seq.) Steadman argues that 'in many respects the craftsman literally does not know what he is doing.' He cites George Sturt's 'The Wheelwrights Shop.' Two objections may be made to this description of craft knowledge; that we can and should distinguish between tacit understanding and explicit theory, but that both are legitimate and effective modes of knowledge; and that Sturt is describing a decaying craft tradition, not one that is flourishing. What counts as knowledge is not a simple matter, but is defined by complicated and ideologically constituted social processes. The induction of an African village blacksmith into the craft is expressed by myths and ritual observances which act as bearers of that knowledge he will need in forging iron. None of this corresponds to what Steadman calls knowledge; but if he forges iron well, in what meaningful sense can he be called ignorant. The book moreover suffers from a singular lack of curiosity on a further point of great importance: namely, why should the 'biological analogy' be pursued at all. ? In Ch.6 of this study we propose an answer to this question: that the analogy has an ideological intent - to make the industrial culture that was arising appear as necessary and invulnerable as nature. In the ensuing pages we try to unravel this complicated question.

The term 'biotechnical' is used here, because we use it in a more restricted sense than Steadman's 'biological'.

Footnote to p.146

Whewell is following a common enough intellectual strategy, that has a bearing on Reynolds' concept of 'common form'; but Whewell and his philosophy of science is mentioned regularly by theoretical writers at the time (see. D.R.Hay, below). His importance would seem to be because of his vehement anti-positivism. (in his terms, anti-Lockean and anti-Comtean) stance. In his Introduction he writes " the metaphysical is a necessary part of the inductive movement" (p.ix) 'Progress in science is made by" binding metaphysics to physics instead of keeping the two asunder". (p.x) Whewell's 'fundamental antitheses of philosophy' - thought v. things - is expressed as brusquely as Lenin's, but 'the practical results of the Philosophy of Science must, we are persuaded, be rather classification and analysis than precept and method.' (p.viii) Whewell's philosophy of science can be shortly described as scientific idealism, appealing thereby to the deductive idealism of Reynolds' academic tradition.

Footnote to p.147. Indebtedness to the 'ladders to heaven' of St. John Climacus, to the 'noble stem' of the Tree of Jesse, and to the 'figurae' of Joachim of Fiore.

Footnote to p.148. In an earlier work Ritterbush quotes Bacon to similar effect (Overtures to Biology' 1964 p.61). Harvey's sentence is itself a fine example of Palladian, symmetrically balanced sentence type. I have been unable to trace the quotation in Harvey's writings.

Footnote to p.150(1). The idea is of Aristotelean provenance. See 'Politics: section 1290' where the Stagirite imagines designing the constitutions of different cities by employing the simile of inventing animals out of new combinations of necessary organs.

Footnote to p.150(2). 'When Krishna, the God of Yoga, had thus spoken, O king, he appeared then to Arjuna in his supreme divine form.
And Arjuna saw in that form countless visions of wonder; eyes from innumerable faces, numerous celestial ornaments, numberless heavenly weapons.....
If the light of a thousand suns suddenly rose in the sky, that splendour might be compared to the radiance of the Supreme Spirit.
And Arjuna saw in that radiance the whole universe in its variety, standing in a vast unity in the body of the God of Gods.
Trembling with awe and wonder, Arjuna bowed his head.....' (trans. Maseco. Penguin Classics)
Goethe knew the 'Bhagavadgita' through the translation of A.W. von Schlegel. But the earliest translation into a European language was by Wilkins, in 1785, as part of the work undertaken by the 'Asiatic Society of Bengal'.
Here we could add that Wyatt's 'Nature' has an 'infinite variety' that reminds us of Cleopatra.

Footnote to p.151(1). See references in the 'Oxford Companion to Music' 8th ed. p.205. There was a renewed interest in composing machines in the 1820's. See also 'Athanasius Kircher S.J. Master of a 100 Arts' by P. Conor Reilly, in 'Studia Kircheriana' Vol. I. 1974.

Footnote to p.151(2). For 'shape grammars' see papers by March, Stiny, Gips etc. in the journal 'Environment and Planning B', and further references below.

Footnote to p.151(3). Yet as early as 1722 a method had been studied 'to construct an infinity of designs' for the surface pattern trades, including a symbolic notation. See 'Méthode pour faire une infinité de desseins differens etc.' by Pere D. Douat Paris 1722. Though Douat cannot give his combinations in a formula; he has to exhaustively list them all.

Footnote to p.153. What Goodsir and his associates meant by 'Newtonian laws' is unlikely to have been simply mechanistic.

The Goodsir/Hay circle drew upon Newton as visionary philosopher as well as normal scientist. The justification for this lies partly in Newton's own work but particularly in that of his popularisers. In Colin Maclaurin's 'An Account of Sir Isaac Newton's Philosophical Discoveries' (Edinburgh 1775), Goodsir and Hay might read " Our view of Nature, however imperfect, serves to represent to us, in the most sensible manner, that mighty power which prevails throughout.....and that wisdom which we see equally displayed in the exquisite structure and just motions of the greatest and subtilest parts. These, with perfect goodness, by which they are evidently directed, constitute the supreme object of a philosopher; who, while he contemplates and admires so excellent a system, cannot but be himself excited and animated to correspond with the general harmony of nature." (p.95). The terms 'excited and animated' have the sense of 'sympathetic vibration' here. Compare also the triad of 'power, wisdom and goodness' with Dresser's 'Truth, Beauty, Power'.

See appendix 2.

H. Lonsdale, in his memoir of Goodsir, described the 'Aesthetic Club' as a 'symposium with good Scotch tippie'; but from it emanated a large number of papers and other writings linking science and aesthetics. See, for example 'On the Employment of Mathematical Modes of Investigation into the determination of organic forms' (2 Lectures 1849) (In John Goodsir: anatomical memoirs' ed. W.Turner, with a biographical memoir by H.Lonsdale. 2.vols. Edinburgh 1868). This, though a strictly scientific piece was evidently read to the Club, and an inaccurate review of it appeared in The Daily Mail' July 31st and Aug 7th 1849, with extensive reference to D.R.Hay.

Goodsir evidently believed (according to Lonsdale) that his 'Newtonian laws' were based upon crystalline triangulation as the basis of all organic form; and that this had a masonic reference. The Aesthetic Club was also, it appears, a masonic club?

See also Ritterbush (1968) p.50 et seq. and Steadman p.19..

Footnote to p.1545 Collins (op.cit) observes "it would seem as if the analogy must always be general and poetic." He goes on to argue that "There can be little doubt that it was Sullivan who first made biological analogies the foundation of a total architectural doctrine'.He cites Horatio Greenough, Humboldt and Baudelaire, as well as Herder and Coleridge. This study suggests he might have looked much closer to home.

Footnote to p.156. One result of the study of ornament by way of botany was the subject of 'curvilinear design' and 'curves of nature'. Evidence for this at an early stage will be found in R.R.Reinagle's evidence to the Parliamentary Committee in 1836 (17 June 1836) in which he presents a set of curves appropriate to use in decoration: this, significantly, is followed by evidence on carving and routing machines for the wood and stone trades. In 1839 George Phillips published a compendium of ornamental motifs from all round the world, entitled 'Rudiments of Curvilinear Design'. The drawing book of the Schools of Design (1842-3) consisted of diagrammatic curves for students of ornament, prepared by William Dyce. These are, it is suggested here, a form of ornamental typology.

Footnote to p.¹⁶³ (1). In 'Scrips and Scraps': drawn to my attention by Gillian Naylor, with the comment "What a rag-bag of ideas in that one sentence!" At this later date we may well feel that van de Velde and Lethaby were right in their assessment of 'modernism conceived as a style'. What in that case, is one to make of so-called 'post-modernism'? The inversion of the inversion?

Footnote to p.¹⁶³ (2). Since writing the above, an article by Alec Vidler has come to my attention that enlarges and deepens the argument given here. See A.Vidler. 'The Idea of Type; the transformation of the Academic Ideal 1750-1830.' In 'Oppositions' No.8 Spring 1977.

Footnote to p.¹⁶⁴ One remarks here that the preparation of punch cards is a sophisticated skill, requiring Voysey's process of selection and analysis. In Britain, this work was always given to another class of workman; in France it was the job of the designer himself. See....!Report on the Foreign Schools of Design' in Parl.Papers January 1840 p.33.

Footnote to p.164. The very notion of an intelligent machine, in which not only the limbs and functions of animals are reproduced but also a rudimentary nervous system and 'memory', derives from this biotechnical analogy.

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Chapter Four

The Idea of a Universal Language

Part Two

Some sort of universal theory of expression became an intellectual necessity in the later half of the nineteenth century. So great was the influx of non-European visual information that some ordering principles had to be established. This information came in the form (as ever) of imported decorative goods or as looted art-objects; then in archaeological finds and ever increasingly in the mass of printed imagery and photographic evidence. The scientific voyages of a Cook, the cultural and scientific travels of a Humboldt, were sources of hitherto unknown material. The various waves of orientalism, the translation of Sanskrit and Chinese texts, the growing awareness of Oceanic and later of African artefacts and decoration, the study of pre-Columbian ceramics by Christopher Dresser, the work of ethnologists such as Pitt-Rivers; and lastly the tremendous impact of Japanese decorative arts - all of these new experiences demanded some attempt to synthesize a wider account of excellence than that provided for in the academic curriculum. That curriculum itself, as noted in Chapter One and Chapter Two, was undergoing a subversion by the pre-Raphaelism of the times, and by the Gothic Revival. As already suggested, this consisted essentially in an historicising of European culture along quasi-scientific lines - a process that was also a re-mythologising. Along with this we have the re-valuation of vernacular styles, and very ancient decorative arts such as the Celtic (this last from as early as 1830).

Of particular interest is P.Mitter. 'Much Maligned Monsters: a history of European reactions to Indian Art' (1977) esp. Chs.4 and 5.

See J.Sheehy. 'The Rediscovery of Irelands Past; 1830-1930' (1981)

Owen Jones' 'Grammar of Ornament' began with a study of Maori decoration: earlier than that, George Phillips had published Japanese motifs in 1839; still earlier we find 'The History of the Architecture of the Hindoos' by Ram Raz and the work of the Asiatic Society. Ram Raz' book of 1834 quotes Sanskrit texts on proportion. We shall discuss below some early attempts to digest such

exotic material, but the subject is best approached through a short account of a bold attempt at a universalist theory of expression made in 1828 ; one that we know had significant readership.

See the studies of Barbara Stafford (biblio.)

'Les signes inconditionels dans l'art' by David Humbert de Superville was published in Leyden in 1828. Its author was an interesting artist whose drawings recall those of Fuseli; he was also an archivist and scholar with a taste for speculation on world history and prehistory.

I have been told by Prof. L. Gowing that there are 3 copies in this country.
See p.36 of the "Grammaire"
See p. 292 and 322-3 of that book.

'Les signes' is rare in this country but well known in the School of Paris. Charles Blanc gives a precis in the pages of his "Grammaire des arts de dessein;" and to Charles Henry. The book is also quoted in Duval's 'L'Anatomie Artistique' of 1881. Duval, who was also a convinced Darwinist, lectured at the Ecole des Beaux Arts where the book became well known in neo-impressionist circles. It is often mentioned in this context, but rarely quoted, because, presumably, rarely read: yet it was certainly known to Seurat and his circle, and later to Mondrian and Vantongerloo. It was certainly known to Ozenfant who probably introduced Le Corbusier to its pages - it certainly forms part of the thinking behind Purism.

By P. Courthion, F.Cachin and J.A.Argüelles for example.

See Chastel A. Une source oubliée de Seurat. (1959).

See Ch. 5 of this study.

All trans. from a copy in the V & A library, by D.B..

It is a text that deserves close study and illuminates much else apart from the objects of scrutiny here. The title is bold, the style assertive and the width of examples impressive. "Man is upright and turns toward heaven.. a line through the axis of his body goes from the centre of the globe to the zenith. Verticality is a primary experience, primitive and absolute" Horizontality likewise is "one and invariable."

Between these two vectors are the degrees of obliquity; the mathematical relations of which are easily determined; but de Superville's ambition is to "determine irrevocably their aesthetic value". He argues that we read human character by invariable signals and the play of obliquity within the orthogonal frame, and gives examples of schematised faces. "Such interpretations will be completely valid because it will be instinctive and consequently free of any a priori conditions.....the value is attributed not to the organs of the face as such, but to their indications as aesthetic signals (signes aesthetiques)". That men agree on the reading of each others faces is a fact of 'physiology', not convention.

For criticism of 'physiognomic' theories see E.H.Gombrich. 'On Physiognomic Expression' in 'The Visual Arts Today' ed.Kepes 1960. and elsewhere.

So far, de Superville is developing some standard neo-classical and physiognomic theories of expression; he now begins to link human expression with the principles of the universe itself, and to laws of distribution of form in nature. Thus the traditional association of willows and mourning is given as an example of how the same signals on face or tree are to be thought of not as analogous, but as equivalent - the same aesthetic signals. "All this belongs to that common sensibility, the foremost faculty of animated matter, which developing itself through organisms without number, rises up at last in the human species as consciousness of self: as well as to that primal intelligence from which it emanates and to which it constantly aspires for reunion."

The connexion of this belief in a common sensibility to romantic pantheism is clear enough not to need illustration.

R. Rosenblum. 'Modern Painting and
the Northern Romantic Tradition'
(1975)

In a hectic passage that reads like an iconographic scheme for Caspar David Friedrich, de Superville writes of mountain peaks as 'splinters of eternity'. Here the text belongs in that canon of almost superhuman sublimity that Rosenblum identifies with the development of non-figurative painting (and which has inner connexions with German pietism).

Face, landscape, painting or building all move us because all emit the same signals. Thus the value of painting lies not in its depictive relation to face or landscape, but in the signal it bears. From this one may deduce (though de Superville does not) that paintings are affecting in their own right without regard for subject matter. The activity of art arises from mans "irresistible tendency.....that drives him on to manifest his perception outside himself and to extend and enlarge his mode of existence".

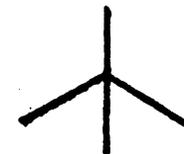
De Superville illustrates the attributes of his vectors by means of a diagram:



expansive
agitated
organic

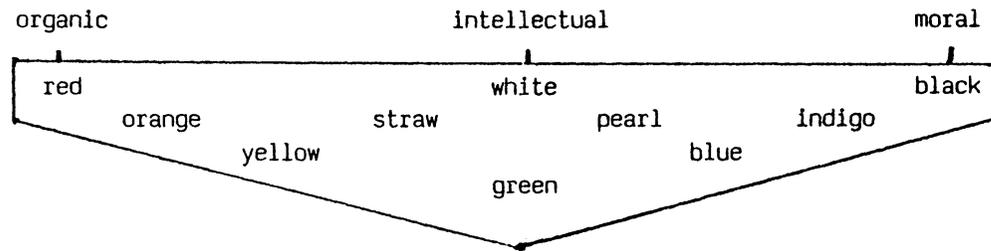


horizontal
balanced
intellectual



convergent
concentrated
moral

His organisation of colour is highly idiosyncratic, and confuses pigmentary, optical and symbolic values in a triangular matrix.....



He then attempts to outline the consequences of this theory for practice, and to map it across the arts and architecture of most of the known world. The theory at this point has to bear so much weight that it collapses in absurdities (on the decadence of the Chinese and the appropriate colour for young women's frocks, for example). But our concern here is not with the truth of a theory but with the question - what work does it purport to do?

It offers a universally valid theory of expression, based upon colour and the vectorial quality of line, that is unconditioned by culture or history, and in which the built or painted world has the same status as the natural world. To support itself it draws upon extra-European examples, upon comparative religion, anthropology and palaeontology (in their infancy). It is written with some intention to reform current practice, and appeals both to good argument and to an ecstatic mysticism in which consciousness is the highest peak of existence and art the highest peak of consciousness.

Through the channels of Blanc, Duval and possibly Sutter, Supervillan ideas fed into the world of post-impressionism and symbolism

"Colours and lines....have for our soul an emotional value independent of the very objects they represent. (They) are not just signs of visual sensations, but also signs of our emotions....thus certain painters have used colours and lines in a pure symphonic arrangement, heedless of the visual object to be painted directly."

Quoted by P.Courthion in 'Seurat' (1969)

Teodor de Wyzewa. 'Revue Wagnerienne' May 1886.

See J.A.Arguelles. 'Charles Henry and the Formation of a Psycho-Physical Aesthetic' (1972), also A.Scharf.(see biblio.).

The 'scientific aesthetic' of Charles Henry was the most developed bearer of Supervillan theory through the École de Paris. This astonishing man sought to establish psycho-physical laws for the whole domain of experience, and gave to art a central role in the development of consciousness. He proposed, following Fechner, mathematical descriptions of sensation and emotion, as expressed in line and colour. His 'Rapporteur Aesthetique' of 1888 included among its pages a detachable 'aesthetic protractor' for "the study and the rectification of all forms, with an introduction on applications to industrial art, the history of art and the interpretation of the graphic method."

See also Loevgren S. The Genesis of Modernism Indiana Univ. Press. Bloomington (1971) pp 90-92.

The ambition, scope and erudition of Henry's work could not remain within the bounds of normal science, and his later years were spent ostracised from the normal academic community. His writings may be thought of as an attempt at a 'natural philosophy' in the teeth of prevailing positivism. From his theoretical position divergent streams of thought flow: the one toward increasingly occult speculation, the other toward a rigorous but limited mathematization of aesthetic studies. This second road comprises attempts to describe the 'mathematical bases' of given artistic forms - the work of Schillinger has already been quoted - and very specific studies of response, such as Birkhoff's 'Aesthetic Measure' of 1933, and the recent work of Hans Bemse.

The first road toward occult speculation was the one most often followed. Henry was evidently aware of the dangers of such occultism following upon the decay of a natural philosophy.

Quoted by J. Rewald 'Post Impressionism'
(1966) p.483. also by Arguelles.

"I believe in the future of an art which would be the reverse of any ordinary logical or historical method, precisely because our intellects, exhausted by purely rational elements, will feel the need to refresh themselves with entirely opposite states of mind. You have only to look at the singular vogue of occult, spiritualist and other doctrines, which are false because they can satisfy neither reason nor imagination."

Henry's truth conditions are evidently those of the natural philosophy - that a proposition, to be true, must satisfy both reason and imagination. Henry's misgivings were justified; but his own writings must bear some of the responsibility. One must also point out that the combination of spiritualisms with the most rigorous positivist science was by no means unusual. Fechner, Crookes and Edison had an abiding interest in such speculation.

See Footnote.

It appears, and this is a point to which we will return continually in the following chapters, that a decaying natural philosophy gives birth to both positivism and irrationality, through the collapse of its metaphorical status and structure.

S. Ringbom. 'The Sounding Cosmos'
(1970) etc.

See Ch.6.

The occultic background to some modernist theories have been extensively studied in recent years, following the publication of Ringbom's study of Kandinsky. It has become clear that theosophy and its variants sustained the theoretical interests and the practice of Kandinsky, Mondrian, Kupka and others (including Le Corbusier); and that related mystical doctrines were shared by the Suprematists. In what follows we are seeking to investigate

(in a brief way) the older and deeper traditions of mystical speculation of which theosophy was the late nineteenth century by-blow; and to treat occult ideas as the means of access to these traditions that artists and designers were able to employ.

See R. Wittkower. 'Architectural Principles in the Age of Humanism' (1952) for discussion. esp. p. 103.

This may be done by a short study of colour theory, and of notions connecting colour with sound: in particular, in the equation of the harmonic scale with the spectrum. The harmonic scale, being demonstrably a natural phenomenon, could have an authority lacking in colour organisation. To conflate the one with the other would seem to give rules for colour use the same objective natural validation held to apply in harmony. By such means, pictorial conventions might be revealed as, in George Fields phrase, 'real and natural relations'.

Doggett trans. (see biblio.) p. 148

ibid. p. 164.

See Arguëlles. op.cit. for many references.

See Footnote.

Charles Blanc, in his 'Grammaire' observes "Newton saw seven colours in the prism doubtless to find a poetic analogy with the seven notes of music"; he quotes Euler approvingly; "The parallel between sound and light is so perfect it is sustained even in the least particulars." He makes the familiar point about 'orientals' knowing the 'laws of colour' better than Europeans. Henry's 'General Theory of Dynamogeny' is 'with special application to visual and auditory sensations'. The unifying concept in both cases was 'vibration', a term which, both through scientific usage, and through both western and oriental mystical doctrines, came to have very suggestive powers.

However, such ideas had been current in England and Scotland for some years before. David R.Hay was a member of the Edinburgh 'Aesthetic Club' already mentioned in the previous half of this chapter. Fifty years before Charles Henry he was proposing a 'science of aesthetics' and produced at least nine short books or published lectures in the years between 1830 and 1856, all of which make some reference to or explicate at length 'laws of colour' and colour-sound relationships. 'The Geometric Beauty of the Human Figure Defined' (1851) asserts that "the aesthetic impressions produced by sound and light are dependent on a common law" (p.4.) He justifies this with harmonic diagrams, as he had done in his 'Laws of Harmonious Colouring' of 1838. In support, he cites a letter by Newton to John Harrington of Wadham College (May 10th 1693) and a publication called the 'Panharmonicon' of F.Webb, published in 1769.

See Footnote.
And Appendix Two.

See Footnote.

A writer in the 'British and Foreign Medical Review' (No.xxxv p.171), who is probably John Goodsir, reviewed Hay's 'Principles of Beauty in Colouring Systematized' as follows, in words that stress the 'natural philosophic' nature of the 'science of aesthetics'.....

"There is a harmony of numbers in all nature - in the force of gravity - in the planetary movements - in the laws of heat, light, electricity and chemical affinity - in the forms of animals and plants - in the perceptions of the mind. The direction, indeed, of modern natural and physical science is towards a generalization, which shall express the fundamental laws of all by one simple numerical ratio. We would refer to Professor Whewell's 'Philosophy of the Inductive Sciences', but more particularly to Mr.Hay's 'Researches into the Laws of Harmonious Colouring and Form'.we think modern science will soon show that the mysticism of Pythagoras was mystical only to the unlettered."

See Footnote.

See 'Principles of Deco.Art' p.41. Christopher Dresser regarded Hay as 'wild and Utopian'; what he thought of

See Darby. (1974) p.92.

See Footnote.....

George Field is not recorded. Owen Jones, however, regarded Hay as a plagiarist of Field, giving 'watered milk instead of the pure cream of the master.' He refers to Field at several places in his writings.

See appendix Two.

1845 augmented ed. p.xvi.

George Field was highly regarded as a colour chemist: his 'Chromatography' of 1835 went into several editions as a major and standard text in English. He is quoted as an authority on pigments by O.N.Rood, and appears as a figure known to Turner and Constable. But that book is a small part of Field's work, and grew out of an earlier work called the 'Chromatics' which also went through a number of versions. The 1845 edition is described as devoted to 'the sciences of sense, namely the chromatic, musical and plastic sciences..and the natural laws by which they are governed and connected...analogous, systematic and universal.' The 'Chromatics' itself is but a small part of a much larger work - 'one division of a universal system of analogical philosophy.'

ibid p.63. The plates of the book include colour charts and 'scales', since 'Diversity in harmony of colours is precisely analogous to the regulation in music'. Colour-sound correspondances are explored and reference made to colour-shape and colour-volume relationships. Musical sounds, vowel sounds and geometrical figures are associated. He concludes that 'Music, painting and poetry are coincidental, sororal and analogous, at their elementary foundations, even.'

ibid p.62. He also argues that colour and sound harmonies are 'not only physical and sensible, but also moral and intellectual harmonies.'



AN
An Essay
 ON
THE ANALOGY AND HARMONY
 OF
COLOURS.

London:
 PRINTED FOR THE AUTHOR,
 BY A. J. VALPY, TOOKES COURT, CHANCERY LANE;
 AND SOLD BY
 MR. NEWMAN, SOHO SQUARE.
 1817.

George Field: 'Chromatics'
 Title page to 1817 edition

EXAMPLE XXIII.
 MODERN DIATONIC.

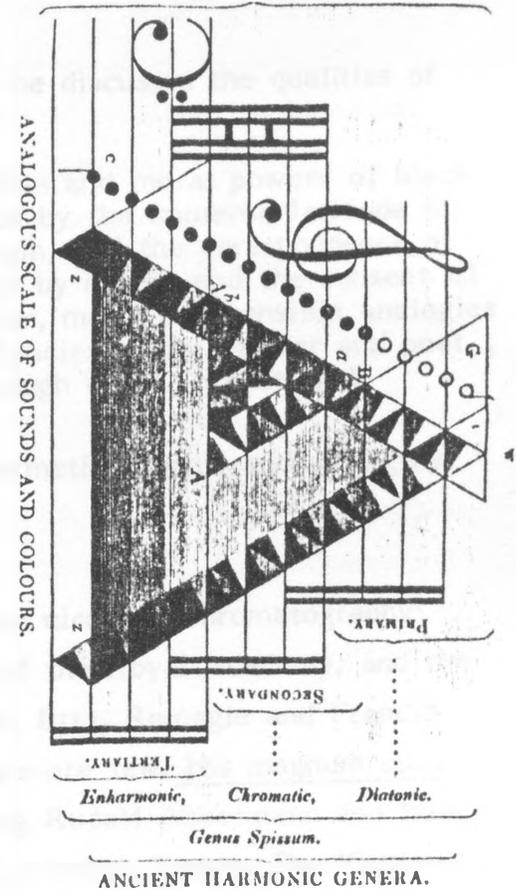


Plate from the 1845 edition

This idea is extended in 'Chromatography' when he discusses the qualities of colours.

'Chromatography' p.174.

"If we compare these natural and sensible and moral powers of black with those of white, we shall be struck by the immense latitude of light and shade which lies between them, and the corespondence of opposition that belongs to them equally by nature and the consent of mankind, and be led to infer the similar, moral and sensible analogies of other colours; not as conventional fancies of the painter and poet , but as natural and real relations, although dimly understood."

See Footnote.

It will now be clear that this material has a hermetic aspect, and a lengthy pedigree.

See Footnote.

Field was a figure of some standing in Academic circles. 'Chromatography' is addressed to Sir Martin Shee, then president of the Royal Academy, and the subscription list includes Shee, Turner, Eastlake, Etty, Reinagle and Francis Brett. Yet references to him in recent literature are few. His magnum opus has a similarly august subscription list, including Rudolf Ackermann and Isaac d'Israeli, as well as many academicians, again including Turner. The 'Outlines of Analogical Philosophy, being a primary view of the Principles, Relations, and Purposes of Nature Science and Art', is a remarkable work, once entered into in the right spirit. It must be reckoned a source of 'scientific aesthetics' since it claims that "opposed to, and correlative with, the physiological or objective science, is the noological or subjective science, it being the science of receiving or acquiring knowledge." This 'Noology' is divided into three sections called 'History' (factual and external), 'Poetics' (imaginative and medial) and 'Dialectics' (rational and internal).

'Outlines of Analogical Phil.' p.24.

Within 'Poetics' is 'experimental history' or the study of experience of sense. Art comes under 'graphical poetics; external division'. Man, we discover, is
 ibid. Vol.1..p.37. "confined within a system of hypophysical, metaphysical, hypotechnical and metatechnical conditions at the boundary; in speculating beyond which he is either a poet or a visionary, but not in any sense a philosopher."

See Footnote.

See Footnote.

ibid. Vol.2. para.1023. The second volume is largely devoted to the 'Aesthetical Sciences'. In the section called 'Plastics, or the analogy of forms', an idea used by Kandinsky is prefigured; "the line is the fluent of the point, the surface is the fluent of the line, the solid is the fluent of the surface." An architectural typology is developed - an economic style generated from straight line and square, a grecian or political style from circle and sphere, and a Gothic or religious style from triangle and pyramid. Drawing is defined as 'the geometrical forms (by which) the figures of bodies are mellowed or melodized in a regular and coincident scale, like those of the musician and the colourist." Of the draughtsman, "It is requisite that he should carry his art one step further, and in all his figures and forms and compositions, to indicate the ruling primary forms through everything, without exposing regular and naked lines, angles and curves."

The section entitled 'Chromatics' is in essentials the same as that in the book of the same name, but it concludes that, "upon the whole, it appears that the Chromatic System, like the Universe, springs from and resolves into an absolute unity comprehending a relative infinity - a perfect system."

ibid. Vol 2. para.1657. What unites all the sensible arts is 'doing'. "Technology, in its widest sense

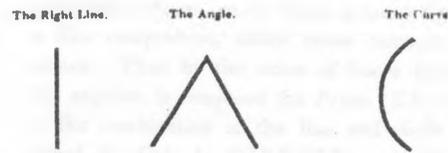
CHAPTER X.

ANALOGY OF FIGURES AND COLOURS.

183. THE remarkable coincidence and analogy of the natural systems and sciences of colours and musical sounds, which we have amply unfolded, belong no less surprisingly to the systems and sciences of *Colours and Figures*, upon which all graphic art, pictural and plastic, depends; whence this latter correlation is rendered more intimate to our design than the former, and more interesting and important to the artist.

184. As the three primary colours, Yellow, Red, and Blue, are generated from a *spot* by the refraction, reflection, and inflection of light; so from the direct, reflect, and inflect motions of a *point* are generated the three PRIMARY FIGURES.

EXAMPLE XXV.



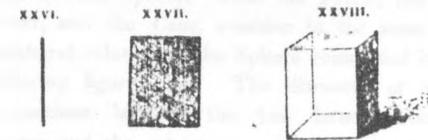
and as all the hues, tints, and shades of colours are produced by the variation and composition of the

three primary colours, so are all possible figures, constituted of lines, surfaces, and solids, produced similarly by the variation and composition of the three primary figures.

185. It follows that all graphic art, and that of drawing in particular, consists elementarily in the ability to form the three primary lines, straight, angular, and curved, in all their variations of position, gradation, and composition.

186. As every colour, according to its distinction, comprehends *hue, breadth, and depth*, and an infinity of shades, or degrees of tenuity and depth, between its distinguishable extremes, so also has every figure its specific *form, breadth, and depth*, with infinite degrees. Thus by widening the *Right line* [XXVI.], or giving it breadth, it becomes a *Parallelogram* [XXVII.], and by superadding to it depth it becomes a *Parallelepipedon*. [XXVIII.]

EXAMPLES.



187. Again, by adding breadth or surface to the *Angle* [XXIX.] it becomes a *Triangle* [XXX.], and by superadding thereto depth it becomes a *Tetrahedron*. [XXXI.]

George Field: 'Outlines of Analogical Philosophy' (1839).

Four pages from Vol.2.



188. And, finally, by giving breadth to the *Curve* [XXXII.], is formed *Circular figure* [XXXIII.], and by superadding to it depth it becomes the *Sphere* [XXXIV.], which is the final extreme of all figures; just as colours may be deepened in degrees down to perfect depth or blackness, which is the final extreme of all colours.



189. Again, as the primary colours, by compounding in the simplest way by pairs, produce the secondary colours, so do these primary figures, by a like composition, afford three *SECONDARY FIGURES*. Thus by the union of linear figure with the angular, is composed the *Prism* [XXXV.]; by a like combination of the line and circle is produced the *Cylinder* [XXXVI.]; and, finally, by the only remaining pair of primaries is composed the *Cone* [XXXVII.]; and as the primary and

secondary colours are chief among colours, so are the primary and secondary figures chief among figures.



190. Like the more broken and tertiary colours, these latter figures are again adapted to tertiary and endless combinations in less regular and more composite forms leaning individually toward one or other of their primary and progenitor figures.

191. And as each class of colours may be mingled by a due synthesis in the final extreme of *Blackness*, so this analogy in composition extends to that which is final and all-comprehending in figures—the *Sphere*. Thus the *Prism*, the *Cylinder*, and the *Cone*, combine in the same *æquilateral* relation to the *Sphere* included in the following figure a n c. The discovery of which proportions between the two latter secondary figures and the sphere, especially delighted those great mathematicians, Archimedes and Tacquet. The entire figure may serve as a primary example, illustrative of the principle of graphic construction, grouping, and composition.

cont/d.

comprehends all doing or art. Externally or physically there is the doing of nature; but art cannot do what is not in nature; nature is therefore the fountain of all archetypes; the science of which may be called Hypotechnics."

See Footnote.

The Universe " is a system of systems in triune subordination ".

See Footnote.

The 'Outline of Analogical Philosophy' makes interesting reading for those concerned with the prehistory of modernism. It appears to mark a point at which academic lore of broadly neo-platonic origins takes on the dress of 'scientific authority', as if to prepare for the transmutation of the Academic into the Industrial. The intention here is not to establish 'influence', but to draw attention to this search for the 'real and natural' visual language as the basis of expression. Field, unlike de Superville does not draw upon world-wide examples, and his universalism is founded upon an abstract triadic schema. Once again, the question at issue is not - is it true?, but - what work does it purport to do.?

See appendix Two

See Footnote.

A complete study of contending colour theories in the early nineteenth century would display, side by side, and in some dialectical entanglement, both positivist science (for both Field and Hay were acquainted with normal scientific method), and inspirational doctrines which may now be characterised as neo-platonic, now as gnostic. The intellectual genealogy of these ideas and their actual relation to practice is complicated; the subject is as Simon Bolivar described the politics of Peru - intricate and horrible. But we cannot leave it yet.

See Footnote.

Amongst the many books on colour published in these years (and we have not been able to explore them further) is another work well known in both France and England, and mentioned by Field; this is Frederic Portal's essay 'Symbolic colours in antiquity, the middle ages and modern times.' First published in Paris in 1837, it appeared in London in 1839 as one of Weale's 'Architectural Papers' - with illustrations taken from the 'Chromatics'. "Colours" (he writes) had the same signification amongst all nations of remotest antiquity; this conformity indicates a common origin which extends to the earliest state of humanity and develops its highest energies in the religion of Persia. The dualism of light and darkness presents, in effect, the two types of colours which become the symbols of two principles, benevolence and malevolence.....the identity of symbols implies the identity of primitive creeds.....this mysterious language revives with religious truth." Portal's 'mysterious language' has a triadic schema - divine, consecrated and profane. Today, the "divine language is forgotten, painting becomes an art and is no longer a science". Portal draws examples from all over the world - China, Peru, Japan, Thibet, North America and Norse Iceland. He quotes Hermes Trismegistus, Pico Della Mirandola, Stobaeus and Swedenborg.

Our concern is with the normative tradition and its claim on universality and nature. A study of the natural philosophy from which it arose leads us to seek out continuities of idea and scheme. The idea of a universal language undoubtedly has roots in Marsilio Ficino's seminal 'Argument' to his edition of the Corpus Hermeticum, where he speaks of 'una prisca theologia ubique sibi consona' - a primal theology, everywhere consistent with itself: that is

to say, at the foundation of the academic tradition. The consequences of this conclusion for a consideration of 'modernism' are searching. This study suggests that the normative tradition is the logical outcome of a scheme of ideas central to the academies - universalist, a-historical and unconditioned; but transformed into a generative and combinatorial system through an ideology of progress, perpetual innovation and science into what de Superville calls "an irresistible tendency that drives (man) on to manifest his perception outside himself and to extend and enlarge his existence."

A 'universal language' is considered here as a metaphor, as is the scheme of ideas that support it. Considered otherwise - as veridical proposition - it breaks down into occultism on the one hand and mechanistic positivism on the other. This breakdown of metaphor is not an historical phenomenon - it is logically inherent, as a constant possibility. Thus, it forms part of the birth of enlightenment science. Parker's 'Free and Impartial Censure of the Platonicke Philosophie' (1666) prefers "the Mechanical Hypothesis before any other", and is sarcastic about the "grand and pompous futilities" of Pico Della Mirandola. The re-dating of the Corpus Hermeticum to post- rather than pre- Christian origins compelled academicians to recognise the structure they had built upon these texts as metaphorical. The theologian, Ralph Cudworth, observed in 1678 "there have been some pious frauds practised upon these Trismegistick writings." The way was open for the 'mechanical hypothesis'. Frances Yates, in her study of these matters, writes of the work of Mersenne, that " by eliminating Giorgi (author the 'De Harmonia Mundi' of 1525) and all that he stood for in the

See W.Shumaker. 'The Occult Sciences in the Renaissance' (1972).
p.246.

ibid. p.210.

F.A.Yates. 'The Occult Philosophy in the Elizabethan Age' (1979)
p.174.

Renaissance tradition, Mersenne banished the astral linkings of universal harmony, cutting off at the roots the connections of the psyche with the cosmos. This.....made the world safe for Descartes." Nathanael Grew, whose studies of plant form we have noted, was part of this new science.

Yet both the occult and the mechanical, the irrational and the positivist tend, without the governor of a metaphorical structure, to become interchangeable. We have noted this in the case of Fechner (see above p.178) . But it is evident too in the ambivalences of Newton's colour theory and the uses to which it was put both as an exemplar of normal science and as a 'poetic analogy'. Indeed, Newton's life, like Fechner's exhibits what today we would interpret as this interchangeability. (at the time, Newton's theological notions, like Fechner's speculations, were part of a given climate of ideas.)

Contemporaneous with Field and Portal and Hay, we find the growth of a positivist colour theory. Chevreuil, Yound and Helmolz make no such 'analogies'. Ogden Rood in particular singles out such ideas for contemptuous dismissal. "Any theory of colour based on our musical experience must rest on fancy rather than fact." But positivism too encourages an a-historical attitude.

O.Rood.'Modern Chromatics'. 1871.

Field is specially p.309.
singled out by Rood
for this rebuke.

The relationship between Impressionism and Neo-Impressionism may be viewed in this way.

A.Scharf 'A New Beginning etc.'
(1976) p.37.

Scharf suggest that Pissarro's rejection of Neo-impressionism - after some five years of close association - was bound up with the adoption of Charles Henry's 'scientific aesthetics' by the group around Seurat. Pissarro, of all the painters at that moment the most 'positivist' in his record of optical fact, seems to have believed that Henry was departing from 'science' and that therefore the Seurat circle were abandoning a 'scientific method' of painting. Henry, as we have seen, was certainly occupied with (in Frances Yates' phrase) 'the connexions of the psyche with the cosmos', and that could not be fitted with anything Pissarro may have called a scientific method.

J.W.v.Goethe 'The Theory of Colours'
(1840 Eastlake trans.) p.298.
Ringbom. op.cit. p.391.

The status of Goethe's colour theory changed from its inception. He himself, regarding it as a scientific theory in the normal sense, warns specifically against making colour-sound analogies. But the question of their possibility is not rejected out of hand, but "referred upward to a higher formula". His language too is affective and full of analogy, though the observation is exemplary. Thus it was not difficult for it to be given an occult gloss by his editor, Rudolf Steiner. "Steiner credits Goethe with the discovery of a copernican scale: the Beautiful is not, as Platonic theory asserts, an idea in the form of a sensory phenomenon, but a sensory phenomenon in the form of an idea." According to Steiner, this was "the basis of the aesthetics of the future." We may also note Turner's reference to Goethe's theory in the context of apocalyptic imagery.

In 'Goethe als Vater einer Neues Aesthetik' (1909) .Ringbom also cites
E.Linde 'Natur und Geist als Grund-
schema der Weltklarung.'(1907).

But whether occult or positivist all these theories of the nature and use of colour had small regard for history; they were concerned to establish natural rather than conventional prescriptions. From the wildest nonsense of 'thought-forms' to the driest application of 'divided touch', late nineteenth century colour theory sought some form of universal validation, unconditioned by historical conventions.

* * * *

It was suggested at the start of this chapter, that in order to bring about a synthesis of construction and expression in a universal style, uniting arts and manufactures, both construction and expression would have to find forms of existence congruent with each other.

Both aspects can be studied in miniature through the use of the single elementary brush stroke or touch as the basic building block and expressional means of painting.

In Delacroix' Diary entry of 13th Jan.1857, as part of his draft 'Dictionary of the Fine Arts', touch receives by far the largest note. Described as "one of several means that contribute to the rendering of a thought in painting," part of the "accepted means of expression, the conventional language of the art", 'touch' was his major topic. Altogether he makes notes on 94 topics, of which only 16 are on subject matter. (Ten years later Blanc gives 128 pages of his 'Grammar' to means of expression, and only 19 to subject matter.)

In 'Documents of Constructivism'
ed. S.Bann.(1974)

p.118.

From the later paintings of Delacroix to the earlier paintings of Mondrian, the single elementary touch is used to construct pictorial form (preeminently in Seurat and Cezanne) or to convey passion (as in Van Gogh or Mondrian). In such painting is displayed that coincidence between means and effect described above as essential to the fulfilment of the normative tradition - aligning the 'higher arts of design' with manufactures. To quote Hilbersheimer in the third issue of the constructivist magazine 'G'. "Identity of construction and form is the indispensable prerequisite of all architecture. At first sight both appear to be opposites, but it is precisely in their close conjunction, in their unity, that architecture exists."

The peculiar importance of the School of Paris derives from this, that by uniting expressive and constructional means in one discrete, elementary unit, it created a new normative tradition in the restricted field of the fine arts that could coincide with , and feed, design and architecture: thus making conceivable a new industrial unity of arts and manufactures.

It was left to Mondrian and Van Doesburg and their associates to make painting itself into a deductive activity -'so formed that it rests upon a few fundamental truths peculiar to itself. The whole fabric reducible to their simplicity and strictness.'

* * * *

We are now at the position where a 'universal language' can be discussed ; a form-generating system that comprises both construction and expression within the same means; that is validated, not upon historical conventions, but upon laws of distribution of form and 'natural and real relations' of meaning; and which by its foundation upon a 'unity of feeling' must produce a 'unity of expression.'

Footnote to p. 178 The most striking example is the life and work of Gustav Fechner, whose 'Elements of Psychophysics' (1860) founded the systematic study of perception. He described it as "the exact science of the functional relations or relations of dependency between body and mind.....Perhaps the reader also anticipates here a declaration of position this work will take with regard to materialism and idealism, as well as to the basic question of religion, which every investigation of the relation of body to mind must necessarily touch upon. (But).....it would be premature to assume that we would have to take up a materialistic position with regard to religious questions.....All I shall say here to refute this interpretation is that this whole work has been evolved on the basis.....of an entirely opposing conception." (Trans. Adler. New York 1966). Fechner's scientific work was interrupted by periods of mental stress: after a severe breakdown he wrote 'Nanna- the soul-life of plants' (1848) and subsequently a series of 'prophetic books' entitled 'The Zend Avesta' "His philosophical solution of the spiritual problem lay in his affirmation of the identity of mind and matter, and in his assurance that the entire universe can be as readily regarded from the point of view of its consciousness - a view that he called the 'day view', as it can be viewed as inert matter, the 'night view'. (ibid. intro. Howes). The contribution of Fechner's thought to the plant and flower paintings of a Klee would be an interesting hypothesis to pursue. Students of the Bauhaus will note the connection with the Mazdaznan cult of Johannes Itten, seventy years later. For an account of Edison's supposed 'communication with spiritual beings' see 'Thomas Alva Edison; an American Myth' by W. Wachhorst. (M.I.T. Press 1981). The interesting point of this story is, that he, Edison, was widely expected to prove the existence of a spirit world. (pp.138-140).

Footnote to p. 179 See for example a sample of Cesar Domela's reading " every sound produced, every word spoken by man would seem to give birth to minute ephemeral creatures which exist only for a brief spell of time.....these creatures take the form of geometric shapes or vortices". He is referring to J. Marques-Riviere 'Etudes sur la tantrisme' (Paris 1939) (C. Domela 'My conception of abstract plastic art' in Leonardo Vol 12. No.1. 1969). But the idea that the universe was created by a spoken word is also, of course, a Judaeo- Christian conception, and one that was strongly revived in 17th and 18th century German pietism.

Footnote to p. 180 . Hay was an interior decorator responsible for the interior of Walter Scott's house at Abbotsford, he gave evidence to the 1835 Parliamentary Enquiry, and assisted J. Clerk Maxwell on experiments in colour. His complete bibliography is not easy to establish. All his work was published by Blackwoods of Edinburgh. The 1849 edition of 'The Principles of Beauty etc.' gives a list of some work with several press comments, one of which I have given. Steadman also quotes from this notice.

cont/d.

A list of his works includes

- 1838 The Laws of Harmonious Colouring adapted to interior decorations, manufactures and other useful purposes.
- 1842 The Natural Principles and Analogy of the Harmony of Form.
- 1846 A Nomenclature of Colours applicable to the arts and natural sciences etc.
- 1849 The Principles of Beauty in Colouring Systematized.
- 1851 The Geometric Beauty of the Human Figure Defined etc.
- 1856 The Science of Beauty as developed in Nature and applied in Art.

Other titles, mostly in pamphlet form, are a 'First Principles of Symmetrical Beauty', 'An essay on Ornamental Design', 'Proportion, or the Geometric Principle of Beauty Analyzed', and 'On the Science of those Proportions by which the Human Head and Countenance, as represented in Ancient Greek Art, are distinguished from those of Ordinary Nature.' Some of these were delivered as lectures to the Royal Society of Arts.

Footnote to p. 180 (2) The 'Panharmonicon' is a large chart which sets out schemes of proportion and scale in nature and art. There is a copy in the Royal College of Art Colour Library. It notes "These principles of harmony prevail throughout nature and are applicable to the works of art more especially to architecture, and painting, and however it may be true that the deity acts geometrically, it is as certain that he acts harmonically. And it is very observable that harmony consists in the union of arithmetic and geometric ratios or proportions.." This is certainly a backward look to Giorgio and his 'Harmonia Mundi' (and in English, to Robert Fludd and his 'Monochordium' (see below)).

Footnote to p. 180 (3). This is surely an outline of Goodsir's 'Newtonian Laws' - and the immutable laws of the Prince Consort's speech that were to provide 'standards of action'.

Footnote to p. 181 Field's theories are apparent in Propositions 18, 19, 20, of 'The Grammar of Ornament' - and Chevreuil's in Prop. 24. Jones also mentions Field in connection with his colour scheme for the Crystal Palace. See Ch. I..

Footnote to p.182 (1). 'Natural and real relations': here we pull another string in this net of ideas; that of the 'real characteristic' or philosophical language in which words or signs relate 'naturally and really' to one another. Leibniz, it may be recalled, experimented with both mathematical and musical schemes for a 'characteristica universalis' as did Wilkins and Dalgarno (in his *Ars Signorum* of 1661). For their labours they were satirised by Swift as the academicians of Lagardo, with their combinatorial frame. But beyond that, the idea of a natural language is related to that of the 'lingua adamica' which Adam spoke in Paradise and all men knew before the fall of the tower of Babel. A natural language of colour, line, shape etc. would be part of the same adamic myth. The reader is directed to the studies of Frances Yates and D.P. Walker, and to George Steiner's 'After Babel' (1976) Ch3. entitled 'Language and Gnosis'. (pp.110-114) An art founded upon 'real and natural relations' would, of course, be unconditioned and incorrigible. For more specifically hermetic aspects, see below. (Note: Dalgarno's book was republished in 1834.)

Footnote to p.182. (2). Field is mentioned in two recent books on Turner viz. J. Lindsay's 'critical biography' of 1966 (esp. pp.205-6) and J. Gage 'Colour in Turner' in which there are scattered references. Lindsay gives a generous account of Field as a philosopher, and some interesting details.

Footnote to p.183, (1). 'From point to line to plane' is a standard idea of classical geometry. See T.L. Heath's 'The 13 books of Euclid's Elements' Vol2.p292. (London 1908), cited by Wittkower (op.cit. p.99). Note also how Cezanne's advice to Emile Bernard fits in with Field's concept of drawing.

Footnote to p.183. (2). Field inveighs against "false taste of imitators who build Gothic dwellings and worship God in barns.....as we acquire rules and principles of our own, we shall be released from the servile necessity of continuing mere imitators of the ancients." (vol 2. p.127-8)

Footnote to p.184 (1). There is a good deal of evidence to suggest links with masonism. The 1817 version of 'Chromatics' is prefaced by an 'Ouroboros' figure enclosing a six-pointed star. The lightning-flash of the 1845 edition frontispiece suggests a connection with the 'Pimander' (see below, note on Frederic Portal.). How this relates to the support of the leading Royal Academicians is another matter. In this connexion the introduction to the 'Outline' is interesting. In it, Field complains of a "prevailing distaste for any other than a physical and mechanical philosophy" (p.xxxiii) and in a Reynoldsian phrase claims that as 'refined art is only generalised nature, so genuine philosophy is not other than nature universalized.' (p.xxxv.)

Footnote to p.184. (2). It would seem that by such channels the inspirational and magian aspects of Renaissance Hermetism were projected through into the twentieth century, albeit in curious forms. The reader is once again referred to the studies of D.P. Walker and Frances Yates. Of the most direct relevance to Field's argument on the coincidence of music, painting and poetry would be Giordano Bruno's 'De imagin^{um} compositione' ⁽¹⁵⁹¹⁾ quoted by Yates in her 'Giordano Bruno and the Hermetic Tradition' (1964) "True philosophy is music, poetry and painting; true painting is poetry, music and philosophy; true poetry or music is divine sophia and painting." (Yates. p.256). Yates refers to Bruno's attempts to 'figure the infigurable'. Extensive reference is made later to Le Corbusier and alchemical doctrine, and to Joachist ideas in De Stijl and Suprematism.

Footnote to p.184 (3). a). Neoplatonic. We should reckon here with the greatly revived and popularised interest in neo-platonism. Of importance here is the stream of translations by Thomas Taylor, from the 'Hymns of Orpheus' (1787) to the 'Works of Plato' (5 vols) 1804, to 'Selections from Plotinus' (1817) and 'Iamblichus' (1821). Taylor was a friend of Flaxman and d'Israeli and Mary Wollstonecraft; he was secretary to the Society for the Encouragement of Arts, Manufactures and Commerce. He evidently believed in the platonic traditions as a 'philosophia perennis'. "His learning was inspired by a zealous wish to combat the mentality of his age - the same mechanistic materialism denounced by Blake, Coleridge and Shelley - and to bring about, by making known the literature of the Platonic tradition, long neglected (and to an increasing number of otherwise literate people unable to read Greek, inaccessible), a return to traditional wisdom." (Selected Writings of Thomas Taylor ed. Raine and Harper, 1969. p.11). Interestingly, Taylor had many followers and readers in America, notably Emerson: he is an important figure in Transcendentalism; his writings were frequently republished in the 1880's in the pages of 'The Platonist' along with material on theosophy, cabbalism and idealism in general. Taylor also had connexions with masonism and took part in rather absurd alchemical investigations. Blake satirised him in 'An Island in the Moon'.

b). Gnostic. This is less easily pinned down. Along with the above, there is a stream of literature on Rosicrucianism and alchemy in the first thirty years of the century, both scholarly and trashy. The literature on colour theory, especially that of Field would seem to reflect this. The subject is obscure and cannot be studied here in any detail - but the problem of the origin of colours is seen, in the gospel of Basilides, as coincident with the creation of the world; through the collision and war of light and darkness. In much broader social terms, we can associate gnostic traditions with the desire to make the world over again, in reaction to unbearable stress; the whole question of secular religions and cults and popular religious fervour cannot be dissociated from the material that has been discussed. The question of gnostic traditions in the genesis of 'modernism' will be touched upon later.

Footnote to p.185. For example, Moses Harris' 'Natural System of Colours' was republished in 1811, also M. Gartside 'An essay on a new theory of colour and composition in general, illustrated by coloured blots' (a fascinating little work, 1805 and 1808) 'Experimental Outlines for a New Theory of Colours' Dr. Reade of Cork (1816) 'Experimental Enquiry into the number and properties of The Primary Colours' W.Crum(1830)etc. These all make way for the new scientific work of Helmholtz, Chevreuil etc.

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Chapter Five

Realised Unity : De Stijl and Purism

'In 1920 we published a small pamphlet called 'Universelle Sprache'. This pamphlet elaborated our thesis that abstract form offers the possibility of a language above and beyond all national language frontiers. The basis for such a language would lie in the identical form perception in all human beings and would offer the promise of a universal art as it had never existed before.... with a careful analysis of the elements one should be able to rebuild men's vision into a spiritual language in which the simplest as well as the most complicated, emotions as well as thoughts, objects as well as ideas, would find a form. To contribute to such a task seemed to us worth all the efforts and sacrifices we could think of.'

See Footnote.....

Hans Richter, describing his work with Viking Eggeling.

In this chapter it will be argued that De Stijl should be seen as the culmination of one hundred years of normative design theory; and it is proposed that the working methods of De Stijl, as articulated by Van Doesburg, comprise a searching attempt to link arts and manufactures. This will be illustrated by an interesting English example, hitherto undescribed. No attempt

See Naylor G. 'De Stijl: Abstraction or Architecture' in Studio International Oct. 1975

is made here to examine the internal evolutions of the movement as such—this study follows the Van Doesburg 'line' on the 'principles of neo-plastic art'. Neo-plasticism will then be compared and contrasted with the Purism of Ozenfant and Le Corbusier and it will be argued that these two related attempts at defining, creating and sustaining a 'universal language of form' serve significantly different world views. This will illustrate the normative tradition to be as ambivalent and 'Janus-faced' as the critical.

* * * *

The idea of a universal language was established on a broad and deep historical and cultural base; but a base that was faulted. 'Una prisca theologia ubique sibi consona', a 'characteristica universalis', 'real and natural' relations of expression belong in the realm of speculation and metaphor. The link between this realm and that of the seemingly limitless technical and industrial expansion of actual production, is of extreme importance. Without understanding something of that link, however obscurely, we will not be able to understand the dynamically unfolding form-language of the material culture of the industrial system, nor recognise our faces in the mirror it provides.

A relevant discussion will be found in Steiner G. After Babel (1975) and in Katz (1982)

All languages, to be languages, must be intertranslatable in some degree: a speech impossible to translate would be a speech without sense. No matter what the specific nature of any particular language may be, it must have some similarity with all others. These elements of common structure must (to borrow Reynold's term again) comprise the 'common form' of Language. So runs the guiding argument.

In the 'Tractatus' (which is contemporary with the founding of De Stijl) Wittgenstein describes this common form as the 'logical form'. Every complex proposition in every language rests upon other propositions more simple; and each proposition is a logical mirror of a corresponding state of affairs. At the base of this pyramid are the so-called 'atomic propositions' that mirror the 'atomic facts'. Wittgenstein gives no examples of such propositions,

and indeed it is difficult to see how he could, since they are the logical requirements of his theory rather than actual components of speech.

Here, however, the elementarist approach to visual language - that followed by Neo-plasticism, by Richter and Eggeling, and deeply embedded in normative theory - is faced with a difficulty. The form of description requires that there be logically simple elements. But every colour plane is of some size and shape, and adjacent to some other, vertical and horizontal axes exist in some gravitational field, lines (except those described by Euclid) are always of some thickness or quality. Such elements of a 'language' when perceptible are not simple, and when simple are not perceptible. A small embarrassment in logical theory is a great scandal in the world of things. As is well known, the philosopher turned away from this early and very general account of language to concentrate upon its actual use. Just as a highly generalised account of language tells us rather little about speaking and nothing about the elaborate prolixity of the human capacity to invent languages in astonishing numbers, so elementarism actualised appears as yet another style, and fails to do justice to the immense visual and plastic inventiveness of human creatures.

This difficulty touches upon an important difference between Neo-plasticism and Purism, to which we shall return. For the first, an element was not a thing, but a concept (of horizontality, verticality, tone-gradation or primary colour); whereas in Purism we find that the elements comprise forms which are then recognized in existing things - the 'mots fixes' of a universal

See below for a discussion of the Purist notion of the 'constants'.

Comsky.N. Problems of Knowledge and Freedom (1972) p.23.

In Historicism and the Limits of Semiology (1972) reprinted in Colquhoun (1981)

plastic language which are realized in certain characteristic objects of our industrial world as 'objet-types'. Both Neo-plasticism and Purism held a theory of the Supervillan type; that is to say, the elements in either case were held to ^{be} directly, innately and universally expressive. But in the second case, as we shall note, the recognition of the forms in existing objects locates the encounter with significance in the present - whereas Neo-plasticism assumes that significance to be latent, awaiting future awakening.

Noam Chomsky's re-appraisal of innate ideas has some application to our theme and raises similar difficulties. 'There is every reason to suppose that the semantic system of language is given largely by powers independent of conscious choice: the operative principles of mental organization are presumably inaccessible to introspection, but there is no reason why they should be more immune to investigation than the principles that determine the physical arrangements of limbs and organs.' This may indeed be the case, and applicable to 'visual language'; but it is given in terms of the possibility of language rather than of actual speech.

Alan Colqu^houn has extended this criticism further and has argued (to our mind, convincingly) that aesthetic systems have properties that do not belong to language systems. He points out that the axioms of aesthetic systems 'are guides to conduct and have an immediate bearing on what we think ought to

be the case in our social life. We are dealing with values that are ends in themselves and not a means to some other end.' Aesthetic systems are essentially intentional. Thus the smallest units of sense (the phonemes and morphemes of an aesthetic system) are 'motivated and invested with potential meaning'. They are not simple and arbitrary, but complex and culturally given.

It seems proper, therefore, to consider Neo-plasticism as the grammar and syntax of a possible universalism, as a metaphor for its aim of 'realised unity', and this distinguishes it from Purism where the assertion is made that the 'constants' the 'mots fixes' in very fact appear in the actual speech, under the forms of typical objects. In both cases we are dealing with aesthetic systems that are intentional; and it is precisely because they 'have an immediate bearing on what we think ought to be done in our social life' that they must now appear as concepts of style. Thus, though we may have the idea or metaphor of universality in our mind, our practice must always reveal our contingent immediacy and place in history and culture.

In all, there are many and telling arguments against the notions of 'natural and real' relations, and of 'universal language of form': these have been forcefully put by Ernst Gombrich in many writings, and directed by Steadman and Colquhoun against Purism. But our concern now must be to ask why such arguable, not to say occult, premises should have been deployed so widely. Our conclusion will be - that they served a very important ideological function, as part of a structure of metaphor. A 'universal language' is part of a guiding myth that may be employed to organise understanding, but does not and cannot constitute experience itself.

Rowe C. The Mathematics of the ideal villa (1976)

Mannheim K. Ideology and Utopia quoted by Rowe *ibid.*

And yet, as Colin Rowe has written, metaphors 'may be an instrument of some power'. Karl Mannheim has described utopian metaphors as 'orientations transcending reality..which, when they pass over into conduct, tend to shatter, either partially or wholly, the order of things prevailing at the time.' From such tension derives the pathos of the project known as De Stijl.

These words have been carefully chosen, since the view of De Stijl that unfolds below seems to place it within the domain of a transcending or religious inspiration, closer perhaps to Pugin's interpretation of the Gothic Revival than we might suppose. It is not the intention here to explore this line of thought very far, but to indicate that it might exist for future exploration. It is certainly the case that the intellectual and spiritual genealogy of the movement has not been treated in very much depth and has confined itself to varying versions of 'modernism' as a source for explanatory structures of idea.

In a later study I hope to link De Stijl and other aspects of twentieth century design with the theology of radical protestantism

* * * *

First, the occasion of the rassemblement of the movement is worth recalling.

T.van Doesburg: In 'Neue Schweizer
Rundschau' 1929. Quoted by Jaffe
(see below) p.74.

" At the moment when the whole of the world almost was still at war, about nineteen sixteen, there existed in all Europe - possibly for this reason - an atmosphere that was the condition for a collective and heroic act of creation. We all lived in a spirit of genesis. Though there was no war in our neutral Netherlands, yet the war outside caused commotion and a spiritual tension : the soil was nowhere as propitious for the gathering of the renewing forces."

See H.Richter. 'Dada: Art, Anti-art'
(1966) p.25.

We were seeking a new art, based on fundamentals, to cure the madness of the age, and a new order of things that would restore the balance between heaven' and hell(there was) a physical necessity to articulate the multicoloured darkness with a little definite simplicity."

It is in such conditions that utopian metaphors become a necessary condition of thought, since without them, hope perishes. It is then that they 'pass over into conduct'. Theo van Doesburg was later to describe the De Stijl project as an attempt to reconstruct the intellectual life of Europe.

See Footnote.....

H.L.C.Jaffe 'De Stijl' (1970) p.53.
et seq.

The universalist expressive theory of De Stijl is usually attributed to Mondrian's absorption of theosophy and the influence of Schoenmaekers' presence and writings on the artistic circles at Laren. There is no doubt of the importance of both sources; but in the light of the material presented in the previous chapter, it is argued that theosophy (and its variants), and Schoenmaekers' discourses are characteristic late products of that web of ideas we have been discussing. The wording used by Mondrian in his writings is that of these sources, and some specific ideas, as noted by Jaffé; but their matter is that of a lengthier and more substantial tradition.

See Footnote.....

In 'The Lugano Review' Vol.I. 1963.

See Footnote.....

See A.Hill. 'D.A.I.A.' (1968) and elsewhere.

See L.Wijsenbeek. 'Piet Mondrian' (1971) .Guggenheim Catalogue.

M.Seuphor. 'Piet Mondrian, His Life and Work' (1956) p.57.

In 'Studio International' Nov. 1971.

See also Welsh. In Guggenheim Catalogue (1971). And see Footnote.....

Seuphor. op.cit. p.58.

Jaffé. op.cit. 'Introduction'

Behind Schoenmaekers stands the 'scientific aesthetic' of Charles Henry: behind that (just down the road, ninety years before) Humbert de Superville's 'unconditioned' theory; the writings of Field, presumably unknown in Holland, parttake of the same intellectual formation. Behind all the flowing well of European speculative mysticism.

Joost Baljeu has suggested that L.E.J.Brouwer's 'Art, Life and Mysticism' (1905) may be a possible source of some De Stijl ideas: he was working at Leyden at the crucial period and his book is certainly writing of the sort that would have been current at Laren. Brouwer was the chief proponent of ~~the~~ intuitional mathematics, which has significant parallels with recent systematic art that bases itself upon De Stijl. Wijsenbeek has found a passage in Spinoza that links both Brouwer and De Stijl back to much earlier doctrines: "That the mind can create of its own force sensations of ideas which do not belong to any thing." Seuphor suggests that Mondrian had been reading (at a later date) Poincaré's 'La Valeur de la Science' and quotes an apt passage on the nature of a relation: but Nelly van Doesburg writes that although her husband read Poincaré, Einstein, Bergson and Nietzsche, Mondrian always remained loyal to Schoenmaekers, Steiner and his favourite theosophical authors. Amongst these was certainly Krishnamurti and probably, according to a remark recorded by Seuphor, Edouard Schuré's 'The Great Initiates'.

Jaffé writes that "the fundamental theory, the conceptual form of this art is closely related to platonist philosophy and its derivation from the neo-platonist tradition is.....plain" But in point of fact, when writers of the group use any phrase that is directly traceable to any one philosopher, other than

A footnote in 'The Principles of
Neo-Plastic Art' (1925)

Schoenmaekers, it is Immanuel Kant. Most typical would be "Reality for each individual is only his relationship with his environment and in fact his relationship is determined by the limits of his possibilities of experience." (van Doesburg). This phraseology is drawn directly from the 'Transcendental Aesthetic'.

The purpose of the preceding three paragraphs has not been to demonstrate that the movement was full of amateur philosophers (though it was!) but to stress that its concerns were delivered in the central terminology of European philosophical writing of the period. For good or ill.

Moreover, the Kantian four-way classification of statements provides an interesting approach to De Stijl. The claim that all the elements of the style are fundamental preconditions of all styles, and that from them new structures can be deduced, makes Neo-plasticism into an art of synthetic a priori statements. Whatever such work might denote would then have the same status as statements in mathematics; and the problem of significance, as in intuitional mathematics - has to be referred to another plane.....but it is not occult or mystical. In more general terms, it is Hegel's philosophy of history that surfaces in the pages of 'Circle' in which Mondrian writes of the end of the art-object in a world of universal spirit 'pure and complete in its beauty'. At that moment the metaphorical structure underlying De Stijl is nakedly visible and is seen to be part of an ancient tradition of prophetic formulae too extensive to engage with here, but which we can characterise as Joachist. Here we are upon ground central to Protestantism, and with connexions to Orthodox theology and the world of European Judaism. This is insurgent and iconoclastic, rejecting the

In 'Circle' (1937) 'Plastic Art
and Pure Plastic Art' p.56.

See Footnote.....

present world order as provisional. It is a background that De Stijl has in common with Russian constructivism. What would appear to be exceptional in both these movements, is that insurgent prophesy is allied with industrial technology.....in intention if not always in fact.

The characterisation of De Stijl as derived from neo-platonism is true only in a very broad sense, since neo-platonism itself was enmeshed with these same prophetic and frequently heretical doctrines. What prevents us from describing De Stijl as neo-platonic except in the very broad sense is, finally, that it contains no extended interest in 'harmonies' and puts forward no doctrines of proportion. Yet these, as Wittkower has shown, are the meeting point of neo-platonist cosmology and the plastic arts. The firmest connexion between De Stijl and such speculation (and this is true for Suprematism and other aspects of the avant-garde) is the high place accorded to artistic activity. As we shall remark in the next chapter, both Le Corbusier and Malevich had, apparently, a 'magian' conception of their role; and they and Mondrian and Van Doesburg would certainly have agreed with Giordano Bruno "...philosophers are in some ways painters and poets; poets are painters and philosophers; painters are philosophers and poets. Whence true poets, true painters, and true philosophers seek one another out and admire one another." Bruno also proclaimed himself as 'the waker of sleeping souls, tamer of presumptuous and recalcitrant ignorance, proclaimer of a general philanthropy."

Quoted by F.Yates in 'The Art of Memory' (1966) p.248.
See also the footnote to p.181 of this study for a similar quotation. (from George Field.)

A much more extended study is needed here, to unpick this knot; one that would employ the scholarship of a Frances Yates. She has shown how Bruno developed the ideas of Ramon Lull and other traditions into an elaborate and systematic magical system aiming at all total possible combinations of human experience. "The aim of the memory system is to establish within, in the psyche, the return of the intellect to unity through the organization of significant images." Of importance to our understanding of these aspects of 'modernism' would seem to be the disputes between Bruno and the Ramists over the role of imagery in mental organization and psychic life. Peter Ramus, who (as a leading Huguenot thinker) met his death in the Massacre of St. Bartholemew (1571) had proposed an 'imageless' ars memoria (his own development out of Lullian combinatorics) and a 'natural dialectical order'. Yates writes "There can be no doubt that an art of memory based on an imageless dialectical order as the true natural order of the mind, goes well within Calvinist theology.....a natural dialectic is the image in the Mens of the eternal divine light." The iconoclasm of the reformation - the actual breaking of images in and on churches all over Britain and the Low Countries - had as its aim the psychic reconstruction of the population and of communal life. The dispersal of Huguenot craftsmen from France and the continuance of Ramist educational ideas in dissenting protestantism are a part of the history of design. Here we have the links between De Stijl and the 'vernacular of dissent', and between De Stijl and Shaker 'spiritualised functionalism' and iconophobia. Ramist ideas underpinned the educational reform movements of the 1920's, particularly in Austria where the notion of 'imageless thought' was developed by Karl Böhler. When Van Doesburg writes of the 'reconstruction of European intellectual life' what he means is something like a Ramist reconstruction of the psyche in terms of a 'natural dialectical order.'

F.Yates. 'The Art of Memory' p.224.

ibid. p.234.

See Footnote.....

See Ch.6. below.

A conclusion follows from this; that we can regard De Stijl as being in some respects the outcome of radical protestantism; and that the magian or occult tendencies of the early modern movements, far from being oddities, represent the continuity of Academic traditions into the twentieth century where they have been transformed by their encounter with science and industry. It further follows that De Stijl cannot be regarded as in any sense materialist nor yet determinist; and this has been well observed by Reyner Banham... 'if the architecture of the Twenties is regarded in the purely materialic terms in which it is commonly discussed, much of its point will be lost.' But we shall argue below that Purism is partially materialist and almost wholly determinist in its reasoning, and this constitutes yet another major distinction between these outcomes of the normative tradition.

In Banham R. Theory and Design in the First Machine Age (9th ed. 1980) p.162.

The constructional grammar of Neo-plasticism also represents the continuity of persistent ideas.

Singelenberg P. H.P. Berlage Idea and Style (1972) p.17 et seq. for a discussion of On Style in Architectural and Furniture Design.

A figure of importance here is Hendrik Berlage. His architecture, his close collaboration with artists and craftsmen, his constant lecturing and pamphlet-eering, and his romantic socialism have been studied by Singelenberg, who has singled out the essay 'On Style in Architectural and Furniture Design' which specifically compares furniture with the small building, and the building with large furniture. Unity of idea and material should be seen, he argued, in both small and large objects, constituting a 'mutual agreement in art principle'. Gillian Naylor mentions his 'Thoughts on Style' (1905)

See esp. R. Wagner's The Art-Work of the Future for its concluding remarks.

For 'artistic architecture' see Robert Kerr in 1884 reprinted in Pevsner (1972)

In 'The New American Architecture', in Writings on Wright ed. H. Allen Brooks MIT (1981) pp 131-133.
also quoted by Banham op.cit.

and 'Studies in Architecture, Style and Community' (1910) in her article (already cited) on De Stijl. It is probably through Berlage's writings that the idea of a totally designed environment entered the world of De Stijl. The architectural equivalent of the 'gesamtkunstwerk', such totality is the shared principle that unified different attempts at an artistic architecture, that can be discerned in the many features of Art Nouveau and Jugendstil, and which originates in Pugin's deepened and expanded neo-Gothic. Berlage was also a proponent of Sullivan and Wright. Interestingly he employs the word 'plastic' to describe the effect of Wright's interiors, contrasting them with the 'flat and two-dimensional' effects to be found in Europe.

The difficulty with the concept of the totally designed environment 'pure and complete in its beauty' is - that it may come to represent not simply the excessive predominance of the aesthetic over the utilitarian, but the closing down of ~~the~~^{the} possibilities of further expression. This would seem to be the case with highly structured and all-inclusive formal grammar of Neo-plasticism. But 'mutual agreement in art principle' between all the parts of a designed ensemble was the standard expectation^{of} such aesthetic movements. This represents yet another divergence from Purism, where 'art-principles' as such had little or no place in the mass of industrial design but were held to inhere in industrial process.

This leads us to consider the Semperian background to the ideas of De Stijl.

Semper's 'Der Stil' (1860-63) appears as a common but divergent source for ideas found in De Stijl and in Purism. The divergence lies in this - that De Stijl continued with Semper's assumption of the unity between 'kunst' and 'kunstgewerbe', between 'art' and 'manufactures', by ascribing primacy to construction rather than image. Purism, on the other hand, took over Semper's concept of typification and the evolution of designs, but separated off the image-creating capacity. This probably reflects the severe damage done to Semper's craft-centred account of the material culture by the discovery of the antiquity of cave-paintings and the new appreciation of 'primitive' imagery. Purist writing is full of such interests, copiously illustrated; the records of De Stijl show a complete lack of interest in such questions.

See Footnote.....

Berlage studied at the Zurich Polytechnic where Gottfried Semper had formerly taught and where his notions of style and built form continued to influence teaching. Singelenberg gives very many instances of Berlage's debt to Semper's 'practical aesthetics'. 'Der Stil' is a book of too general a kind to be specifically an 'influence' - except by its name. But 'Die Vier Elemente der Baukunst' (1851) is another matter. According to Ettliger, Semper was inspired to write this by his confrontation with a primitive Carib hut shown as an exhibit at the Crystal Palace. This he perceived to have 'all the elements of classical architecture' and from it he deduced his four basic elements of architecture - hearth, platform, roof and the enclosure of space.

Ettliger L. On Science, Industry and Art: some theories of Gottfried Semper in Architectural Review Vol. 136 (1964).

Semper proposed these four elements as the bases of all crafts, and thence went on to construct his 'Practical Aesthetic' as the basis of all production. These ideas, important to Berlage, do not seem to have reached De Stijl, but his notion of architectural elements appears in Van Doesburg's writings and most especially in later Neo-plasticism such as we will describe below. The doctrine is Semper's recapitulation of the rationalist myth of the 'primal hut' - of Adam's house in Paradise. But unlike Abbé Laugier's original example, the hut that Semper saw was a real hut, and it was not a European hut ; thus the classical rationalist ideal was being validated by a real and non-European example - it could thus be perceived as a triumphant justification of universalism

See Rykwert J. On Adam's House in Paradise (1972)

Important to Neo-plasticism (as to the notion of the 'curtain wall') was the element of space enclosure. This did not mean wall: on the contrary, Semper was inspired by this example to propose the woven mat or screen as the typical enclosure. This, and not the built wall, was the essential determinant of space and the origin of all surface pattern. The relevance of this to the 'carpet paradigm' mentioned in Chapter One is clear. "Solid walls' Semper writes, 'are only an inner invisible scaffolding behind the true representative of the wall, the coloured woven carpet.' This coloured screen, which is not a load-bearing structure, introduces polychromy - or colour-space - back into building. Behind Semper's account of the 'carpet paradigm' is his early involvement in the controversy about polychromy in antiquity. His first published work (1834) was on this topic: the subtitle of The Four Elements is 'Über Polychromie'.

Die Vier Elemente p.59.
quoted by Ettliger op.cit.
See also Pevsner (1972) p.261.

See Journ. of Des. and Man.
Vol.6. pp 112-3 G.Semper.
'On the Study of Polychromy"

See Footnote.....

Pevsner op.cit, pp62-63.

Pevsner op.cit. p.265.

Semper's insistence on the primacy of the Idea can also be said to derive, in a general sense, from the same neo-classical ambiance in which the issue of polychromy in antiquity was of such importance. Schinkel, for example, argued that architecture is 'deduced from an idea' and that 'The ideal of architecture is achieved only if a building shows its purpose spiritually and physically as a whole and in all its parts.' But Semper takes this doctrine a stage further. The de-materialisation of structure by colour is implied in *The Four Elements* and later in *'Der Stil'* when he writes... 'Annihilation of reality, of material matters, is necessary if form is intended to appear as significant symbol, as an autonomous creation of man.' Such a statement coincides closely with ideas that are central to *De Stijl*, and to Suprematism.

The doctrine of 'balanced assymetry' however finds no precedent in this late neo-classicism. It appears in *De Stijl* as a deduction out of many sources which, on stylistic grounds, would include Japanese decorative arts as filtered through late 19c. aestheticism. On strictly ideational grounds we would want to know more about Schoenmaekers texts from which Mondrian would seem to have derived his rather obscure ideas about 'equilibration' and positive and negative forces. In terms of architectural composition - and in *De Stijl* that would include design composition in general, we need to look again at the Gothic Revival which broke firmly with the neo-classical axes of symmetry. This is especially true in the domestic architecture and appears definitively in *'The Red House'* and other monuments of the English arts and crafts.

Pugin A.W.N. The Present State of Ecclesiastical Architecture etc. (1843) (Oxford. facsimile 1969) pp. 61-63.

There are a number of scornful passages in Pugin's 'The Present State' (1843) which indicate his rejection of regularity and symmetry and his admiration for assymmetric cubic masses. The use of the plan as the generator of the form of the building helps us to see how Lissitsky could conceive of his paintings as 'interchange stations between painting and architecture!'

Banham R. Theory and Design etc. (1980) p.169.

Berlage has also had neo-gothic qualities attributed to him by Banham... ' a down to earth rationalism, almost Gothic-révilal in character.'

See esp. Frampton K. Formations and Transformations in Friedmann (1982)

by Berlage and van t'Hoff. But here there is a certain circularity discernible, for were we to look closely into Wright's ideational and stylistic foundations we might find a similar profile appearing.

The Academic belief that ' the whole beauty and grandeur of the Art consists ...in being able to get above all singular forms, local customs and...details of every kind' finds fulfilment in De Stijl theory and practice. Yet at the same time, De Stijl arises from specifically Dutch aesthetic traditions at the same time and appears to demonstrate' national varieties and antagonistic qualities'. In this sense the neo-plasticist style meets the Prince Consorts requirements for 'realized unity', being both transcultural and yet localist.

* * * *

Style however, is more than a doctrine and its material expression; between the two is a method of work, a process. In the case we are about to describe, a process intended to link arts and manufactures, to create a new unity in an 'atmosphere complete in its beauty'. Such a method of work (and we are here to deal with a very self-conscious method) must be a process sufficiently formalised to be applied in other cases, and issuing in a formula or symbolic representation capable of industrial use. Such an example is available, in the case of houses built in West Yorkshire during the revival of constructive ideas in the late 1950's.

There are some problems attached to this example, since the argument of this thesis has been partly formed by it, and since this neo-neo-plasticism was intended as a self-conscious reiteration of what the participants thought was the original form of collaboration between Van Doesburg and Eesteren, and the design methods of Gerrit Rietveld. That Rietveld in his last years approved the results and that his own methods do indeed seem to have been similar, does not release us from this problem: but the example is given because of the light it sheds on successful liaison between art-objects and processes, and industrial objects and processes. The later history of the participants (Peter Stead, builder David Lewis, architect and scholar, Stephen Gilbert, sculptor) has a relevance shown in our final chapter.

See Wilson C.St.J. Gerrit Rietveld 1888-1964 in Architectural Review Vol.136. pp.399-402.

In 1954 Peter Stead was the director of a small family building concern in Huddersfield - a town with a remarkably diverse range of domestic architecture.

He also devoted time to the direction of a small art gallery, the Symon Quinn Gallery. Under his direction it was the first outside London and St. Ives to show work by Patrick Heron, Roger Hilton and others. Amongst the artists who exhibited there was the constructive sculptor, Stephen Gilbert.

At this time Stead was working closely with Peter Womersley on designs for a house to be built near Almondbury, Huddersfield. The work was done in very close collaboration between architect, builder and client (who was Womersley's brother). The completed house 'Farnley Hey' is an elegant structure in stone, wood and steel, with brightly coloured details; the end of one of the two interlocking volumes that comprise the building is cantilevered out over a steep hillside. This building was awarded an R.I.B.A. medal in 1956.

The experience of collaboration was discussed with Gilbert in general terms, and then in detail. Gilbert, who lived and worked in Paris, was a friend of Jean Gorin and through him, of Vantongerloo, in the groups 'Espace' and 'Neovision' (small associations whose purpose was to recover the original aims of pre-war constructive art). Gorin may have acted as a direct stimulus to Gilbert's architectural ideas. Throughout 1954 and 1955 Stead and Gilbert met and corresponded with a view to practical collaboration. The sculptor wrote " I think that any attempt to use the artist to make an architectural complex 'beautiful' by changing the minor details, balconies, doorways etc. is idiotic, for the artists obsession today is space-form in a purer sense than that of the architect whose present training makes it hard for him to grasp

Gilbert in corr. with Stead.
22nd Dec. 1955.

the essentials of structural space-form in colour." In the same letter he writes of the collaboration of builder and artist in "authentic and functional service".

See the illustrations to Gilbert's contribution to 'D.A.T.A.' ed.Hill. (1968). One of the models was exhibited at the Salon des Realites Nouvelles, in Paris 1955, and is illustrated in 'Aujourd'hui' Sept. 1955. In conversation with DB.

Both men worked on a series of models, intended from the first as exercises in architectonic form; sometimes working together and sometimes separately. Some of those made by Stead resembled the 'towers' made by Nicholas Schoffer. He describes them as 'intermediate objects.' "As Stephen's became more architectural, mine became more sculptural. I had never found anything more difficult than this - composing directly with colour in three dimensions. But when I got stuck I referred always to Mondrian, every time." Both men worked in card or aluminium directly, without preliminary drawing; this was regarded as essential. By the end of the year they had made a number of models for small polychrome houses.

See Footnote.....

in op.cit.

Their manner of work appears to have been the same as that followed by Rietveld (except that we cannot exactly determine his relation to Mondrian's painting). Wilson describes this as follows "Here it is idle to speak of architecture 'imitating' painting or sculpture : all concretized in their mode a central principle by which opposing forces could be brought into resolution."

Gilbert's connexions with De Stijl were through his friendship with surviving members of the original group: Stead's through the major Mondrian exhibition at the Whitechapel Gallery in the summer of 1955, which he describes as having entirely changed his way of thinking. This exhibition and the monograph on Mondrian by David Lewis were a major event in the revival of constructive art. Lewis became friendly with Stead and Gilbert, and lectured and publicised

on their behalf ; then gave up his career as a scholar to train as an architect.

See Footnote.....

See also the collaboration between J. Baljeu and D. van Woerkom in Friedmann (1982) pp. 116-7.

In 'Wissenschaft, Industrie und Kunst' (1851) quoted by Pevsner (op.cit) p.259.

And also Pickett's metal architecture of 1845.

The two men also produced models and sketches for much larger complexes, approaching urban scale: Stead refers in conversation to the background influence of Friedrich Kiesler's 'spatial city'. They followed strictly, one might say, pedantically, neo-plasticist principles as prescribed by Van Doesburg. In some measure they reproduced the Doesburg/Eesteren partnership, though they did not have access to details of that earlier collaboration.

A significant difference however was that from the first Stead was determined to employ industrially made components and metal frame construction, in order to achieve a lightness of form and ease of assembly - as if following Semper's observation of 1851 - "that even whole houses can be brought ready made on the market". This lightness of form they took to be an essential of the style that had been impossible to achieve with the building technology of the nineteenth-twenties. The rendered brick of the Schroder house and other early buildings in the style contradict the constructional principles espoused; but the rolling mill and the extrusion press provide for, and indeed demand, a vernacular of orthogonality, lightness and colour. Peter Stead reports that in old age Rietveld had told David Lewis that the final completed houses were the sort of structures that he himself had aimed at but had been technically unable to achieve.

In fact, technical problems were considerable and although a site was found, no finance was forthcoming. The models remained as laboratory art and were subsequently destroyed. Gilbert's sculptural interests veered toward curvilinear

Illustrated and described briefly
in 'Architectural Design' July 1959
and in 'The Architecture of Techn-
ology' ed.T.Crosby. I.U.A. 1961.

fig.64.

forms and the practical partnership waned. Two years later, however, Stead was able to obtain sponsorship from the steel industry and working by himself (but using the methods worked out with Gilbert) produced his own design and built the first house. It is a small structure of anodised aluminium on a steel frame: all parts were industrially prefabricated and assembled on site in a simple manner without difficulty. The problem of colour finishes (which had limited the first experiments owing to the shortage of good materials in 1955-6) was overcome by using a glass and fibre material called Plyglass in which exact colour control was possible (it was, of course necessary to avoid applied colour, such as paint). The furnishings were by Poul Kjarholm and were one of the earliest examples of a 'knock-down' kit.

In corr. with Stead. 17th Apr. 1955.

In 1962 Stead was joined by the newly qualified Lewis and a house similar in conception but larger was built nearby (again at Almondbury, near Huddersfield). Both houses had the qualities of the earlier models, with a light and 'gravity-defying' effect enhanced by their being built on a steep hillside. They fulfilled Gilbert's requirement for future building "that it should weigh less heavy on our spirit."

See Footnote

In 1957 the three men had planned to produce a booklet: Lewis and Stead subsequently lectured in Newcastle, Cambridge and elsewhere, and engaged in a dialogue with Victor Pasmore and the Peterlee Corporation. These lectures have not been published, but in note form are largely concerned with the practical problems of collaboration and industrial assembly.

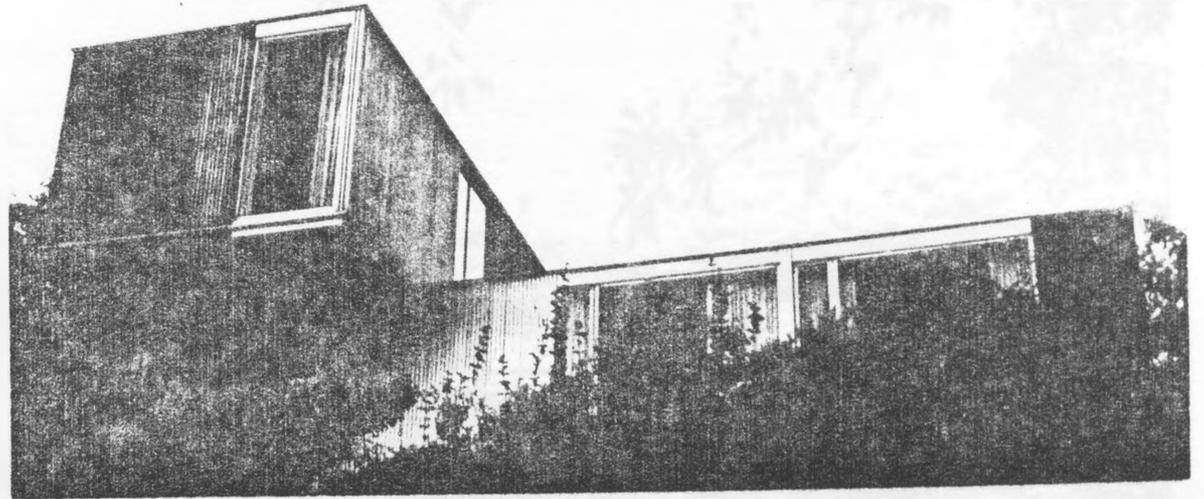
Both Stead and Lewis subsequently came to feel that their work was insufficiently radical; that they had created the sort of building they hoped to avoid - an art-object exemplifying formal , and in this case methodological, desiderata - and failing to make any effect on the overall system of building and architectural design. Their subsequent careers have followed a pattern already seen in the logical form of the critical tradition (examined in Chapter Three); namely of entering into a critical analysis of their experience followed by a general and systemic criticism. This they pursued with some thoroughness. Lewis is now in practice in the United States and has been a leading proponent of participatory and user-design systems for architecture; he has published extensively. Stead also went to the U.S.A. and worked with Yona Friedmann on an ambitious 'spatial city' project with students at Pittsburgh. (The Monongahela Project of Carnegie-Mellon University 1965). Friedmann, whose guiding ideas owe something to Kiesler and to constructivist theory, has taken this track yet further into a graph-theoretical approach to planning and 'user-designed architecture'. (This will be touched on again in the final chapter.) Stead returned to England in 1967, wound up his family business and engaged himself with cooperative and low-energy building: he is now a leading figure in the self-build movement.

See Footnote.....

See Footnote.....

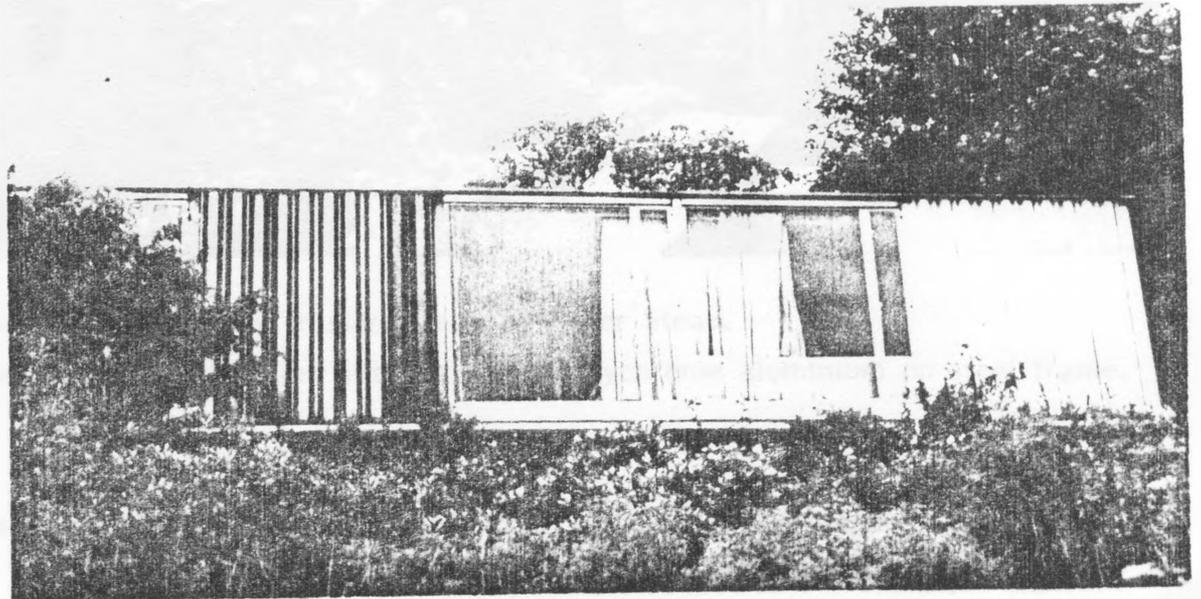
The houses in Huddersfield have continued to be occupied successfully and are well known in the locality as 'them modern things'. There is some irony in that this little exercise in the 'normative' should appear - in the nostalgic and watery historicism of English contemporary life - as a 'critical' and oppositional gesture.

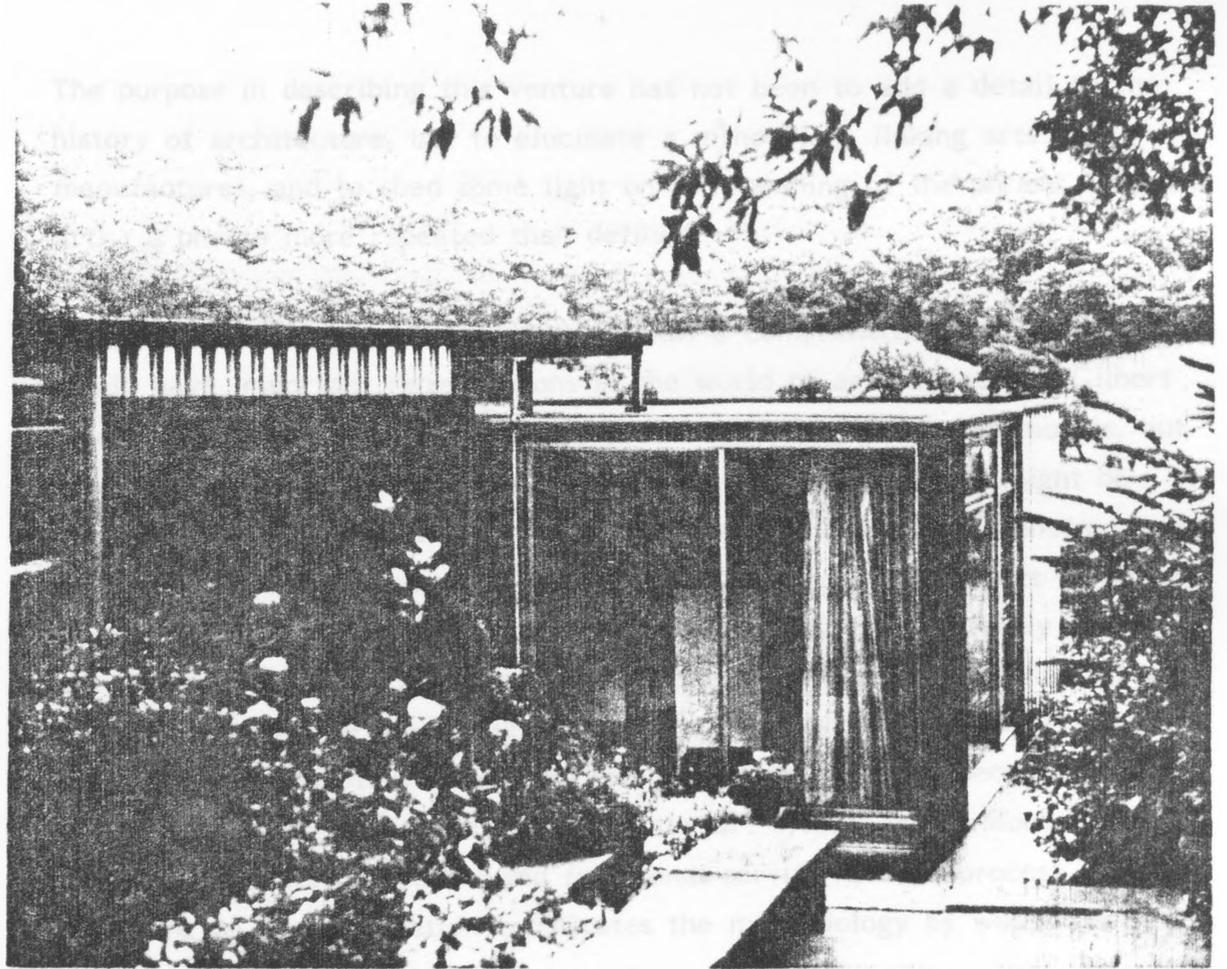
See Footnote.....



House at Almondbury, Huddersfield; by Peter Stead and David Lewis

House at Almondbury, Huddersfield, by Peter Stead. Garden elevations.





House at Almondbury, Huddersfield, by Peter Stead.

Side elevation, with view into kitchen : polychrome aluminium on steel frame.

The present owner expressed great satisfaction with the house.

The purpose in describing this venture has not been to add a detail to the history of architecture, but to elucidate a methodology linking arts with manufactures, and to shed some light on the meaning of the phrase 'laboratory art' ; a phrase more repeated than defined.

J.Ernest. 'Constructivism and Content' Studio International
April 1966 pp.148-151.

To quote John Ernest : "I should think that a comprehensive theory of models would have important repercussions in the world of art". Stead and Gilbert produced objects that were not, in the normal sense, architects models, but were, in Stead's phrase, 'intermediary'. A better word for this might be exemplary - such objects exemplify and prescribe formal and constructional qualities; but they do not denote anything or stand for any aspect or picture of the world .The visual language of De Stijl, so used, is perfectly suited to the process of modelling appropriate to aspects and stages of industrial production (in this case the linkage of the steel mill with the building site). The visual language might well be used for other purposes (for decorative uses), or it may remain within the domain of the art system (as in Mondrian's paintings): but for 'authentic and functional service' such a process of modelling or exemplification constitutes the methodology by which De Stijl links arts with manufactures.

Wilson. op.cit.

Wilson expressed the lack of denotation as follows. "The freedom from association had been won (as it had with twelve-tone music) at the price of a certain flattening, a reduction in levels of reference, a self-sufficiency that lacked resonance." Such a description is critical, not theoretical ; the 'reference' and 'resonance' of De Stijl are, as we have described, very extensive indeed. What Wilson calls 'flattening' (and which we shall later call 'emptying') is the

typification and systematisation of the means of expression that was necessary before a visual language formed in 'arts' could reach an equivalent typified and systematised industrial means (Reuleaux' 'simplicity and strictness') Only then could the necessary coincidence between means and effects come about and operate through the combination and permutation of elements. The exemplary object is a stage in this process and may be compared to the use of examples in rhetoric ; the exemplum is the means by which an idea is concretized. Wilson goes on to write: 'It was not only a freedom from History, it was also a freedom from Nature'. This study suggests that the first freedom was that of the culmination of history - that 'great end': and that the second history comprises the incorporation of 'natural' and 'cultural' in the industrial, conceived in Ford's terms ...as a universal code.

It is now necessary to look at the parallel phenomenon of Purism.

* * * *

In the following discussion of Purism this text relies chiefly in the post facto summary of Purist ideas presented by Ozenfant in 'Foundations of Modern Art (1928) and on 'Towards a New Architecture' and 'Decorative Art Today' by Le Corbusier (1923 and 1925): that is to say, it concentrates upon the received ideas of the movement rather than on its history and achievements. This necessarily stresses the differences and elides the

large areas of similarity that existed between Purism and De Stijl, German and Russian constructivism etc.. But the purpose of this discussion is not to give a complete historical picture, but to distinguish an ideological tendency .

Ozenfant A. Foundations of
Modern Art 2nd American ed.
(1952)

p.259
et seq..

The 'Supervillan' aspect of Purism is revealed by Ozenfant in the chapter entitled 'The Constants'. Here, without attribution, is a paraphrase of the earlier work. Verticality, horizontality, obliqueness and curvature - the constants - are described as the 'tropisms of form', the 'basis of a universal language of feeling'. 'The vertical is a straight line which recalls the force of gravity; thus it is to some degree dynamic. The horizontal is a straight line which emphasises the contrary of the vertical; it expresses inert stability.' This is the 'gamut of straight lines' modified by the oblique or by curvature. 'A judicious choice among the infinite possibilities of angular directions and possible curves will construct a scale for expression.'

The chapter then continues with a short discourse of the 'gamut of symphonic relations', on 'resultants and dominants', using a range of lines that somewhat recall the symphonic 'scrolls' produced by Richter and Eggeling, and have some relation (not easily examined) with the ideas of Froebel and Pestalozzi, and the drawing exercises of the British Schools of Design almost one hundred years previously.

These constants are clearly late versions of the 'signes inconditionels' as they have been passed through the pages of Blanc and Henry, through lectures at academies and through the studio talk of Seurat: that is to say they are part of the lore of the School of Paris. Our concern is - what is the use to which they are put....

Le Corbusier Towards A
New Architecture. 10th ed.
(1970) p.20.

Le Corbusier provides one direct answer: they provide a primary repertoire of form. "(Architecture should)...BEGIN AT THE BEGINNING ALSO, AND SHOULD USE THOSE ELEMENTS WHICH ARE CAPABLE OF AFFECTING OUR SENSES, AND OF REWARDING THE DESIRE OF OUR EYES....these forms, elementary or subtle, tractable or brutal, work physiologically upon our senses (sphere, cube, cylinder, horizontal, vertical, oblique etc.) and excite them.... certain relationships are thus born which work upon our perceptions and put us into a state of satisfaction (in consonance with the laws of the universe which govern us and to which all our acts are subjected" (and later) 'Cubes cones, spheres, cylinders or pyramids are the great primary forms which light reveals to advantage...the engineers of today make use of the primary elements and, by coordinating them in accordance with the rules, provoke in us architectural emotions and thus make the work of man ring in unison with the universal order.'

ibid p.31.
Compare Geo. Field and the
'ruling primary forms'.

ibid. p.33.

What we observe in this, is Le Corbusier pushing back the Supervillan doctrine to its roots in physiognomic theory and late 18c neo-classicism, and re-proposing a Newtonian orderliness of universal harmony. The possibility of any different interpretation is excluded by his words on Gothic.

ibid. p.32.

"Gothic architecture is not, fundamentally, based on spheres, cones and cylinders...(it is)..of a complex geometry of a second order... we search in it for compensations of a subjective kind outside plastic art. A cathedral interests us as the ingenious solution of a difficult problem, but a problem of which the postulates have been badly stated because they do not proceed from the great primary forms. The cathedral is not a plastic work; it is a drama; a fight against the force of gravity, which is a sensation of a sentimental nature."

Worringer W. Abstraction and Empathy (1953 ed.) pp 112-3.

This passage appears to be an elaboration of ideas taken from Wilhelm Worringer's 'Abstraction and Empathy' where the Gothic is described as the 'frenzy of mechanical forces' in which 'Man has transferred his capacity for empathy onto mechanical values'. In Worringer's terms, the 'constants' of Purism are the values of abstraction: but Le Corbusier's rejection of Gothic is part of his re-assertion of neo-classicism (albeit a new and industrial transformation of that tradition.) This aspect of his early thought is one of the polarities of his whole thought - one rooted in French state architecture and dirigisme: as such it is only one part a complex whole. But it is an essential part of Purism, and points unerringly toward its inner character.

A second pointer is provided by Ozenfant's wildly tendentious art history.

Ozenfant op.cit. p.116.

"It will be perceived at some future date, that from 1914 on, all artistic activity falls into two collective trends, Dadaism and Purism. These two movements, though apparently in opposition to each other, were equally sickened by the glib and stale productions of art, and sought to restore it to health : the former by ridiculing time-worn formulas, the latter by emphasizing the need for discipline."

In La Peinture Moderne
(1926) as quoted by Ban-
ham. op.cit, p.211.

A third pointer is provided by the use made by Ozenfant and Le Corbusier of the concept of evolution as applied to artefacts. They went so far as to propose a 'Law of Mechanical Selection'. 'This establishes that objects tend toward a type that is determined by the evolution of forms between the ideal of maximum utility, and the satisfaction of the necessities of economical manufacture, which conform inevitably to the laws of nature. This double play of laws has resulted in the creation of a certain number of objects that may thus be called standardised.' Le Corbusier was particularly fond of juxtaposing sequences of objects that hint at this idea without actually illustrating it; and the same idea is the central critical notion of 'Decorative Art Today' which we have already considered. This 'law' may be considered as the industrial version of Reynold's 'of course' - as the guarantor of certain qualities. The consequence of it, however, is to render design, as an activity of individual designers, otiose: and this is precisely the source of Le Corbusier's comments upon the Bauhaus, which he regarded with sharp scepticism...

In L'Esprit Nouveau
No. 19. Dec. 1923

"Or, L'Ecole de Weimar n'apportant rien à l'industrie, fournira des décorateurs qui sont des quantités superflues et indésirables (Pots, fers forgés, parois peintes, boiseries sculptées, tapisseries etc."

Steadman op.cit. pp 140-
150.

Steadman has argued convincingly that if sequences of artefacts exhibit 'evolution', then it is of Lamarckian rather than Darwinian type: that is as a process of adaptation to changing conditions. They do not, he shows exhibit the Darwinian version of evolution, through random selection and the survival of the fittest outcome. Purism appears wholly unaware of this significant difference ; significant, because if artefacts evolve in the Lamarckian mode, then human interference in the conditions of production will affect the consequent products. While this does not restore the role of the individual designer, it promises something for human betterment. It is certainly of note that Ozenfant was later aware of some difficulty in the 'law': he notes that 'electrification is creating machines that are practically formless, 'castings' containing insignificant spools. By the time we have got to disintegrating the atom it may well be that there will be nothing at all worth looking at. Our mechanism is primitive and that is why it still looks gratifyingly geometric.'

Ozenfant op.cit. p.154.

(Comment: Ozenfant's remarks are being typed out on a machine which very precisely follows his description - a casting containing insignificant spools. To give this machine visual interest the designer has found it necessary to give it spurious 'cooling vents' - applied and decorative arts have outlasted Purism.)

The standardised or typical objects toward which this Mechanical Selection moves

all demonstrate the 'tropisms of form', the 'constants' and 'primary forms'. Thus the unfolding of technology delivers an array of forms that is not only an analogue of biological evolution in its process, but the extension of human powers in result; and also, by its own logic the demonstration of an affective system, which by virtue of its 'constant' foundation, evokes a universality of feeling. This is a technological determinism applied not simply to objects, but to the psyche as well.

That commonplace objects, engineering structures and industrial architecture constitute the terms of the array, and that mass production is the means of this psychic engineering reminds us that Purism is the contemporary of Fordism ... 'something in the way of a universal code'. In this respect, Purism is the apologist of industrial hegemony and we should not be surprised that Ozenfant selects Dadaism as its symbiotic opposite, for irrationality and positivism are the two fractions into which a natural philosophy decays. The intensely authoritarian tone of some Purist and many Corbusian pronouncements are the necessary counterpart of the planned irrationality of Dadaism. When Le Corbusier introduced surrealist elements into his architecture (in for example, the Beistegui apartment), the gesture had little to do with whimsy or the fashions of Paris : and it had everything to do with the psychic constitution of Purism and its clientele.

Le Corbusier Towards a
New Architecture p.269.

Colquhoun A. Typology and
Design Method' (1967) re-
printed in Essays. (1981)

Hence, inevitably, the slogan

ARCHITECTURE OR REVOLUTION
REVOLUTION CAN BE AVOIDED !

Colquhoun writes : ' We can now begin to build up a picture of the general body of doctrine embedded in the Modern Movement. It consists of a tension between two apparently contradictory ideas - biotechnical determinism on the one hand and free expression on the other....What appears on the surface as a hard rational discipline of design turns out rather paradoxically to be a mystical belief in the intuitional process.' This study suggests that the 'contradiction' is better described as a relation of complementarity; and that the tension is not of the Modern Movement: it is the lived form of industrial ideology, its existential reality.

We have suggested some significant points of contrast with De Stijl; the comparison can be pressed further to yield further insights.

There was a 'De Stijl' music!

We have seen that Neo-plasticism proposes a method, while Purism announces an achievement: we have seen that this method can be followed, much as a method of musical composition can be followed. But this method does not determine form: the space of neo-plasticism (in two or in three dimensions) extends continuously. The partitions of its space are, ideally, infinitely thin and immaterial. Purism (in two or in three dimensions) is always concerned with shape and defined volumes, ultimately with solids; that is, mass.

As noted before, the historian of architecture may want to see in this an industrial version of the quarrel between the Gothic and the Neo-classic.

Ozenfant op.cit. p.124.

As quoted in Banham op.cit.
p.211.

Then we should consider the matter of imagery a little further. De Stijl is radical and consistent in its rejection of picture-making. Ozenfant writes 'The tendency of certain Cubist works towards the decorative, already disquieting enough, was pushed to such extremes as finally to make merely ornamental objects of them with no ornamental finality.' And in 'La Peinture Moderne' the two writers state that 'a negative demonstration is furnished today by a whole movement in painting recently born in Holland, which appears to us to have withdrawn completely from the necessary and sufficient conditions for painting (intelligibility and perceptual apparatus) using only certain geometric signs bounded by the rectangle. One might, by an art stripped bare, strive for purity of expression; yet the means chosen must permit one to say something, and that worth saying.' It was indicated earlier that the Purist adhesion to picturemaking may have some connection with the rejection of the full Semperian belief in the primacy of the crafts. But it sits ill with Purism's doctrine of 'constants' of expression. If the constants have an invarying and physiological effect upon our spirit, it is perfectly proper to argue that there is no need for pictorial art; the signs are intelligible and emotive ipso facto .

But it has been argued that Purism (considered as a body of ideas) is essentially an apologetic; it affirmed a certain version of contemporary reality. Its pictorial character is a sign of this, for it ascribes to

a class of actually existing objects (bottles, pipes, jugs, tables etc) universal and necessary status - and by implication confers that status on the industrial system that produced them. This opens up the formal vocabulary of the art to rhetoric and symbolism, indeed to the baroque, vehement mode of Le Corbusier's later paintings and buildings.

In Chapter Four of this study (and Appendix Two) the 'scientific aesthetics of Field and Hay (and Charles Henry) were discussed as preparations for the transmutation of the Academic into the Industrial. This transmutation is achieved in Purism.

Lastly we can once again distinguish between the two movements by their attitude toward the totally designed environment. De Stijl implies and logically requires a completely ideational and intentional environment - a late version of the 'gesam^tkunstwerk' brought about by the unity of art and industry, 'kunst' and 'kunstgewerbe'. Purism (as heir to Muthesius and Loos) assumes that unity comes about through evolution of the typical, and requires ideation and intention only from acts of picture-making and architecture. The perfectionism of De Stijl follows from this; its rigour, exclusivity and utopianism. It is not surprising that Van Doesburg adopted some Dadaist attitudes and introduced a new element - diagonality - at the time when he encountered the problems of real production and real design. Even Mondrian came to develop a 'late style' that departs from his original

canon, and we note how chary the painter was of involving himself in any actual production beyond that of a few interiors where the space was already given. The whole problem of De Stijl, its pathos and lasting power, resides in this - is Utopia to be realised in life, or in the mind? It seems to this author^{correct} to regard this aspect of De Stijl as a religious endeavour.

Here we have sought to describe two rival attempts at an art of 'realised unity', and it will have become clear in this description, (however tentative it might be and however much more might be said) that these twin outcomes of the normative tradition exhibit an ambivalence in that tradition. As the critical tradition faced both to a mythic past and an imagined future, so too was the normative tradition Janus-faced, both affirming the industrial system on which it was founded, and seeking to transcend it.

If the foregoing holds good, then any unitary view of 'The Modern Movement' (assumed even by so thoughtful a writer as Colquhoun) must be open to question, and the notion of 'post-modernism' rendered ever more empty. In view of the ideological use made of both these concepts, a criticism of the type attempted here (however imperfectly) may be of wider use.

* * * *

On the basis of the above some general propositions can be set out; given here as summarising reflections on the relations between 'arts' and 'manufactures'. Namely.....

- a). To link arts with manufactures in the industrial system, the expressive language must be as equally capable of typification and systematisation as the constructional means.
- b). That such an expressive language must, therefore, be emptied of associational or illustrative content and clean 'real and natural' status as 'signes inconditionels'.
- c). That, as follows from the above, both expression and construction must achieve 'emancipation from local dependence, must be above all 'singularity', must seek a 'common form'.

BUT

- d). That such universalism can only be metaphorical, since when actualized it is no longer unconditioned.
- e). That the union of arts and manufactures can only be celebrated in a structure of metaphor, which has been described as a 'natural philosophy'.
- f). That without a natural philosophy that (cf. Charles Henry) 'satisfies both reason and imagination', no such union is possible.

From thinking about universal language we move on naturally to international style.

- Footnote to p.198 An account of the ambiance in which Eggeling worked before his collaboration with Richter is given by Walter Segal in Architectural Review Jan. 1974. The Monte Verita commune, near Ascona, included Henri Oedekoeven, Hans Arp, Rudolf Laban, Jawlensky, Marianne Werefkin, Silvio Gesell (of Social Credit) Paul Gosch (of The Glass Chain), lapsed Steinerists and even, briefly, Lenin. Richter's account of his collaboration with Eggeling has lately come under suspicion, in a recent study by O'Konor, but that does not effect the point made here. The quotation is from his contribution to 'The Nature and Art of Mtion' ed. G. Kepes (1966).
- Footnote to p.204 Schoenmaekers two main texts 'The New Image of the World' and 'Principles of Plastic Mathematics' (1915 and 1916 respectively, remain unavailable in English and I have been compelled to rely on material in Jaffé and elsewhere.
- Footnote to p.205 For references to de Superville in 'De Stijl' see G. Vantongerloo 1.9.1918 and P.Mondrian 1.9.1918 (p.101 and p.108).
- Footnote to p.205 Prof. H. Freudenthal, a colleague of Brouwer, has written in answer to my query "Though Brouwer lived in an ambiance of authors and artists I am pretty sure he was not familiar with Mondrian, in any case he never mentioned them in talks" The place of Brouwer and intuitional mathematics in the discourse is made clearer by this passage from Heytings 'Intuitionism: an introduction'(Amsterdam 1956) 'We study mathematical constructions as such. Mathematical thought...does not convey truth about the external world, but is only concerned with mental constructions. You know how the philosophers struggle with the problem of defining the concept of value in art - yet every educated person feels this value. The case in analoguous for the value in intuitional mathematics.' Mathematical criticism has many points of similarity with art criticism; intuitionism is attacked as mere formalism, since it severs the connexion between number and countable things. (See the writing of Anthony Hill).
- Footnote to p.205 Schuré is the link between Kandinsky, Mondrian, Le Corbusier, Kupka and the Glasgow School of Art. When the writer in 'The Economist' (see ch.2.) argued that artists could not ' catch and portray spiritual abstractions' he was issuing a challeng. See also an essay by H. Henkels in 'Mondrain, drawings, watercolours, New York paintings. Baltimore Museum of Art 1981)

Footnote p. 206.

.Joachism. The reader is referred to 'The Figurae of Joachim of Fiore' by M.Reeves and B.Hirsch-Reich, (Oxford U.P. 1972), and to G.Leff's 'Heresy in the Late Middle Ages: the relation of Heterodoxy to Dissent 1250-1456.' New York 1967. Ringbom makes several references to Joachism in connexion with Kandinsky's belief in the coming 'realm of the spirit', and this question is discussed by Reeves and Hirsch-Reich. (pp.314-6) 'There is no proof that Kandinsky knew Joachim's 'trees' directly, yet the parallel is striking and perhaps some link may yet be found between the two visionaries'. It is not necessary to find a direct link; in a web, one strand pulled, moves the whole structure. Joachim's spiritual diagrams of world history are part of the common stock of possible imagery that awaits activation. 'In some respects the impact made across the centuries by shapes, patterns and images is more direct than that of words.' (ibid.p.x.) 'The Abbot Joachim had a visual imagination. For him, spiritual understanding was an activity of seeing' (ibid.p.20) Shakerism owes something to the Camisard sects, who brought Joachist ideas undiluted into the 18c: it is very interesting to discover that Isaac Newton showed great interest in Camisard ideas.(see D.P.Walker .p.261). That history is moving toward the realisation of the Spirit is an idea that precedes Hegel .The complicated connexions between insurgent prophesy, 'far-left' protestantism, an-iconism, and the 'vernacular of dissent' is part of the pre-history of De Stijl.

Joachim remained approximately within orthodox doctrine, but a crucial text is the 'Introductorius in Evangelium Eternum', written by one Gerard, at the monastery of Borgo San Donnino (the same monastery that sheltered Ramon Lull). This text of 1254 helped to set Joachist ideas into their subversive and heretical popular form "Its apocalyptic nature made it the vehicle of those who wished to change the existing order: like any doctrine of change it was congenitally on the side of the reformers. It only needed resistance and persecution from its opponents to make them revolutionaries" (Leff.p.83). For further connexions see Katz D. 'Philo-Semitism and the Reddmission of Jews to England. Oxford 1982. esp Ch.2. 'Babel Reversed.'

Footnote to p,208. "The idea of imageless thought as presented by Külpe and Bühler stressed that in the intentional act of representing, the particular image or model used, if any, need bear no 'imaginal' resemblance to that which it represented".;(W.Bartley. 'Wittgenstein' Quartet Books, London 1974 p.105). After the Great War the new social democratic government made great efforts to reform Austrian education; amongst those who were trained for teaching by new methods (which stressed learning by doing and enquiry rather than by rote) were Ludwig Wittgenstein and Karl Popper. Bartley's interesting book recounts Wittgenstein's years as a schoolteacher, and the philosophical background of the reform movement. (See also notes to Ch.6 below).

- Footnote to p.211. It is a matter of regret that Semper's writings are not more fully available in English; his scholarly German is impenetrable to this author, who is indebted to Ettliger, Pevsner and Wingler, and to passages translated from ~~me~~ me by Gillian Naylor. See also INtroduction.
- Footnote to p.212. Polychromy is one of the topics that cross-links neo-plasticism with the 1830's. David van Zanten and Darby(op.cit) describe Semper, Jones and Jules Goury working together in Paris as supporters of Hittorf's theories of polychromy in the antique. Hittorf and Semper discussed these questions together in London in 1851. At the same time Jones was working on the colour-scheme for the Crystal Palace. Jones refers, in a note to plate 38 of the 'Alhambra' that primary colours are preferred by young and energetic societies. Van Zanten writes of Jones having an interest in colour-sound harmonies and describes the intention of his later interiors as being 'to reinforce the aural waves of musical harmony projected through the room by the orchestra. The whole interior became a sort of static colour organ' This idea owes more to Field than to Chevreuil.
(See 'Architectural polychromy, life in architecture ' by D.van Zanted in 'The Beaux Arts and 19c French Architecture' ed. R. Middleton London 1982)
- Footnote to p.216. Dates suggest that the 'Red-Blue' chair owes little to any painting by Mondrian though some relation with the 'pier and ocean' drawings may be inferred. The important factor is the working from models, not on the drawing board. The whole ideology immanent in perspectivity assumes and promotes a controlling function, rather than an exploratory process.
- Footnote to p.217. The role of images of Kiesler's work is an interesting study in itself...!
- Footnote to p.218. In conversation, Seat expressed criticism of the level and kind of collaboration between Passmore and the Peterlee Corporation, as being essentially decorative. In reference to 'weighing less heavily' see L.Zhadova. Malevich' 1982. p.99. and a note by Malevich on his 'planits'. "I am now thinking about the materialsmatt white glass, concrete, roofing felt, electric heating without chimneys for planits. A live planit is mainly coloured black and white. Red, black and white in exceptional circumstances. Earthlings must be able to reach a planit from every side...a planit is simple, like a tiny object, and all of it within reach of the earthling who sits in it. In good weather he can sit and live on its surface."

Footnote to p. 219. See 'Towards a Design Process that re-enfranchises citizens and consumers' by Lewis and Gindroz. in Journ. of American Inst. of Architects. Vol.62. No.5 (1974) and 'Community Design by the People' ed. Lewis and Gregory. Process Architecture No.3. Tokyo.(1977).

Footnote to p.219. Wtead also built himself a small house near Huddersfield, at Berry Brow, of timber abd 'dry' materials, that employed prefabrication and do-it-yourself techniques. It is a delightful, elegant structure, and was made very quickly by unskilled labour. Stead has also written 'Self-Build Housing Groups and Cooperatives (Anglo-German Foundation for the Study of Industrial Society 1979. and 'Local Initiatives in Great Britain 1982 Vol.3. 'Housing'.

Footnote to p.219.Gillian Naylor tells me the same is daid of the Schröder House. The larger Stead-Lewis house recently changed hands for a large sum of money, despite and unkepmt garden and some very inept additions. The first Stead house is in excellent condition and the owner expressed immense satisfaction in it. The later timber house was sold by the builder, who later wished to return to it, but found he could not afford to, as its price had risen so much.

ADDENDUM for footnote to p.206. 'The influence of Propheisy in the Late middle Ages ; a study of Joachimism' by M. Reeves (Oxford 1969) contains much interesting material.....

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Chapter Six

The Internationalisation of Forms

'For as our life is becoming international, a certain uniformity of architectural forms will spread across the globe. We have this uniformity already in our dress. From pole to pole people wear the same jacket and the same blouse. Associations for the conservation of folk dress will not alter this tendency, nor will movements to conserve folk art stand in the way of the internationalisation of forms.'

Hermann Muthesius

Commentary: By the time of the Werkbund, debates the second half of the Prince Consort's dilemma had been set to one side - modernisation had come to mean the rejection of 'varieties and antagonistic qualities'. What Albert had hoped to conserve (or construct) was now to be set aside in the march to 'realised unity' (which now took the form of internationalisation). This demonstrates the divide that was opening between the twin aspects of modernisation. Thus from now on, the opposition of 'modernism' and 'anti-modernism' would define any discourse. But one contention that emerges from this study is that the 'anti-modern' (which is mainly to be identified with the critical tradition) is as much a pro ~~duct~~ of industrial modernisation, as is 'modern' normative thought. The associations for the conservation of folk dress of which Muthesius spoke were, to a remarkable degree, concerned with the invention of folk dress

* * * *

In discussing international style we are perforce driven to architectural examples once again, and to the language of architectural theory. Yet the internationalisation of architectural forms is associated in many and complicated ways with a similar tendency to uniformity in the customary and fine arts, and in product design, and even in such matters as diet, punctiliousness and posture, which form the existential culture of the industrial system. But this is a reality that is hard to describe and comprehend without some prior grappling with the explicit and formal culture that has extended in parallel, and about which it is easier to think clearly. The aim of this chapter is to describe the main ideological features of 'internationalisation of forms' through examples drawn from the history of 'The International Style'. The profile that emerges is of the industrial system itself and its accompanying epistemology.

* * * *

What Gabo wrote of the art of the icon - and by extension that of his contemporaries, including De Stijl - forms a starting point. It was...

'firstly : idealistic in spiritual function

secondly : utilitarian in social function

thirdly : abstract in formal content.'

The differences between De Stijl and the early stages of Russian constructivism are as important as the similarities. In brief; the Dutch claimed to work by rational deduction; but the force of Suprematism was assertive and inspirational, and included 'transrationality' among its axioms.

N.Gabo. On Divers Arts
(1962) p.131.

'A letter to Dutch Artists'
12 Feb. 1922. In Andersen, T.
Malevich Vol. I. p. 183 et seq.

But the similarities were best understood at the time. Malevich wrote to Robert van t'Hoff after the latter had sent him photographs and notes about De Stijl. 'Your letter shows that you are in sympathy with my work. ...the unbelievable difficulties of our life prevent my even making and sending you photographs..nor can we publish the literature which has been piling up." In the midst of civil war and hunger he derides the 'objectivists' whose work is directed to 'practical necessity' 'I see the plan of human existence in the non-objective and I deduce the idea of a non-objective art...revealed definitively in Suprematism, as the highest point in human thought...' He describes himself as threatened on one hand by figurative artists and on the other by 'constructivists' meaning (presumably) the lately formed Productivist group. "We wish to build the world up on a non-objective system...departing further and further from the object like the cosmos creation of Nature. Man is only free when he is cosmic in his action.'

This intensity reflects the intensity of his milieu. Much recent scholarship has been devoted to the immediate background of Suprematism, to the mystical and speculative idealism of Ouspensky, Hinton and others. The view taken here is that such material stands in the same relation to Suprematism as theosophy and the writings of Schoenmaekers stands to De Stijl: as the channel of access to much larger and older traditions of inspirational doctrine, and as providing a language whereby new developments and ideas in mathematics and physics could be absorbed into art discourse.

See Marcadé Colloque p.103.

Zhadova L. Malevich' (1982)
p.52.

In Centre Pompidou Cat (1980).

See Cookson C. etc. in Architectural Design 53. 5/6 1983.

In The Struggle for the New
reprinted in Baljeu (1974)
p.188.

See Footnote.....

To establish these deeper connections is a matter of some scholarly importance : a start has been made by Marcadé , who has studied Malevich' references to Schopenhauer. At the same time there is a discernible tendency to stress the inspirational at the expense of the rational and analytic.

Larissa Zhadova, writing from a Soviet perspective argues that 'Mysticism was quite alien to Malevich' temperament' and emphasises the intellectual concepts and principles of Suprematism. The study made by Pedersen in his reconstructions of the 'architectonics' and 'planets' brings out the systematic and combinatorial inventiveness of those works. Recent studies of the architectural theories and teaching of Iakov Chernigov make it clear that Suprematist ideas could generate a very coherent and teachable body of design theory which (though inspirationally conceived) could be rationally developed.

Another area for further investigation, following Gabo, is the theoretical aesthetics of the icon. Tarabukhin, while secretary of INKHUK, completed a thesis on the icon, which has vanished. All sources testify to the importance of icon art without being able to be specific. The perspectival scheme employed by Lissitsky in 'Art and Pan-Geometry' (and later by Van Doesburg) to illustrate the progressive flattening of pictorial space would seem to derive in part from the study of icon aesthetics. A projective perspective that throws the image forward of the picture plane, into the same space as the beholder is the link between ancient and modern. Here we find a transfiguring space into which the image can be activated as a form in life.

See Kern E. Khlebnikov
(1976) p.13.

as edited by Goldman and
Sprinchorn (1977) p.203^{et}_{seq.}

Later in this chapter, reference will be made to the 'transrational' language of Zaum, 'invented' by Khlebnikov. "He postulated a single and original and universal tongue whose primeval riches lay concealed under the fixed habits - which vary from one language to another - of grammar, syntax and conventional spelling' This hidden original could be released by combining and recombining root phonemes - 'freely fusing' them together to create 'self-valuing' new combinations. This Russian version of the 'characteristica universalis' has interesting points of comparison with Richard Wagner's attempt at a root and 'objective' poetic language, as described in 'The Art Work of the Future'.

In the 'unbelievable difficulties' of the early Soviet period, the likelihood of extending the Suprematist programme into built architecture and completed design was slender. We can also wonder, legitimately, if or to what degree, such architecture was ever intended to be other than what it has since become ...essentially metaphorical and suggestive in character. The non-objective system and 'transrational' invention should be understood as emblematic - creating and sustaining the idea of a 'renovatio mundi'. As imagery, the 'planets' and architectonic forms have passed into the general repertoire of the international and hegemonic industrial style; but as empty style-elements no longer denoting the inspirational philosophy that gave them birth.

The view taken here is that the exact character of that inspirational philosophy is not important to this study (though clearly it must be to any monographic work). That there was a strong inspirational element at work in all Russian 'cubo-futurism' is the essential point; and that this was or could be allied to a methodology of combination for invention. These features enable us to describe these ideas as 'normative': and it is proper once again to describe the Suprematist programme as an attempt at a natural philosophy, providing guiding metaphors and claiming to provide a universal language.

See Milner J. Vladimir Tatlin (1983) Ch.8.

See also Zhadova op.cit. for many refs.

This is vividly illustrated in a related (though not, of course, Suprematist) example - the symbolism and iconic references of Tatlin's 'Tower'. John Milner has written amply on these, and stresses its emblematic rather than engineering reality. He observes that the rates of revolution of the three halls correspond to the historical numerology of Khlebnikov's 'world history', and he draws attention to the astrological aspect of the whole prodigious structure, its references to a giant humanity and the apparent attention to harness cosmic rhythms with those of human government.

If this interpretation is correct then the universalist aspirations of the Russian avant-garde are of the most grandiose kind, asserting the supremacy of idea over matter. If this is so, it is easy to identify the insuperable objections to cubo-futurism emanating from the very centre of the new state.

See Fitzpatrick S. The Ministry of Enlightenment (1970) Ch.6. for these references and other valuable material

See Footnote.....

See Cohen S.F. Bukharin and The Bolshevik Revolution (1974) p.15.

Ulam A.B. Lenin and the Bolsheviks (1977) pp.355-6.

As early as 1917 (29 Dec.) 'Izvestiya' complained of 'futurists penetrating into the proletarian milieu'. In May 1919 Zinoviev spoke in the Central Committee "At one time we allowed the most nonsensical futurism to get a reputation almost as the official school of communist art. We let doubtful elements attach themselves to our proletcults. It is time we put an end to this.' Lenin commented on the 'abundance of escapees from the bourgeois intelligentsia'. On Dec. 1st 1920 in 'Pravda', Zinoviev condemned all futurist and non-Marxist theories of culture, attacking Bogdanov's role in the Proletkult organisations and, by implication, Lunacharsky and his artistic policies. The attack on Bogdanov was a reprise of an earlier rivalry between him and Lenin: the Proletkults had become, under his direction, a centre of ultra-left activity, as well as one of the main supports of the new art.

Bogdanov and Lunacharsky had long been associated with 'seeking' Marxism and notorious for 'refusing to regard Marxism as a closed system and regularly alert both to its inadequacies and to the accomplishments of rival doctrines'. This was sometimes described as a third way between materialism and idealism. Ulam observes that 'the 'God-seekers' were really seeking for something more inspiring and emotional than the historical categories and laws of Marx'. Such a tendency, seeking to satisfy both reason and the romantic imagination, was precisely the sort of tendency that Lenin was most determined to oppose, since 'relativism leads to idealism and where the latter leads , everybody knows.'

Lenin V.I. Materialism
and Empiriocriticism
1972 ed.)

p.34.

See Footnote.....

ibid. p.144.

ibid. p.300.

ibid. p.306.

ibid.p.309.

ibid. p.312.

Bogdanov had published an immense treatise 'Empiriomonism' (1904-1908) in which he attempted a synthesis of Marxism with Mach's philosophy of science; it was this line of thought, tending to idealism, that Lenin attacked in his vehement tract 'Materialism and Empiriocriticism' (1908). Though hardly a work of philosophy, it approaches the subject with Lenin's admirable succinctness. 'Are we to proceed from things to sensations and thoughts, or are we to proceed from thought and sensation to things.' From this beginning he develops an exhaustive attack on the idealising tendency he sees in Mach's writings. The ground he chooses is the interpretation of new discoveries in physics - a fertile source of idealist speculation and one much employed in art-discourse. 'It is absolutely unpardonable to confound, as the Machians do, any particular theory of the structure of matter with the epistemological category, to confound the problem of the properties of new aspects of matter, (electrons for example) **with the old** problem of the theory of knowledge, the existence of objective truth etc...' 'What interests us exclusively is the epistemological conclusions that follow from certain definite propositions'. He singles out one Abel Rey (otherwise long forgotten) who had argued that ' Knowledge of the real must be sought and given by other means...one must take another road, one must return to subjective intuition, to a mystical sense of reality'. Lenin, of course, will have none of this.' The disappearance of matter of which he speaks..has no relation to the epistemological distinction between materialism and idealism'. 'It is mainly because the physicists did not know dialectics that the new physics strayed into idealism...and threw out the baby with the bathwater.'

ibid. p.418.

This argument, directed against theories of knowledge, applies with equal force to an art based on such theories. 'Once you deny objective reality, given us in sensation, you have already lost every one of your weapons against fideism, for you have slipped into agnosticism and subjectivism.'

This shotgun philosophy makes it easy to understand just why Malevich and Kandinsky and other artists of their somewhat older generation found themselves increasingly at odds with the Revolution. It further helps to explain the vehement manner in which the younger constructivists repudiated 'metaphysics' and 'theology', and with them 'easel art'. They were already implicated in this idealism. The sudden rupture that occurs in the epistemological foundations of their art is inseparable from their ideological and political re-alignment.

As Mayakovsky put it, they 'went to Smolny'.

See Documents ed. Bann. p.35.

ART
IS INDISSOLUBLY LINKED
WITH THEOLOGY
METAPHYSICS
AND MYSTICISM

Alexei Gan 1922

'Documents of Constructivism'
 ed. Bann. (1974) p.18.
 ibid. p.24.
 ibid. p.45.

The 'Productivist Programme' described this as 'transplanting experimental activities from the abstract (transcendental) to the real.' Phillipov described 'productional art' as "a higher aspect of the artists creative effort to organise in new forms the outer appearance of life and the complex of objects surrounding us." This sometimes employed an extremely utilitarian terminology, as in Arvatov's 'Art and Class' (1923). He described the constructivist artist as having "imagined he was creating an independent world of formsuntil he realised

- 1).that the practical, creative processing of materials would indeed become a great organizing force when it was directed toward the creation of necessary utilitarian forms ; i.e. objects.
- 2). that collectivism required the replacement of individual forms of production (the lathe) by mass mechanized production.
- 3). that the handicraftsman -cum-constructivist would have to become the engineer-cum-constructor .

.....

Easel art died with the society that begot it."

Tran.J.Bowl. In Gmurzynska Gall.
Catalogue.(1979). Also in 'Doc-
uments. ed. Bowl.

How closely the Productivists had been involved in what they rejected may be seen in Varvara Stepanova's catalogue note to the '10th State Exhibition Non-Objective Creation and Suprematism' (1919). Of non-objectivism she wrote "This should be regarded as a world view - and not simply as a painterly trend - that has embraced all aspects of art and life itself. This movement is the spirit's protest against the materialism of modern times....non-objective creation is still only the beginning of the great new epoch, of an unprecedented Great Creation which is destined to open the doors to myst-

'Documents' op.cit. p.19.

See Footnote.....

E.Dluhosch. 'The Failure of the Soviet Avant-Garde' in 'Oppositions' No.10.(1977). Review of 'Sovetska Architektura Avangarda' by J Kroha and J.Hruza. Odeon. Prague. 1973. The date of publication does not invalidate their thesis.

ibid. p.44.

eries more profound than science and technology." Such a statement, predicated upon revelation, needs to be compared with the 'Programme of the Productivist Group' which she helped to draft less than two years later, whose "sole premise is scientific communism, based on the theory of historical materialism". (One cannot pass by these quotations without wondering what in the three worlds Stepanova meant by 'The Great Creation'. What relation has this to Malevich' use of the phrase 'the royal infant' ? Are these references to alchemical transmutation?).

Dluhosch, in a most revealing review of a study by Jiri Kroha and Jiri Hruza has begun to open doors toward a greater understanding of the demise of the Russian avant-garde. The fissure between the non-objectivists and the productivists was repeated at a later date by the opposition of the ASNOVA architects (formalist subjectivist) to the OSA (functional rationalist). Kroha, however, describes both camps as racing ahead of practical possibility and as ignoring the psychological and emotional power of traditional forms and their importance in maintaining continuity in a time of violent change. The avant-garde architects could only work "with the promise of technology and industrialization as an essential precondition for the realization of its programme.....the designs of Malevich and Tatlin are a good example of the desire to evoke technology as the signifier of a potential reality, rather than as the artistic transmutation of an existing reality." While not dissenting from Kroha's thesis, this study stresses that Malevich and his immediate colleagues were less concerned with evoking technology, than invoking a 'Great Creation!'

Milner. op.cit. p.217 et
seq.

Milner shows that Tatlin was primarily concerned with the quality of production rather than the exploitation of technology. His tower and his later experiments with gliders are to be understood as emblematic activities; a poetry of materials.

The repudiation of metaphysical foundations by the younger generation of artists, the rejection of 'cosmic action', signifies the abandonment of a unifying scheme of metaphor. A thoughtful approach to this problem is provided by Nicolai Tarabukhin, who, as secretary of INKHUK was uniquely placed to distil the sea of ideas around him.

See Nakov A. Taraboukhine
(1972) p.39 and 45-6.

ibid. p.51 et
seq.

In 'From the Easel to the Machine' he argues that 'in ceasing to be representational, painting has lost its internal sense...everything that has been created by the 'left-wing' of art will only find justification on museum walls, and the whole revolutionary tempest will come to rest in that funereal silence.' Production art offers a way forward, but is not to be confused with the old applied art. He has in mind 'an organic linkage of process between labour and its creation. It is only in the process of work itself, a process tending toward the highest perfection of execution, that the essence of art is discovered. Art is the activity of the highest perfectionism, applied to the forming of materials.' Such work sheds the humiliating and destructive aspects of labouring; it is 'an organic liaison between work and liberty'. (Such ideas have one foot in the world of Marxism and another in the critical tradition of Tolstoy, Ruskin and Morris.)

ibid. p.75.

Constructive thought, by demystifying art, may serve as a model for the reform of science and education. By a dialectical process, 'pure' art may come to serve as the initiator of a synthesis of all human activity and through the material culture, effect a reevaluation of life. "The art of the easel is to productive art as alchemy is to chemistry.....and as metaphysical philosophy is to contemporary methodology."

A close reading of this and other texts, available in French, suggests that his aim is subtle and ambitious: there is not space to do justice to them here since they depend upon an extended consideration of pictorial form. As such, they may be seen as a revised version of academic orthodoxy, whereby the 'higher arts of design' guarantee the quality of 'manufactures'. But most of all he is concerned to banish the claim to metaphysical status and to determine just what can be achieved with the concept of 'aesthetic mastery' ; it is an attempt at a materialist aesthetics. His strategy is in some respects to be compared with that of the early philosophy of Wittgenstein, who sought to banish propositions of ethics and statements about 'the world', not because the world had no meaning, but because that meaning was beyond the reach of language. But we may observe a consequence of this 'emptying' of art or language of metaphysical ambition: the 'Tractatus' became one of the pillars of logical positivism, to Wittgenstein's disgust; and the elementarism of De Stijl and Suprematism was immediately adaptable to purely utilitarian ends.

See Footnote.....

Another feature of Tarabukhin's argument is particularly worthy of note. His treatment of 'work' and 'aesthetic mastery' and the idea of the 'organic

liaison' are ideas with origins in Russian anti-aestheticism. These are most frequently encountered in Tolstoy's writings, as are Tarabukhin's belief in a reform of science and education that will put these at the service of man, rather than as ends in themselves. Here, as in the later work of Tatlin, we can observe a normative tendency taking on 'critical' and oppositional colouring.

L. Moholy-Nagy 'The New Vision (1947) p.17.

Tarabukhin seems to be proposing something more ambitious than the simple union of arts and manufactures; his argument implies that through aesthetic mastery of materials, art, craft and industry can be united in a single productive system uniting the values of all three. A similar synthesis informs 'The New Vision' of Laszlo Moholy-Nagy, whose aim is 'to lay down the basis for an organic system of production whose focal point is man, not profit'. But observe here the reliance upon the metaphorical 'organic' - that ever-recurrent word toward which both normative and critical traditions gravitate whenever under threat.

The later fate of Russian avant-garde artists and architects is important to our study, because it involves what was called in Western Europe, the 'call to order'. (Itself a most tendentious phrase). This phenomenon requires attention because it further serves to define the Janus features of modernisation and the logical interdependence between 'modernism' and 'anti-modernism'.

Valkenier S. Russian Realist Art (1977) p.150.

ibid. p.153.
(V.Perelmann 1926).

The New Economic Policy marked a retreat from the more utopian ambitions of the Soviet regime and the creation of a limited market economy that in turn made possible an art-market in easel-paintings. A number of exhibiting societies came into being, the most significant being the 'Association of Artists of Revolutionary Russia', the AKhRR (May 1922). Valkenier writes 'the accomplishments of the AKhRR in popularizing art among the masses are undeniable. But...they played on the ethnocentric prejudices of conservative officialdom which preferred the traditional idiom of 'subject over style', in order to discredit their more cosmopolitan rivals'. The AKhRR was patronised by powerful organs of the government other than Lunacharsky's ministry - such as the army: and it allied itself with the pere-dvizhnik traditions of the mid 19th century. This was a tendency that stressed national themes and always contrasted its serious moral tone with that of the 'frivolous' West. This nationalism was important; one apologist wrote 'It is essential to review in a most decisive manner that phony law which has an axiomatic authority for most...I am speaking about that conviction that without French art, Russian art will not survive, that there is no other way for Russian art but to acknowledge the hegemony of ParisIt is essential to stress that the basic trends in French late 19th and early 20th century art...represent an alien growth on our soil, which it is not necessary to cultivate...'.The targets of this attack had long ceased to regard themselves as anything but world-leaders; but this writing was not for them, but for the chauvinist elements in the government which were shortly to be exploited by Stalin.

As a broad tendency, this neo-realism moved in step with the return of neo-classicism; but the architecture did not have the same chauvinist pretensions. In course of time, Zhdanov's 'socialist realism' required an extensive rewriting of Russian art history, a reconstitution of the old academies, and a new nationalist purpose. ' We need a complete disinfection from the rotten perversion of nature's truth which we once took over from the West and which had such a harmful influence on a number of generations of our, basically sound, youth.' In 1948 Zhdanov was to write (in a directive to musicians) 'Have we not acted correctly in defending the treasures of classical art and in having crushed the liquidators of painting? Would not the prolonged existence of such (leftist) schools have resulted in the death of art itself?'

We note these statement not for their brutality, but for their close nationalism, their repudiation of universalist ambition, and the reification of 'art' and tradition.

In the face of this, Gabo, Pevsner, Exter and others went into exile, Tatlin and Malevich went into a form of inner retreat; and others continued to work in a utilitarian mode, deploying the results of the earlier period as style-elements, but without the implication of 'cosmic action'.

* * * *

A similar cycle of hope, achievement and fragmentation - the adventure of the metaphor - can be observed in the fortunes of The Bauhaus.

M. Franciscono 'The Bauhaus etc.'
(1971) p.7.

Franciscono has written in detail about the interchange of ideas in the period immediately preceding the formation of that school, and criticises "the desire to present the Bauhaus in the light of its later evolution as an institution with an essentially rationalistic programme." Rationalistic the Bauhaus was not.

H.Wingler. 'The Bauhaus'(1978 ed.)
p.31.

"Architects, sculptors, painters: we must all return to the crafts!....Let us then create a new guild of craftsmen without the class distinctions that raise an arrogant barrier between craftsman and artist: Together, let us desire, conceive and create the new structure of the future...." The principles of the first Bauhaus Programme included "Avoidance of all rigidity, priority of creativity, freedom of individuality...(and)...mutual planning of extensive utopian structural designs - public buildings and buildings of worship - aimed at the future." (April 1919.)

Quoted by C.Schnaidt in 'Hannes Meyer'
(1965) p.121.

In April 1919, it is true, German industry and public life was chaotic and depleted; but we notice at once an absolute silence on the subject of industry. And what was to be worshipped, one asks? It is not too much to describe this first manifesto as ecstatic and disconnected from reality. Writing much later, to Tomas Maldonado, Gropius explained that "A realistic call to realistic work would in those times have missed its aim.Young people came, not to design efficient lamps but to be part of a community which wanted to make a new man in a new environment and

See Chapter Three for discussion.

Wingler. *op.cit.* p. 36.

to release creative spontaneity in all. Such a beginning has always something of the romantic utopian, as the creative act of biological life requires an element of rapture and phantasy." Here the chameleon Gropius may be employing a selective memory, since the Werkbund (then headed by Richard Riemerschmid) had taken a sharp turn toward the 'critical' and the hand-crafts, partly allying itself with the 'Mittelstand' position - an ideology of restricted consumption, joy through work and regenerative nationalism. The two positions are not so far apart as they might appear; and both represent the resurgence of 'critical' ideas. In his First year Address' Gropius spoke of "a colossal catastrophe of world history.....a transformation of the whole of life and the whole inner man.....a universally great, enduring, spiritual, religious idea will arise again.....We will not live to see the day but we are, and this I firmly believe, the precursors and first instruments of such a new universal idea." This is the language of the eighteen-twenties; the world of secular religions and 'petites cultes'.

'Letters and Diaries' ed. Schlemmer.
(1972)

In a letter to his wife (March 3. 1921) Oscar Schlemmer reported that p. 103. "the leftist parties approve of the Bauhaus for its handicrafts orientation". But three months later he asks his friend Otto Meyer "Are (machines) teaching art how to rid itself of romanticism" and writes of Stendhal taking his prose style from the code civile and of a 'factual, unromantic style'. (June 4. 1921.) As German industry revived, so the normative tradition began to assert itself and Gropius to return to the position he had held in the pre-war period - as a critical supporter of the normative, ready to argue on behalf of Van de Velde, yet planning industrial housing units for Walter Rathenau and the AEG.

In a letter to Otto Meyer. Dec 7
1921. Op.cit. p.115.

Wingler. op.cit. pp.51 - 52.

Schnaidt. op.cit. p.121.

In Die Neue Rundschau Vol.13 1922
reprinted in Oppositions 22. Fall
1980. Trans. by D. Blaurock.

Schlemmer gives a dispassionate account of the increasing divergence between Gropius and Itten....."on the one hand, the influence of oriental culture, the cult of India, also a return to nature in the Wandervogel movement and others like it: also communes,vegetarianism, tolstoyism, reaction against the war: and on the other hand, the American spirit, progress, the marvels of technology, the urban environment. Gropius and Itten are almost typical....." Hence we find in Gropius notes of Feb. 3 1922 "The basis on which our work is built cannot be broad enough. Today this base is too small rather than too large. This is made clear by reports of Russian experiments similar to ours.....recently Master Itten demanded from us a decision either to produce individual pieces of work in complete contrast to the economically oriented world outside - or to seek contact with industry. It is here, in this method of formulating the question, that the big unknown that needs to be solved is hidden.....Let me clarify this at once. I seek unity in the fusion, not in the separation of these ways of life." Later, Gropius was to contrast his 'writings previous to the Bauhaus' with 'the mystical tendency of Johannes Itten'. It may be said that Itten had the clearer vision, at that moment.

At the same time, Adolf Behne was writing "The resolve to usher in a new order from its modest, fragile beginnings through conscious endeavour is so difficult that a last attempt is made to take refuge in the (presumably!) beautiful, good and simple past. Only when this attempt has proved hopeless will the task of the times be recognized and dealt with. Words will be cleansed of the prejudices that cling to them - including the words 'handicraft' and 'technology.'"

The unity of the 'ways of life' and of 'individual pieces of work' with 'industry' could not be brought about without a decisive theoretical shift, and it^{is} clear that Itten was posing a necessary question. Gropius notion of 'fusion' lacks all clarity without a conscious theory. This key, the 'big unknown' was essentially provided by Van Doesburg and what he stood for. Itten left; his place was taken by Moholy-Nagy, who was cognisant of the 'Russian experiments.'

One of Van Doesburg's Weimar lectures contains the following passage.

'De Stijl' vol.6. March 1923.
reprinted by Baljeu op.cit. pp127-131.

"Only in our own times has painting, the most advanced form of art, shown the path by which architecture might reach, like painting and sculpture, the mechanical and disciplined realization in material form of what the other arts have already achieved in an imaginary (aesthetic) manner..... It is not surprising that painting, the art which at the beginning of the 20th, century took over the leading role among the arts, first created an ideal aesthetics. The new vision of life demands that the world of duality be abandoned (by a world of duality is meant the common concept of an imaginary world of the mind which is superior and opposed to the concrete world of matter), and it exhibits both a desire for unity, an indivisible unity of the world, and the will to materialize in architecture the ideal aesthetics established by the 'liberal' arts."

After a discussion of architectural composition, he continues.....

"In this manner the ideal aesthetics of the one art form are established in the material of the other, due to the comprehension in perfect balance of both ideal and mechanical aesthetics, the well-considered plastic expression of an artistic nature and the expression of constructive utility. This equilibrium constitutes STYLE.....This plastic expression of life as a unity, introduces a new civilisation."

Tarabukhin. op.cit. p.153.

This 'indivisible unity' eradicates what Whewell (and Lenin) took to be the 'fundamental antitheses' - thoughts and things: it is akin to the idea of Tarabukhin - that the product of aesthetic mastery is the 'animus rem sibi habendum', the object with its own soul . That the ideal aesthetics of the one form (painting) can be established in the material of the other (in this case, architecture) would seem to be a transmutation of Reynolds' belief in the qualifying status of the 'higher arts of design'. This is the twentieth century version of the academic 'of course'. In Reynolds' Third Discourse the underlying metaphor by which the connexion between arts and manufactures is made is given as the 'common form', which (following the First Discourse) is rather vaguely attached to the study of precedents and great examples. Reynolds' can be vague, because the connexion, through craft, is assumed to be unproblematical. But Van Doesburg has to spell out, in this and all his theoretical writings, the steps by which the connexion is established, both in method (systematisation and typification) and in guiding metaphor (indivisible unity); because the connexion between art and industrial manufacture is perceived as problematical. Van Doesburg's teachings (and that word is not too strong, for he evidently believed himself to be possessed of the truth) were particularly acceptable since they seemed to collapse what Gropius had earlier called the 'arrogant barrier' between art and craft, between the liberal and the mechanical. This, as noted, had been one of the aims of the Werkbund since its inception, and an idea central to the 'critical tradition'. Thus, also, very much in the mind of Gropius and his staff, and of the guiding spirits of the social-democratic republic, seeking to establish a 'socially responsible' industrial system.

Schlemmer ed. 'Letters and Diaries'

p.117.

ibid. p.124.

Wingler. op.cit. p.66.

See Footnote

Wingler. op.cit. p.56.

In a letter to Bruno Zevi quoted
by Baljeu op.cit. p41.

At the end of March 1922, Schlemmer wrote to Otto Meyer "The instruction could provide a model for keeping the art academies alive.....if only the Bauhaus would admit to being a modern art school." A diary entry of June 1922 speaks of 'turning one's back on utopia' to design 'concrete objects which serve specific purposes.' His publicity material for the first Bauhaus Exhibition, in July and September illustrates a continuing uncertainty, when he writes of " An idealism of activity that embraces, penetrates and unites art, science and technology, and that influences research, study and work....." As if this Semperian programme were not enough, he then finds it necessary to restate the fundamental neo-platonic and occult metaphor....."this will construct the 'art-edifice' of Man which is but an allegory of the cosmic system."

Meanwhile, Feininger had been writing to his wife about "winning the industrialists to our side.....I see a new Gropi!" Van Doesburg he describes as 'something of a pillar' although 'doctrinaire'. Gropius subsequently thought him doctrinaire, but availed himself of this influence in order to change the direction of his school.

At this time the slogan of the Bauhaus became 'Art and Technology - a new unity'; which is something less than Van Doesburg's 'indivisible unity of the world.'.

'Die Kunstblatt' Vol.3. 1923. in
Wingler. op.cit. p.67.

Wingler. op.cit. p.77.

ibid. p.69.

ibid. p.72.

Christof Hertel 'The Genesis of
Forms; Paul Klee's Theory of Forms'
See Wingler op.cit. p.174.

ibid . pp.74-5.

Walter Passarge commented upon the truly international display of architectural projects "One common characteristic unites the architecture of the young Germans, Dutch, Czechs, Danes, Russians and French : the tendency to achieve the highest form of homogeneity, relevance and clarity, a tendency much closer to the spirit of our age than all 'utopias' and 'expressionistic' architecture."

At the same time, Gropius notes that the 'intellectual basis' of Weimar teaching lies in 'progressing systematically along the long and difficult path of acquainting the individual with the objective, bedrock foundations of creativity.' During this period Gertrud Grunow is teaching "The creation of living form through colour, form and sound." Hirschfeld-Mack is experimenting with colour-sound correspondences; and the long established connexion with the life sciences and visual invention reaches one of its heights in Paul Klee's idiosyncratic curriculum in which " everything - zoology, biology, chemistry, physics, astronomy, literature, typography helped to make us understand (literally) how we, with every bit of our existence and all of our activities, are part of humanity and the cosmic rhythm, and how we are engrained in it. " It is the time in which Kandinsky, almost as if to put George Field to the experiment, sends out his questionnaire on the famous square, triangle and circle.

What this teaching had in common was - that it was, in direct opposition to the enveloping positivism, seeking ^{to} reestablish the 'link between the psyche and the cosmos'.

The move to Dessau and toward increased industrial involvement - and one should add, involvement with a new local government with different ideas on finance - brought a further restatement of aims.

"Purpose: the training of artistically talented people to become creative designers in the fields of the crafts, industry and architecture."

In this new formula, the 'higher arts of design' are given a role that is much reduced; though the practice of the teaching seems to have changed rather little in those areas. And it must be pointed out, that the industrial design element in Bauhaus training was always more sought for than achieved. The most characteristic Bauhaus designs are a curious class of high-quality craft objects in 'industrial' materials, rather than genuine prototypes. It would not be realistic to expect an absolute consistency between stated aims and actual practice, in the hand-to-mouth conditions in which the school frequently existed. Yet it is clear that the effort to blend arts and manufactures ~~is~~ was becoming exhausted. How far, becomes clear when we examine Georg Muche's 'Fine Art and Industrial Form' given below in extenso. Muche had come to the Bauhaus as a painter; Schlemmer refers to him as Itten's 'second assistant': he then took over direction of the weaving shop (though most of the weaving was actually taught by Gunta Stolzl). He then worked with Gropius on architectural projects, most notably the designs for prefabricated steel houses. He had, in effect, traversed the terrain before describing it.

esp. the 'Haus am Horn'

Bauhaus Journal Vol.1 No.1 1926.

in Wingler. op.cit. pp. 113-4.

"After an extraordinarily significant period of creative interchange between two fields that are intellectually at opposite poles, it appears that the close contact between modern art - especially painting - and the technological development of the twentieth century must lead inevitably and with surprising consequence to mutual rejection. The illusion that fine art must be absorbed

This is Le Corbusier's argument too, with reference to the decorative arts. See above.

in the creative types of industrial design is destroyed as soon as it comes face to face with the concrete reality. Abstract painting, which has been led with convincingly unambiguous intentions from its artistic Utopia into the promising field of industrial design, seems quite suddenly to lose its predicted significance as a form - determining element, since the formal design of industrial products that are manufactured by mechanical means follow laws that cannot be derived from the fine arts. It becomes evident that technological and industrial development is of a completely different character, even in regard to design.

The attempt to penetrate industrial production with the laws of design in accordance with the findings of abstract art has led to the creation of a new style that rejects ornamentation as an old-fashioned mode of expression of past craft cultures, but that nevertheless remains decorative. But it was considered possible to avoid this merely decorative style, just because the characteristic way in which the fundamental laws of form had been creatively investigated by means of abstract painting appeared to have uncovered that these laws do not pertain just to the fine arts, but are particularly significant in their general validity.

The enthusiasm for technology took on such proportions that the artist, with his epistemological arguments - often all too logical ones - disproved his own existence. The square became the ultimate picture element for the superfluous - for the dying - field of painting. It became an ingenious and effective document of faith in functional form in the sense of purely constructive design. It became the evil eye against the ghosts of the past, who had enjoyed art for art's sake. The renunciation of art seemed to be the only way to protect oneself from the fate of being an artist in an age that needed nothing but engineers. This led to a new aesthetic in which, in the ecstasy of enthusiasm for modern design, a broad theory developed which is extraordinarily intolerant toward art. This intolerance resulted from the need for the theory to set a concrete aim evoking the semblance of practical usefulness. But it seems that art, even after it has been broken down into its actually

N.B.... quite art-free elements, cannot evolve where it is considered irresponsibly wasteful to violate the laws of utility by such an abundance of riches as art provides. Such is the case in industry and technology. As long as the engineer was bogged down in the style of past craft cultures, the industrial product remained of inferior quality with respect to its design. The ornamental trimming by the handicrafts did nothing to improve this short-coming. But also design in accordance with constructivist principles that were derived from abstract painting in such an extraordinarily imaginative and consistent manner, can rarely be justified except in those cases where the process of production has not, or not completely, been modernized.: in architecture and a few other peripheral areas.

Hence an architecture came about which used forms which looked surprisingly modern - despite the fact that its technology must remain old-fashioned as long as the engineer does not accept the entire problem of constructing dwellings of his own. This architecture, which appears to be more than applied art, is actually nothing more than the expression of a new will-to-style in the traditional sense of the fine arts. Modern architecture is not yet part of the creativity of modern production which, already in its design theme, reflects the methods of industrialized production. The straight line became the formal idiom of the modern architect - especially the straight line in its horizontal-vertical relationship and in its versatility for static-dynamic applications in designs for spaces. This highly intense contrast appeared to be at the same time, both the expression of the new attitude toward style and the appropriate basic form for the mechanical process of production. This was an error!

The forms of industrial products, in contrast to the forms of art, are super-individual in that they come about as a result of an objective investigation into a problem. Functional considerations and those of technological, economic, and organizational feasibility become the factors determining the forms of a concept of beauty that in this manner is unprecedented. Inventive genius and the spirit of commercial competition become factors of creativity. An age - the 'age of the machine' - wants to emerge.

The preceding interpenetration of art and technology represented a moment of great significance. That moment freed technology from its last ties to an esthetic that had become old-fashioned and in which art was taken to absurd lengths, and now it was able to go beyond this stage to find itself anew in the limitless sphere of its own reality. Art cannot be tied to a purpose. Art and technology are not a new unity; their creative values are different by nature. The limits of technology are determined by reality; but art can only attain heights if it sets its aims in the realm of the ideal. In that real, opposites coincide. Art has no ties to technology; it comes about in the Utopia of its own reality.

The artistic element of form is a foreign body in an industrial product. The restrictions of technology make art into a useless something - art, which alone can transcend the limits of thought and give an idea of the immensity of creative freedom.

See Footnote.....

The attentive reader will need no commentary to indicate the importance of this statement, that proposes the categorical separation of arts from manufacture.

'Letters and Diaries' ed Schlemmer.

p. 135.

ibid. p.147.

ibid. p.202.

The ground for Georg Muche's rejection of 'Art and Technology; a new unity' had been laid four years earlier, as soon as the school began to turn away from the originating craft orientation. Schlemmer had observed the inner contradiction from the beginning. "I do not believe that craftsmanship as practised at the Bauhaus can transcend the aesthetic and fulfil more serious social functions : "getting in touch with industry" will not do the trick; we would have to commit ourselves and merge completely with industry. But we cannot make that our goal : it would mean turning our backs on the Bauhaus." (Nov. 1922). In his diary entry for Dec.29. 1923 we read "Anything connected with the psyche has become suspect." Later entries speak of "Engineering with a spiritual dimension" and " an aesthetic effect which just happens to have ethical dimensions." On April 17 1927 we find "Hannes Meyer is also here.he severely criticised various aspects of the Bauhaus. He frankly used such phrases as 'glorified arts and crafts', 'Dornach', 'decorative aesthetics' and often he was right."

The importance of Hannes Meyer has been consistently underrated, for personal and political reasons, yet he was the necessary dialectical opposite of Itten, Klee and Kandinsky - the militant utilitarian and positivist. At his appointment the fragile remnant of metaphor dissolved, and those committed to the union of arts and manufactures in an 'organic system of production' could only take up an oppositional role. Moholy-Nagy's letter of resignation in 1928 is another document of enduring significance and poignancy.

In 'Documents of Constructivism'
ed. Bann p, 138.

"As soon as creating an object becomes a specialty, and work becomes trade, the process of education loses all vitality. There must be room for teaching the basic ideas which keep human content alert and vital. For this we fought and for this we exhausted ourselves....We are now in danger of becoming what we as revolutionaries opposed : a vocational training school which evaluates only the final achievement and overlooks the development of the whole man.....The spirit of construction for which I and others gave all we had - and gave it gladly - has been replaced by a tendency toward application.....and the question arises whether the existence of a creative group is only possible on the basis of opposition to the status quo."

In 'Die Weltbühne' No.21. Jan 1930.
in Wingler. op.cit. p.161.

Ernst Kallai noted "the discrepancies between the soul and technology which today exist at the centre of Euro-American civilization are put to their toughest test at the Bauhaus."

In 'The New World' (1926) quoted
by Schnaidt. op.cit. p.93-94.

Meyer came speaking in the true voice of Mr. Gradgrind. "Our knowledge of the past is a burden that weighs upon us, and inherent in our advanced education are impediments tragically barring our new paths. The unqualified affirmation of the present age presupposes the ruthless denial of the past.....the depreciation of all works of art is indisputable, and there can be no question that the continued utilization of new and exact knowledge in their place is merely a matter of time." Earlier in the same article he had written that 'Art has an undisputed right to exist provided the speculative spirit of mankind has need of it after the graphic-coloured, plastic-constructive, musical-kinetic overthrow of its philosophy of life, (We are deliberately refraining from mentioning in this context the individual experiments of isolated artists. ...Piet Mondrian recently characterized what has been achieved so far as a substitute for the better achievement that has still to be achieved.)"

'My dismissal from the Bauhaus'
 Schnaidt. op,cit.p.101 et seq.
 also in Wingler.p.163-4.

'Diaries and Letters' ed Schlemmer
 p.221.

Wingler. op.cit. p.35.

Yet his criticisms of the Bauhaus ring true. "What did I find on my appointment?a 'university of design' which made the shape of every tea-glass a problem in constructivist aesthetics. A 'cathedral of socialism' in which a medieval cult was practised with the revolutionaries of pre-war art aided by a rising generation who were casting sly looks leftward and yet hoped at the same time to be canonized in the same temple.....everywhere, art had a stranglehold on life.....it became my aim to place design on a scientific basis and there were some fundamental changes in the curriculum of the institution."

Oscar Schlemmer wrote to Otto Meyer (Jan 23. 1928) "The painters are merely tolerated as a necessary evil now". Meyer, like educational positivists everywhere thought that ideas could be communicated best by putting the exact and social sciences on the curriculum (following the practice of the nineteenth century Prussian technical schools). But by then it was too late, and his tenure came to an end amid accusations of 'communist cells'. In ^hte dying close, Mies van der Rohe attempted to reintroduce the older approach but was abused by the student for talking 'metaphysical nonsense'. By that time the external conditions had become utterly hostile, providing the irrational counterpart to Mayer's positivism.

This end had already been foreseen by the prescient Itten in 1919. "Since every true art acts supranationally/ cosmopolitically/ intellectually, it will always be suppressed" (revealing in these words the gnostic dualism that underlies the metaphorical schemes that early modernism employed.)

This strategy of presenting the argument through selective quotation is, of course, no substitute for a concrete history of the Bauhaus, internally and externally in its relations with government and industry. Such a history would have to include a study of the revival of German industry after the Great War and some account of the spirit of 'community responsibility' (Gemeinschaft) that leading industrialists promoted. We would also want to know more about the role played by the social democratic parties in educational reform, the close links established with Soviet Russia, and the liaison between the Bauhaus and other German centres of design education - notably Leipzig and Munich. We should also want to know more about the traditions of state intervention in industry and education, in Prussia; and the attitude taken by Walther Rathenau and others in the highest financial circles to design education. It is only thus that we would be able to delineate the intersection of production with ideology that alone constitutes an authentic design history.

See Footnote.....

See 'Introduction'

H.Ford. 'My Life and Work'. p.104.
(also quoted by M.Tafari. see bibl.)

In this connexion, with Manfredo Tafuri, it is useful to quote Henry Ford. "We want artists in industrial relationship. We want masters in industrial method - both from the standpoint of the producer and the product. We want those who can mould the political, social and industrial and moral mass into a sound and shapely whole. We have limited the creative faculty too much and used it for too trivial ends. We want men who can create the working design for all that is right and good and desirable in our life."

Schnaidt. op.cit. p.101.

Here 'design' is being conflated with industrial and social management. Meyer described this as 'a system for organizing life'; Le Corbusier and the Russian productivists and avant-garde architects thought in identical terms.

Ford. op.cit. p.270.

ibid.p.243.

ibid. p.79.

Ford writes " It is possible for labour, production, distribution and reward to be so organised as to make certain that those who contribute shall receive shares determined by an exact justice..... our economic system can be so adjusted that selfishness can be robbed of its power to work serious economic injustice." Such were the general ambitions of Rathenau and Stresemann. "We must think in terms of what the world will be when civilization becomes general.....until we become buyers and sellers alike, keeping the balance not for profit but for service, we are going to have topsy-turvy conditions." To achieve this, the world must be put "on a production basis."

The changes in the teaching programme of the Bauhaus (both formal and actual) can be seen as a staged adjustment toward the tastes and professionalism required to create and sustain a consuming and producing social-democracy, as envisaged by Rathenau, Stresemann, Ford, Keynes and others. It is a move from the critical tradition to a synthesis with the normative, and from there to a disintegration when the guiding metaphor of 'indivisible unity', unable to 'pass over into conduct' splinters into its fractions of irrationality and positivism. In this case the irrationality was provided by external conditions: but the question remains whether or not the combination of the two (which the collapse of guiding metaphors seems always to imply) can ever provide any viable basis for quality and humanity.

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Reprinted by Baljeu. Op,cit.

pp. 115 - 126.

Baljeu. op.cit. pp. 55 - 58

The meaning of 'indivisible unity' was clearly more than an artistic device. In his 'Will to Style' of 1922 Theo van Doesburg writes of a 'beginning of a new expression' and continues "This synthesis of art and life is intended as a reconstruction of European intellectual life". It is evident that Hannes Meyer thought of this as 'art having a stranglehold on life'. Van Doesburg's emphatic promotion met with opposition from other quarters too. In the pages of 'G' Mies van der Rohe wrote "we reject any aesthetic speculation, any doctrine, any formalism' (May 1923). And in the second issue he returned to the attack: "The will to style also represents formalism".

See Baljeu. op.cit. pp 137 - 140.

These articles initiated a debate in magazines that runs parallel with the debates in the Bauhaus, upon the status of painting in respect to architecture. Baljeu summarises this as 'De Stijl and Proun versus Functionalism'. He picks out Van Doesburg's 'The significance of colour for interior and exterior architecture', for comment: here the dutchman wrote of: "anatomical constructive sterility in architecture. Functionalist architecture deals only with the practical side of life or the mechanistic function of life... something exists beyond the demand for the useful, and this is the spiritual....." Viking Eggeling and Raoul Hausman also protested against the utilitarian trends developing in constructivism, in an article in 'Ma' (Vol. 8 No.5-6 1923).

See Footnote.....

In these writings, as in the Productivist manifestoes and the debates of the Bauhaus, we see how the 'universal language' passed over into the 'international style.

* * * *

In the foregoing we have been concerned with comparisons drawn out with a very large brush, with emphasising similarities at the expense of historical particularity. A study of this kind must always run that risk. There are two justifications for this ; first, that history requires generalisation as well as specificity, for the broad statement establishes (or fails to establish) the categories into which minute research is later sorted. It must always have something of a metaphorical character, guiding thought whilst fitting only imperfectly onto the real objects of thought. At the time of writing, the history of design (as it separates out from architectural and artistic history) lacks significantly explanatory categories, and it is worth risking some lack of particularity to establish them. Because in the second place, it appears that we are here dealing with a cultural pattern similar to that we have described in the critical tradition - a common logical form. No single historical instance will ever fit that form, because it is an ideal form and every instance is contingent: yet to postulate it is to concentrate the mind upon a certain class of question.

The pattern is one of the establishment of a metaphor, the discovery of the 'elements' of a universal language, the collapse of the metaphor, and the utilisation of the elements as empty stylistic devices supporting a new positivistic world definition. Once emptied, such elements can be freely combined without implying any metaphorical statements; yet they provide for a wealth of novelty, which itself signifies the new positivism. Such appears to lie at the foundation of the 'International Style'.

International styles' have existed before: the most obvious example being that of the Roman imperium and its reflections in successive waves of neo-classical architecture. The Roman imperial style was more than a matter of building and urbanism, as Muthesius understood of the growing industrial style of his day: it embraced the image arts and the customary arts down to the details of diet. In the central areas of the empire it was a civilization; in its outposts, the style of the conqueror and his coopted local elites. The successive waves of neo-classicism have had a similar nature - affirming the authority of the centre - though as each wave has spread further and further from its origin it has become weaker and weaker and acquired a parodic character (particularly in the United States where classical pediments can be seen on the side of caravans.)

The range of Islamic architecture, from Cordoba to Mughal India, has comparable features; as have the Andean and Central American cultures. What all have in common is that they are the styles of a unifying hegemony, in each case tending to destroy or transmute the 'local variations and antagonistic qualities'.

To discuss the international style of industrial hegemony we must clarify some terms, since it is easy to become confused or imprecise in the swirl of conflicting rhetorics. The main concept itself has become a rhetorical counter, as have 'modern movement', 'modernism', 'functionalism' and 'rationalism'.

'The Modern Movement' and 'modernism' will not be discussed here, since in their habitual usage they presuppose some unitary core of principle extending through all twentieth century manifestations, until very recently. But the contention of this study, it must now be clear, is that there is an epistemological break of a deep and far-reaching kind, allied to an equally significant political and ideological shift, between the work we have discussed and that which we are about to discuss. This was well understood by Georg Muche, as quoted; and fought against by Van Doesburg, as quoted.

If this is the case, then the dependent concept of 'post-modernism' is empty.

'Functionalism' may now be best treated as a style-word. Function as such has no stylistic implications and rather few organisational and spatial imperatives except in some highly, even exotically, specific cases. Steadman has some telling passages on this question in his thirteenth chapter; which demonstrate the limits of the 'biological analogy.' This is even more the case in recent product design involving electrical and electronic devices. As Ozenfant observed in 1931, 'the tendency toward electrification is creating machines that are practically formless.' Herwin Schaefer has argued that we should make a clear distinction between objects that function, and a functional style of design. Theodor has also commented on the 'fetishization of fittingness.'

Steadman. op.cit. Ch.13. esp.
pp. 194-5.

Quoted by Steadman. op.cit.p.154.
See Chapter 5. (above)

See Ch.I. for references to Schaefer.

In 'Oppositions' Summer 1979.

In 'The Rationalists' ed.Sharp.
(see biblio.) 1978. pp.160 - 170.
Essay entitled.'The Rational and
The Functional'.

In this context the use of 'rationalism' is as suggested by Broadbent, who succinctly traces its use in architectural discourse to Descartes and the crucial pages of the 'Discourse on Method' of 1631. Skolimowski has made a useful qualification

HSkolimowski. 'Rationality in architecture and in the design process.' (see biblio.) 1978.p.171.

of the concept, into 'objectivist' and 'evolutionary' strands. Rationality, he argues, is a changeable phenomenon, not to be identified by style. 'Objectivist rationality' takes as its paradigm the physical sciences; it argues from a priori positions, and values consistency as it strives toward 'maximal' simplicity. "Whereas objectivist rationality concerns itself with objectives that are very clearly defined, the universe of these relationships is very limited." Evolutionary rationality on the other hand, takes its paradigms from the life-sciences and argues from a posteriori experience; it values heterogeneous phenomena. "Evolutionary rationality...deals with relationships that are not always clearly, let alone mathematically, defined, but the universe of these relationships is very extensive."

Allowing for the unsatisfactory idea of the life sciences employed there, the definition enables us to draw a philosophical profile of the 'International Style' similar to that drawn by Gabo for the art of the icon. Thus.....

firstly : positivist in epistemology
secondly : utilitarian in social function
thirdly : 'objective rationalist' in method.

This triad is not peculiar to any one political system, though it has in architectural terms an historic relationship with reformist social democracy. It is the creed of a managerial conception of human affairs, and as such a the profile would seem to fit most hegemonic styles, including the Roman. Such a description neatly fits the ambitions of a Rathenau, a Roosevelt, a Ford or a Keynes.

In terms of the design professions, it raises the status of the designer in the newly forming conception of the state, to that of 'social engineer', who 'organises life', who 'can mould the political, social and industrial and moral mass into a sound and shapely whole'. This can be compared to the much earlier professionalisation of artists and architects through the founding of Royal Academies. In our final chapter we will look at attempts to apply this triad in a non-managerial frame of reference: but as experienced in history, this triad is an essential component of the ideology of industrialisation. As such, it has its roots in the early decades of the nineteenth century.

* * * *

A central document of the time reveals the nature of this triad in more detail. The 'Athens Charter' was compiled by Le Corbusier upon the bases of the CIAM conference of 1933, though not published until 1941. Initiated at a time of economic recession and published in the midst of war (anonymously), it addresses itself to the problems of rebuilding and town planning and is interesting for what it conceals as well as for what it displays.

It proposes from the beginning "two contradictory principles that govern the human personality : the individual and the collective, " (Proposition 2.)

The footnote to this proposition sketches a Hobbesian view of man in isolation. These 'contradictory principles' are taken to be constants, affected by natural conditions and by the 'political situation and the administrative system.' (Pr.5) Politics are essentially unstable; the administrative system ' possesses an

inherent stability' though there is "no administrative system that can lay claim to immutability". Industrialization has 'precipitated a world-wide evolution without precedent in history. Chaos has entered the cities'.(Pr.8). The remainder of the 95 general and special propositions consist of critical observation and remedial proposals. While some are unexceptional, others are 'value-loaded' in the extreme. e.g. Pr. 20. 'The suburb....is a kind of scum churning against the walls of the city'. The remedial proposals are in the form of administrative requirements, and all employ the word must. 'The selection of residential zones must be dictated by considerations of public health'. Housing, leisure, work and transport receive the same treatment. Six propositions are concerned with the protection of 'historic heritage'. Pr.70 states that the practice of using styles of the past will not be tolerated in any form. The chaos of the cities is the result of 'incessant accretion of private interests ever since the beginning of the machinist age.(P.72.) Pr.95 concludes "Private interest will be subordinated to the collective interest.... individual rights have nothing to do with vulgar private interests."

The tone is authoritarian and the scheme uncritical. There is no attempt to analyse the 'contradictory' concepts of individual and collective; the idea of free cooperation is not discussed. Nor is the opposition between (abstract) right and (concrete) interest. A remnant of metaphorical language remains in the references to human proportion;(Prs. 76 and 87 seem to pre-figure the 'Modulor'). The nuclear family is taken as the determinant of the basic unit of building - the social cell (Pr.88). The only means of construction discussed are industrialised. The crafts are assumed to be wholly urban, differing from

industry in their very nature and to be kept separate from it: craftsmen are an 'anemic' class. There is no discussion of the relation of city to country. A roll-call of cities and authorities which supported or promoted CIAM doctrines is given, but no distinction is made between the very different formal political systems involved: this follows from the administrative bias to the Charter and the managerial nature of the triad.

In hindsight we see that this notorious document is marked by the same authoritarianism to be found in the political movements of the early 1930's and we can readily identify its commanding tone with the reorganization of capital and industry after the economic collapse. The years of the CIAM are the years of 'national government', the New Deal, the First Five Year Plan, and the Third Reich. In Le Corbusier's personal case, the Athens Charter was part of yet another attempt to enlist state authority in the service of his architecture - in this case, the pseudo-authority of Vichy.

See Fishman R. 'From the Radiant City to Vichy' in Walden (1977)

See Footnote.....

What all attempts to reorganize capital and industry had in common was a policy of state intervention and control in an attempt to create a new dynamic and self-sustaining rather than cyclical model of industrial development, linked with the names of Keynes and Preobrazhensky, or with rearmament and military expansion. These in turn depend upon the 'science of invention'. The aim: to make the industrial system both dynamic and invulnerable.

M. Tafuri. 'Architecture and Utopia' (1976) pp.85 - 95.

As prefigured in Purism:
See Chapter Five (above).

Here, as Manfredo Tafuri has pointed out, industrial development meets up with the ideology of perpetual innovation and calculated irrationality created by the artistic avant-garde in the later nineteenth century. We can now show that even the specifics of surrealism and Dada have been incorporated into Taylorist 'scientific management' through the adoption of free association, random suggestion and calculated irrationality in 'brain-storming' and encounter groups.

As we have observed, 'how to invent' - the generative system is expressed through typology and in symbolic representation; that is to say, as the mathematization of production. Ludwig Hilberheimer described this aptly in words which, although referring to the industrialisation of building, have the widest significance.

L.Hilberheimer in 'Grossstadt-architektur' (1927) quoted by Tafuri op.cit.p.106.

"Having to mold large masses according to a general rule dominated by multiplicity, the general case and the law are emphasised, while the exception is put aside, the nuance cancelled. What reigns is measure, which constrains chaos to be form: logical, univocal, mathematical form."

The style elements of this generative system, developed in the search for the (metaphorical) universal language of form, must, to function freely, be emptied of historical reference and deprived of associative meaning. Only then can they be combined and recombined 'transrationally'. In Mucbe's terms 'technology had been freed from its last ties to an aesthetic that had become old-fashioned'. But in so doing (and ⁱⁿthis, Mucbe lacked prescience), industrial technology (like the art he supposed it had abandoned) was now free to find itself in a 'limitless sphere of its own reality'. Khlebnikov's Zaum language of freely combined phonemes is the 'arts' to the dynamically expanded 'manufactures'

made possible by 'the science of invention'.

We may summarise thus: that whereas early industry achieved the socialization of production, the normative tradition of design, linked with natural science, brought about its dynamization.

A combinatorial formalism now rules in those areas of product design that have been most completely systematised and which are at the same time immune to criticism - defence, aerospace, transport, industrial and commercial architecture and its offshoots in public and mass-commercial housing. These are the built forms of industrial hegemony.

It is probable that all hegemonic 'international' styles are combinatorial and formalist in some degree, yet the orders of neo-classicism retain some semblance of metaphor in the successive waves of their revival, and the decorations of Islam retain some emblematic connexion with the original cosmology that gave them birth. But no metaphorical significance is possible to a built style predicated upon the industrial 'triad', save that afforded by the fetishization of function.

* * * *

At this point we must confine ourselves to observations of a simple and familiar kind, centring upon the persistence and re-emergence of historical reference, symbolism and allegory within, around and in the teeth of the 'International Style.'

See Footnote.....

The most obvious example is the continuance of neo-classicism, both in the overt grandiosity of Troost or Speer, but also in the return to the same essential structural and formal preoccupations: such we see in the later work of Mies van der Rohe, who has acknowledged his allegiance to Schinkel and the whole school of Enlightenment neo-classicism thereby. The idea of an archaic classicism, however, is something altogether stranger and not without sinister import. Such can be found in the adjustments made by Italian rationalists to the pressures of fascism.

See Rowe, Sharp etc. (ref. biblio.).

Il Gruppo 7 'A New Archaic Era' (1927)
trans. Schapiro. in 'Oppositions'
No.12. Spring 1978.

"The simplicity of the plans and the calm rhythms.....recall the periods of the beginning of Greek architecture.....We can recognise all the characteristics of a new Archaic Period.....This concept of a spontaneous, logical, necessary archaic return (implies) the renunciation of individualism.....in order to stem the extremely dangerous disorder of ideas.....to tend with every effort toward a Unification of style.....fundamental types destined for future selection.....destined to perfect themselves continuously in the future."

See Walden, v. Moos, Turner. etc.
below (see bibliography)

See 'Ronchamp:...the crisis of rationalism' by James Stirling in Serenyi. 'Le Corbusier in Perspective.' (1975).

The case of Le Corbusier is of a very different kind. At the same time as he was compiling the 'Athens Charter', the iconography of his paintings and graphic works increasingly made reference to alchemical and hermetic doctrines. This is an aspect of his work and thought that has only lately received the attention it deserves, though it was plainly manifest at an early date. If he is seen only as a founder of International Style then his later work is embarrassing and his interest in surrealism inexplicable. But the studies of van Moos and Turner have shown clearly that his early professional experience and above all, education, coincides with all themes discussed in this study.

We learn that he was from the first introduced to the 'analogical' approach to form through his teacher L'Eplattenier: and that the school at Le Chaux-de-Fonds was, under L'Eplattenier's direction, attempting to make the difficult transformation from a school of arts and crafts in the critical tradition, to a proto-modern college of design. He had from his teacher a copy of Schuré's 'The Great Initiates', and annotated it carefully with references to Pythagoras. Through a study of the little-known 'L'Art du Demain' by Provensal, he encountered ideas of evolutionary elitism and the need to forge a 'higher' synthesis between idealism and materialism. His early years were deeply involved in that same anti-positivist, idealist and universalizing culture that we have described earlier; and it is this occult underworld that erupts in his later architecture and art, and that accounts for the tone of frustrated religious feeling in some of his writing.

In 'Oppositions' No.19-20 (1980)
See footnote.....
ibid.

In 'Art Bulletin' June 1971. A
seminal article.

Richard Moore has shown how alchemical symbolism informs such work as the 'Poeme de l'Angle Droit' and other prints and paintings. Alexander Gorlin has investigated the underlying Sivaite symbolism of the Governors Palace plan for Chandigarh. As Turner observes, "for him....architecture was above all an expression of ideas and transcendent principles, rather than those aspects which have been the ostensible concern of most twentieth century architects, such as function, structural and material integrity, economy etc." These and other studies encourage us to see the later work as an attempt at a universal symbolism; an allegorical architecture uniting and synthesizing East and West through a complex and hermetic dualism.

Behind this stands the possibility of a family adherence to Catharism : but this will surprise no one who has read the foregoing pages with attention, since one underlying but unexplored theme of this study is the possibility of treating the arts of this century as the revenge of the heresies.

See Footnote.....

P.Fingesten. 'The Eclipse of Symbolism' (1970) pp 147-8.

In 'Introduction' to W.Benjamin. 'The Origin of German Tragic Drama' (1974) p.24. Quoted by Buchloh.

S.v.Moos 'Le Corbusier.....' (1979) p.288.

In Walden. op.cit. p.445.

Yet while Le Corbusier's ideas have clearly many shared premises with those of Mondrian, Malevich and others, the mode of expression is utterly different. Instead of 'indivisible unity' (what Fingesten in a useful study calls the 'metasymbolic mode'), we have a complicated, even baroque, mode of anthropomorphic allegorism. George Steiner has noted that "Eras of decline resemble each other not only in their vices but also in the strange climate of rhetorical and aesthetic vehemence.....thus a study of the baroque is no mere antiquarian archival hobby; it mirrors, it anticipates and helps grasp the dark present." Van Moos reaction to the later paintings is striking. "A sense of parody and pathos, despair and frantic vehemence permeates these works." He writes of "a mask revealing a psychic abyss". Elsewhere he writes "Here and there appears the fiction of a state art, elementary and nevertheless occult because there is no state religion behind it."

It is trivial to interpret this vehemence, this abyss, in autobiographic terms: it registers the stress of a whole culture unable to reconcile an irrational or occult inner life with a public existence defined by positivism and objective rationality.

Le Corbusier's iconography was developed in the early 1920's when painting was subject to a 'call to order' (Cocteau's phrase) ; as indeed was music.

And, of course, Russian;
see above p.251.

P.W.Lewis. 'Blasting and Bombard-
iering' (1937) p.258.

In 'October' No.16.Spring 1981.

This was a very widespread phenomenon and in some cases, notably Italian, was accompanied by a demand for 'national expression' in terms similar to those we have quoted above. The painting of Picasso and Leger took a like direction toward a decorative neo-classicism with allegorical overtones: German artists too responded with a 'neue sachlichkeit'. Wyndham Lewis later commented on the fate of Vorticism " We are the first men of a future which has not materialized. We belong to a great age that has not 'come off'."

Many of these phenomena in painting, music and architecture were of a type that we would now describe as 'post modernist', on stylistic grounds. Benjamin Buchloh has described successive 'calls to order' in his important article 'Figures of Authority, Ciphers of Regression.'

In the late 1920's, allegorical figuration amply confirmed the separation of arts from manufactures, and demonstrated Georg Muche's thesis, that the fine arts belong 'in the realm of the ideal' (thus reverting to a formula that may with some justice be described as Counter-Reformation). By such means an idealising fine art is given the role of reconciling opposites 'in the realm of the ideal' rather than in 'indivisible unity'; of bridging the psychic abyss. It has no longer any qualifying role in the general scheme of production, and even Reynold's suppositious 'of course' has gone. The fine arts have been marginalised.

* * * *

The ideological role of the normative tradition now emerges clearly; it appears as an attempt to render the culture of the industrial system both dynamic and invulnerable.

Once again, we can quote Ford on 'putting the world onto a production basis' "The ideas we have put into practice are capable of the largest application.....(they) form something in the nature of a universal code."

The goal of 'infinite variety and unerring fitness' , the study of the 'laws of distribution of form', the pursuit of the 'unconditioned signs' and the 'real and natural ' relations of expression, of the type form, of the biotechnical . analogy and of a universal language, all have this goal as their end. For this the normative tradition employed the life sciences and schemes of symbolic representation; analogical theories and a secularised theology. The fine arts, through the deployment of hermetic and inspirational doctrines inherited from the very core of the academic tradition, created a system of style elements that freed industry and technology from the vestiges of a craft-based style, stripping away historical reference.

But once industrial technology had achieved this freedom for design independent of craft, it had to shed its 'arts' component, since the fusion of 'arts' and 'manufactres' was predicated upon a scheme of metaphor irreconcilable with the positivist/irrational culture created by, and necessary for, the industrial system .

The following schema is suggested as a guide to thought.

1. Reynolds conceived the relation of arts to manufacture in unproblematic terms. If the higher arts of design flourish, quality of manufactures follows as a matter 'of course'. But then production was confined to craft modes.
2. The industrial system created a problematic, first perceived as one of style (to be solved by schools of design) and then as conceptual in nature. An attempt is made to rethink the problem of quality on 'scientific' principles, and to create an unconditioned STYLE on the analogy of nature, since nature has 'infinite variety and unerring fitness' (Wyatt).
3. This required an artistic strategy of progress and perpetual innovation based upon internal dispute, to match the concept of progress in science (Seurat).
4. For a brief moment in exceptional conditions the STYLE appears possible, sustained by the metaphor of 'universal language' and this has the effect of rendering the relation between arts and manufactures unproblematic again, through 'indivisible unity' (van Doesburg).
5. This utopian metaphor cannot be sustained in actuality; nevertheless, manufactures is transformed: in style (described by Muche) and in method (perpetual innovation).
6. The engine of perpetual innovation (the 'science of invention') is combinatorial formalism (Reuleaux x Khlebnikov), which provides the form language for industrial hegemony.
7. The fine arts are returned to their earlier function of decoration, allegory and personal expression in the illustrative mode. (In de Renzi's phrase, 'bourgeois, conceptual and marginal')
8. So we arrive at today, when the industrial system and its political supports present themselves to us as a cliff of circumstance on which the mind can get no hold. Cultural hegemony achieved.

AN ECONOMIC APPENDIX TO CHAPTER SIX

Portal. *op.cit.* p.32.
(see Ch. 4 pt.2).

See Aron. R. The Dawn of
Universal History (1961)

Frédéric Portal, in the midst of speculation on colour symbolism and comparative religion, found time to wonder: "The conquest of India by the English, the expedition of the French in Egypt and Algeria seem as steps marked out by providence for attaining the great end of universal regeneration... does it not forebode the dawn of a new era?". Portal meant by this, a new religious era; but this speculation is the counterpart of Auguste Comte's vision of a world unified by the industrial system, forming the foundation of a 'universal history', of a single human society.

We have so far been concerned with an internal and Eurocentric account of 'internationalism' and hegemony, but some brief view must be taken of the conditions which make these developments possible. Here again, as so often, it is necessary to return to the 'gründerzeit' of the 1820's and 30's, to perceive the first delineations of the world which now surrounds us.

Ure A. Dictionary of Art,
Manufactures and Mines.
Vol.I. (1839) p.529.

Pacey A. The Maze of Ingen-
uity. (1874) p.277.

Ure. *op.cit.* Vol.I. p.307.

Andrew Ure observed that 'By the aid of mechanical fingers, one Englishman at his mule can daily turn off more yarn and of far finer quality than 200 of the most diligent spinsters of Hindostan.' A contemporary wrote 'Dacca, which was the Manchester of India, has fallen from a very flourishing town to a very poor and small one.' The famous superiority of Indian printed textiles, in all their 'gorgeous power' could not withstand the flood of mechanical printing of Lancashire. 'The printing machinery of Great Britain has begun to supersede...the cheapest hand labour of India'.

Pacey. op.cit. p.277.

ibid. p.279.

When in 1851, visitors to the Exhibition remarked on 'the management of colour, which is so perfect', they were basing their judgement upon the most special fabrics selected by the East India Company, with European high quality trade in mind: but the bulk export trade, that had made the Indian sub-continent the centre of world export textiles for many centuries had vanished. Pacey writes ' While the depreciation of labour in in the British textile industry meant that independent skilled workers were turned into machine minders, in India it often meant the complete loss of livelihood. Britain exported its technological unemployment along with its cloth'. He quotes from several contemporary sources, to show that this 'reality' was well understood at the time. 'We have destroyed the manufactures of India'.

This has long been accepted as the standard explanation; more recent studies present a more complex picture. During the independence movement the textile trade came to be an issue of great symbolic importance, and a controversy that gives some support to our main normative/critical enquiry.

Albertini R.v. European Colonial Rule (1982) p.48-9.

'Since the late Middle Ages, pre-British India had, like Europe, possessed a flourishing handicraft industry. It enjoyed world renown, particularly in the 17th and 18th centuries. Village women spun thread. A special caste of weavers wove, to a certain extent on order from the village community. They were usually paid in kind rather than in money. The case was similar

with the village trades of smith, potter, joiner, silversmith and oil-presser. The village was thus largely independent of urban crafts, which aside from their own needs, worked largely for the court and the Indian aristocracy. Goods of the highest quality were made: chintz, muslin and calico from cotton, gold and silver brocade from silk, and Kashmir scarves from wool. The East India co. exploited this situation so effectively that very high duties were raised to protect English producers....'

When the privileges of the East India Company were abrogated in 1813, this situation, most favourable to India's 'quality' weavers, was broken and the decline in their exports began. Exactly how severe this decline was, and how many weavers were effected, is uncertain. It was perceived as a dramatic event, even a catastrophe. A report of 1834-5 reads 'the bones of the cotton weavers are bleaching the plains of India'; evidence to the 1840 Parliamentary Commission of Enquiry alleged (already quoted) that 'We have destroyed the manufactures of India'. The enclosed graphs relating to the export trade give a clear enough picture, but do not indicate how small a percentage of the total Indian trade, the export trade comprised. Recent writers maintain that the new imports from Lancashire remained but a small intrusion into the economic life of village weavers.' Whilst, then, Indian cotton spinners were undoubtedly severely challenged, it is highly unlikely that any broad permanent destruction of the handicrafts in the face of competition from imports occurred.'

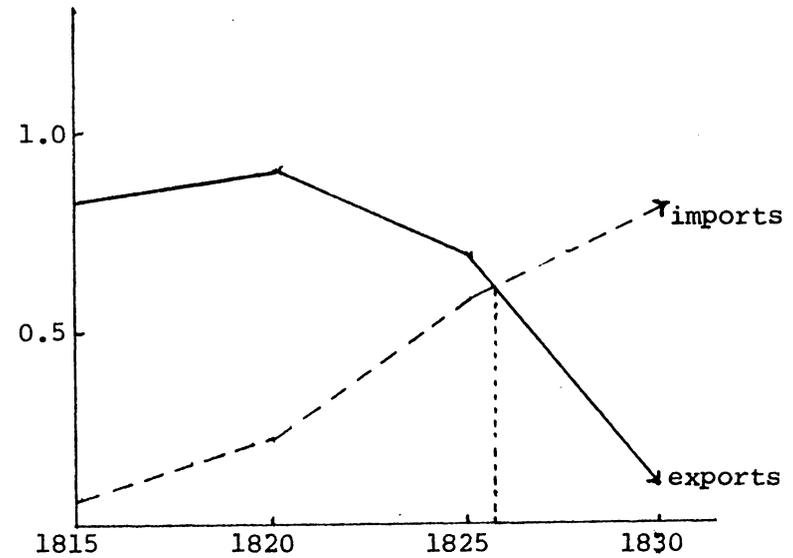
ibid. p.49.

Evidence of G.C. de H.Lampert.

eg. Charlesworth N. British Rule and the Indian Economy (1982) p.34.

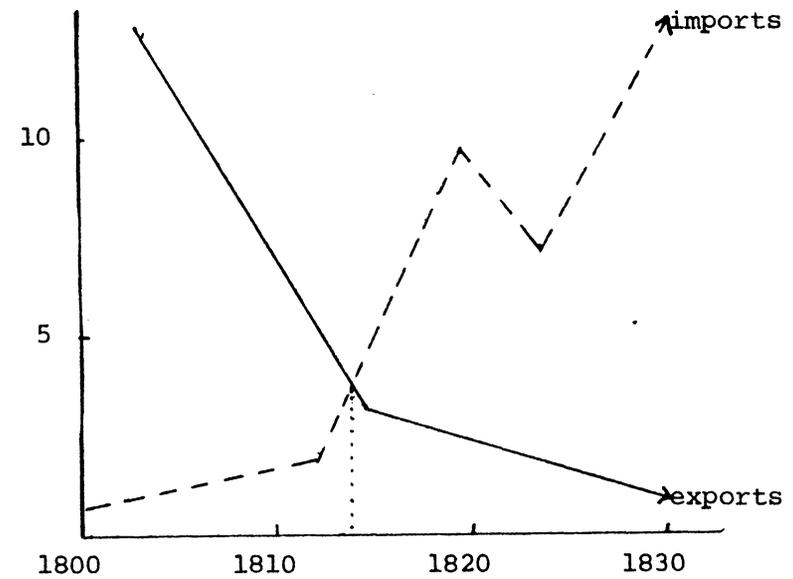
Indian imports and exports of cotton goods. (After Albertini op.cit. p104.)

in millions of ru. 0.5



Indian imports and exports of cotton cloth. (After Dutt etc.)

in thousands of bales



L.Rai. England's Debt to India (1917)

But it is the earlier view that took on the symbolic importance we have mentioned. Lajpat Rai began his seminal work thus: 'India was once rich'. In his list of the causes of Indian impoverishment he lists first the power loom. He quotes from the 1840 commission, evidence to show that India was essentially a manufacturing country, that had been overthrown by English trade policies.

The economic argument is not our business - rather, we need to understand the connection made by Indian nationalists with handcraft textiles ; they came to have the same significance as handcraft did for Swedish craft associations - as the guarantor of national independence.

Readings from Gandhi ed.
Kripalani and Meghani (1969)
p.60 et seq.

Without pressing our hypothesis too far we are able to see the struggle between modernising and traditional nationalists as taking on something of our normative/critical dialectic. The latter term is well represented in Gandhi's short essay 'Man and Machine' 'Economics that hurt the moral well-being of an individual or a nation are immoral and therefore sinful. ...the end to be sought is human happiness combined with full mental and moral growth...this end can be achieved by decentralisation...my fundamental objection to machinery rests on the fact that it is machinery that has enabled these nations to exploit others...we have to concentrate on the village being self-contained, manufacturing mainly for use.' (etc.) Here most of the themes of the critical tradition can be found, and it will be recalled that Gandhi had been a diligent reader of Ruskin and Tolstoy. But it is not to do with 'influence', but with the logical form

of the critical reaction against industrial hegemony, that we are concerned. Through numerous local variations and particularities, the same structure of idea emerges. In the next chapter we shall comment on other examples.

See The Imperial Impact etc. ed. Dewey C and Hopkins A.G. esp. "Technology, Competition and African Crafts" by M. Johnson. for a general discussion of the revival or persistence of indigenous manufactures.

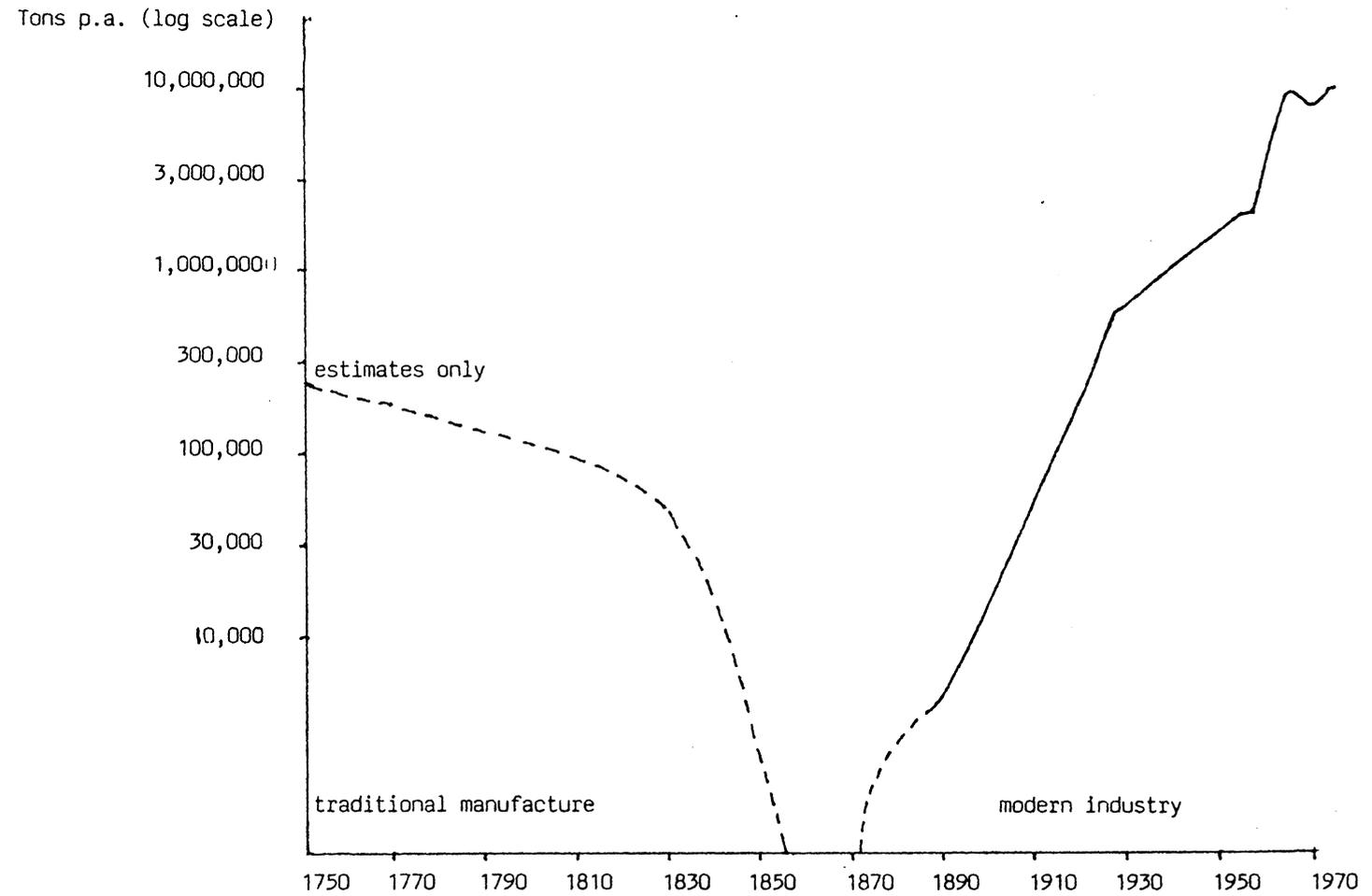
In the course the Indian textile trade with the rest of the world recovered, but organised and owned very largely by a westernised minority of Parsee families (who were simultaneously patrons of Le Corbusier and of Gandhi.)

(Pacey also prints a graph of iron production, based on extensive sources, that tells its own story and needs no comment. (see overleaf).

What we cannot engage with here is the stubborn persistence and vitality of traditional handicrafts in the face of industrial competition, and the adaptability of local and village craft workers. This has been especially studied in a West African context, where indigenous work has been able to some extent to 'see off' imported printed textiles with rather little alteration in the work processes and occupations of the village craft system.

Nevertheless, such recoveries or holding actions, even on a large scale, have the character of 'enclaves', and (as in the case of the Indian iron industry) are closely dependent upon protected markets, preference regulations and exceptional local circumstances.

IRON AND STEEL PRODUCTION IN INDIA (after Pacey. op.cit. p.279)



Similar studies might be done mutatis mutandis, for many trades in many parts of the globe, in each case accompanied by significant changes in consumption, style, design concepts and an least partial and usually wholesale transformation in the character of life. For the design historian the issue must be, the function of the new industrial goods withing the whole array of goods available to a population. Indigenous manufactures may be destroyed, or may adapt themselves, but in every case the array and the significance of each item in the array, will be altered.

Economic and cultural impoverishment are the normal accompaniment of the spread of industrial hegemony: but are they the necessary conditions? It appears from the example of the industrialisation of Japanese culture that an 'international style' should not be thought of as 'westernisation' but as the immanent built form of the industrial system, independent of national and cultural 'local variations'. Though here we begin to encroach on a 'world design history', it appears that the rapid incorporation of Japan into the industrial system and its culture was made possible just because that country had remained culturally and economically closed. When it engaged in industrialisation, the very large trade in craft goods with Europe and America was of sufficient volume to provide work for the new technologically unemployed. Contrary to the experience of India, there was no loss of skills and no mass impoverishment.

See Footnote.....

See article by Ranis G. in
The American Economic Review
No.47 (1957) pp594-607.
Quoted by Pacey.

Thus fashions for Japanese craft goods, promoted in Europe by design reformers such as Dresser, had consequences more extensive than matters of taste. European and American markets were a factor in the swift and

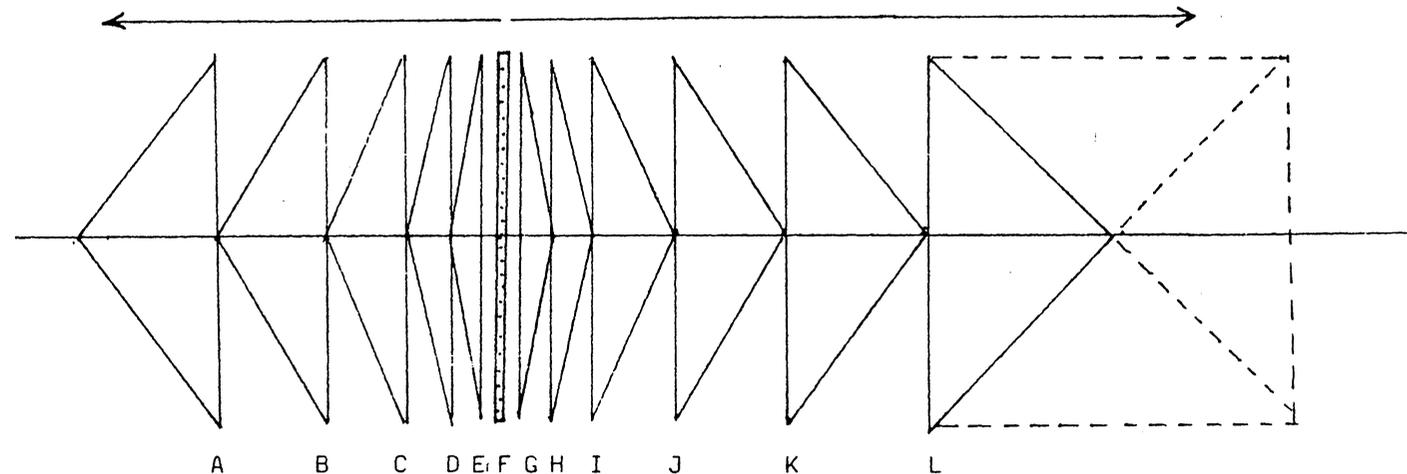
effective industrialization of Japan: the taste for Japanese design was a feature in the realisation of an international and transcultural style.

When in 1849 the Prince Consort gave the speech with which this study begins, he had small concept of the real cultural effects of unlimited industrial expansion. From that time on, all peoples have been divided into those who had the industrial system thrust upon them, and those whose developing culture brought it upon themselves.

In our final chapter we will look at the continuance of the critical tradition, in the struggle to wrest cultural autonomy out of hegemony.

Footnote to p. 240 This idea was suggested by a conversation with an orthodox priest. The following diagram from 'The Struggle

For the New' (1929-30) illustrates the concept: in which A - F is the 'suppression of perspective in favour of the plane' and B, C, D, E, are Impressionism, Fauvism, Futurism, Cubism, and F the 'New Plastic Expression' described as a 'psychological change', in which 'The realms of space and time, which previously were expressed through illusion only, are now established as a real-plastic expression.' G is the 'counter construction' (Picasso, Tatlin, Lissitsky); H is 'problematic, four-dimensional possibilities of expression'; I is 'The mastering of tactile space'; and J, 'Qualitative differences of space and the possibilities of expressing it, which, until now, have remained unimagined. L. is not specified but would seem to indicate something like Mondrian's realm 'complete in its beauty' - a realm of the Joachist 'holy spirit', a transfigured reality.



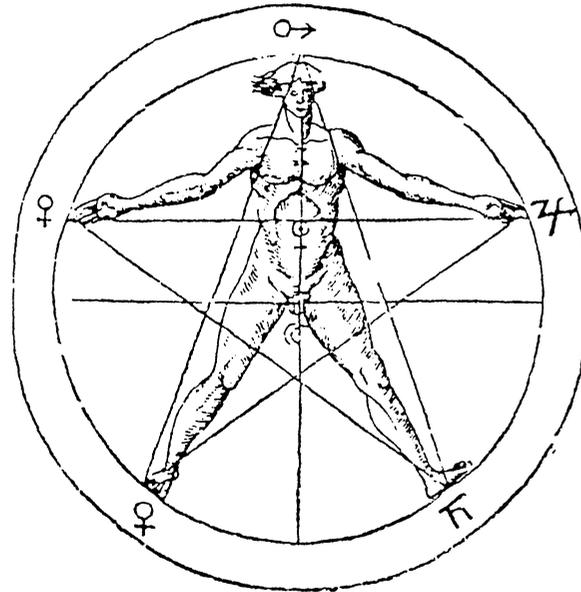
' Graph of the development from perspective illusionism towards the plane (F) and onward to the creation of new realms.'

(after Van Doesburg.)

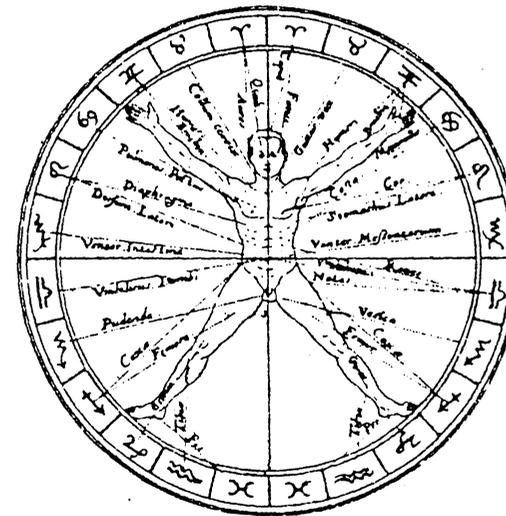
There is a similar but simpler diagram in Lissitsky's 'Art and Pangeometry'.

- Footnote to p. 243. The reader is referred to Fitzpatrick (op.cit.) and to R.C. Williams 'Artists in Revolution', portraits of the Russian Avant-Garde 1905 - 1925' (The Scolar Press London 1977) for some good general material relevant to this section. The first national conference of the Proletkult called for a rejection of all previous art and learning - for cultural as well as political revolution. There was a call for a 'Workers University' to supplant the existing system, and an Encyclopaedia 'to do for the proletariat what the encyclopaedists and Diderot did for the French bourgeoisie'. Another excellent source of contemporary comment is Ilya Ehrenburgs brutish satire 'Julio Jurenito' on the 'new iron art of living'. 'Idealistic materialism has turned out to be a hundred times higher and more difficult than materialistic idealism' (Trans. and published MacGibbon and Kee, London 1968). See especially Ch.30.
- Footnote to p. 244. 'Materialism and Empiriocriticism' should be better known to the art-historian, for though it never mentions the arts, it provides an excellent introduction to the philosophical debates around idealism, the new physics, and subjectivism that inform all the art-discourse of the 1900- 1917 period. Lenin planned a second edition in 1920; attacking Bogdanov and the idea of 'proletarian culture'. See below for a further discussion of alchemical ideas in this context. And for reference to the 'king's son' as the redeemed prima materia, see C.Jung 'Psychology and Alchemy' (1944) Collected Works Vol.12. esp. p.313. Hence more references maybe sought.
- Footnote to p.247. Paul Engelmann noted in his memoir of Wittgenstein (see biblio.) "Positivism holds, and this is its essence, that what we can speak about is all that matters in life. Whereas Wittgenstein passionately believes that all that really matters in human life is precisely what, in his view, we must be silent about". Wittgenstein is reported to have refused to discuss philosophy in any technical sense with members of the Vienna Circle, but to have read them the poems of Tagore (see Janik and Toulmin p.257) who write "In this way, Wittgenstein openly dissociated himself from the 'technical' and 'professional' conception of philosophy, which valued the novel methods of the 'Tractatus' as providing the basis for an autonomous, self-respecting discipline.....like the Bauhaus architects, the positivists were simply exchanging an old orthodoxy for a new one, and transforming ideas which had been put forward as the means of philosophical liberation into a new and quasi-mathematical set of philosophic principles." They describe the philosopher as a very close and regular reader of Tolstoy's moral fables. (see biblio.)
- Footnote to p.249. In the collection 'What is Art', most particularly in the latter sections; and in the character of Levin in 'Anna Karenina' (for further references to Tolstoy, see Ch.7)
- Footnote to p.250.

Footnote to p.258. Man as an allegory of the cosmic system.....the occult core of academicism, deriving from neo-platonic doctrines that shaded into magical systems on the one hand, into the 'scientific aesthetics' of the Aesthetic Club of Edinburgh on the other (see previous chapter).An important German language text seems to be the 'Neue Lehre von den Proportionen des Menschlichen Körpers' by Adolf Zeising (Leipzig 1854) See R.Wittkower. 'The Changing Concept of Proportion' in 'The Visual Arts Today' ed. G.Kepes. Wesleyan Univ. Press. Middletown Conn. 1960. We may also infer, from the milieu, tantric ideas behind Schlemmer's ideas on the human form, probably filtered through theosophical cults. Some of his diagrammatic figures have chakra-like delineations. But see also the magical use of Vitruvius diagram, by Agrippa of Nettesheim, or the illustrations to Robert Fludd's works.....



Henry Cornelius Agrippa: 'Opera' London 1531
Vol.1. p.193. (from Shumaker's Occult Sciences
in the Renaissance.)



Robert Fludd : 'De supernaturali, praeternaturali etc. (Oppenheim 1619) (also from Shumaker.)

The relevance of this to Le Corbusier's 'Modulor' may be a matter for speculation. See also, alchemical lore: "Man is demonstrated to be an epitome of the whole mundane creation.....being endowed.....with the germ of a higher faculty which reveals the hidden Forms of manifested Being and the secrets of the Causal Fountain, identically within himself" (Mary Ann Attwood 'A suggestive Enquiry into the Hermetic Mystery etc.' p.xiv. (1850).

Footnote to p.262. A very long commentary might be written on this essay, that would cross all the themes explored in the present study. One would take issue with Muche at one interesting point, however. The example of an English De Stijl, given in Chapter Five contradicts his remarks on those areas where 'the process of production has not, or not completely, been modernized: in architecture.....' In that example, the modernization of production made the fusion of art and technology possible, whereas before (as in the Schoder house) it had been emblematic. The idea that 'the formal design of industrial products that are manufactured by mechanical means follow lawsetc' is true only in a trivial sense. But what matters here is not the truth of the statement, but what Muche deduced from it (the necessary separation of art and technology). This is an ideological conclusion. And what, we might ask, is meant by saying that the limits of technology are 'determined by reality' when the whole course of technical and scientific advance has been to make the limits ever-expansive. The concept of technological progress 'comes about in the Utopia of its own reality' as much as art! Muche's aim is the breaking of the metaphorical scheme, to affirm the positivist values of industry at a moment of industrial revival.

Footnote to p.265. John Hesketh has pointed out in lectures that German Industry, while taking up a smaller share of the population (41% in 1931) than in Britain, was concentrated into much larger units and had taken on something of the Prussian ideals of state responsibility for cultural development through quality. A satirical portrait of Walther Rathenau would seem to be intended by the figure of Arnheim, in Robert Musil's 'The Man without qualities' See Vol.2. 'Never was there for him any question of intellectual revolution or of a fundamental innovation; it was always only a weaving of the new into the already existent...as the synthesis of revolution and permanence' (p.103)'It seemed to him far from impossible that there was something collective and pan-logical coming into existence.....(p.129) And p.249 et seq.

Footnote to p.267. The remarkable figure of Viking Eggeling is the subject of a sympathetic study by Louise O'Konor. 'Viking Eggeling 1880-1925 Artist and Filmmaker, Life and Work.' Stockholm 1971 (in English). In his early notes he made the distinction between a 'transcendental and a 'practical' art that has bearing on the discussion here. 'Ma' has recently been republished in facsimile by the Corvina Press making available the editorial labours of Lajos Kassak. See Vol. 1921-22 p.105 et seq for more material by and on Eggeling (free from Richter's editorial influence).

Footnote to p. 270 As example, the typewriter on which this thesis is being typed: though electronic, it mimics in external appearance an old mechanical machine; when opened up, it is found to be almost empty - a mere shell, and what is more, decorated with 'cooling fins' as if it could actually heat up. A strange object to encounter! For a very large range of goods the equation of biology and mechanics has had to be replaced by the equation of neurology.....There is no space to discuss the question here.

Footnote to p. 274 At this point the argument coincides with that of Manfredo Tafuri in 'Architecture and Utopia' 1976. It is indebted to Tafuri for the quotation from Henry Ford and the references to The Five Year Plans and Stalin's economic adviser.

Footnote to p. 276 And more recently in post-modernist' neo-classicism, as proposed by Leo Krier among others, and practised by the Taller de Bofill in their 'technological classicism'. Reference will be made to this in Ch.7..

Footnote to p. 277. Le Corbusier and alchemical doctrines.....'And know, that the chief principle of the art is the Crow' (The Golden Treatise of Hermes Trismegistus; in Attwood p.110.) Richard Moore (see biblio.) has opened up this theme for investigation. In his footnote 3 he notes the revival of alchemical scholarship in the 1930's, culminating in Jung's studies of the 1940's. But the Trismegistine texts were well known in Symbolist circles, having appeared in French trans. again in 1866, and form an element in the theosophy of a Schure' or a Delville (see notes to Ch.3): there were therefore 'in the air' during Corb's. education. (In English, the texts reappeared in general currency with Mead's 'Thrice Greatest Hermes' of 1906, a complete trans. of the Corpus Hermeticum.) Mary Attwoods 'A suggestive enquiry.....'(1850) was suppressed for reasons of piety immediately after publication, but was republished in 1918 and 1920. Her text is as vehemently anti-Lockean as Field's or Whewell's). Alchemy was one of the main bearers of analogical doctrine. As Shumaker writes "the role of analogy in the doctrines of alchemy is so considerable that it may well have been germinal.....the passion for analogies dominated alchemical literature." (p.193-5). In the main body of the text I have used the expression 'transmute' and 'transform' advisedly: there is a sense (though one not easily defined) in which we can regard the project of early modernism as a form of alchemical projection upon the prima materia of academic tradition, and this may be seen as early as the 1830's - through the transmission and regeneration of heretical theology in secular guise. When the Asclepian Dialogue speaks of 'effecting the Divine Nature', this means achieving god-like domination over matter, and universalizing consciousness. Philalethes, in the 'Anima Magia Abscondita' of 1650 (a text known to Cambridge Platonists and thence with some connexions with English academicism) we find..."I speak not in this place of the divine spirit, but I speak of a certain art by which a Particular Spirit may be united to the Universal: and nature by consequence be strangely exalted and multiplied.' (See Attwood p,110)

The Modulor studies, wittingly or not, have a lineage in the concept of the 'great man' in the Pimander and the Gospel of Eve (see Mead, Vol.2 'Poemandres') For a fictional but relevant treatment see 'Dr. Faustus' by Thomas Mann.

Footnote to p. 278 It may be that to understand this we would have to penetrate again into the 1830's, and the world of the 'secular religions' of Saint-Simonism, the 'petites cultes' of the Paris poor, Southcottianism, Ancient Deism, the Rosicrucian revival and all those other manifestations of extreme stress and forlornness (and their much older origins in Camisard, Joachist and other millennial movements studied by Norman Cohn in his 'Pursuit of the Millennium' (1957). These have already been mentioned, particularly in Ch.3. At a scholarly level we would have to engage with the theological rediscovery of gnosticism in the light of new historical methods and concepts. Voegelin, in his 'Science, Politics and Gnosticism' (1968) indicates the studies of Neander (1818, Matter (1828) and above all F.C.Baur's 'Die Christliche Gnosis: oder die Religionsphilosophie in ihrer geschichtlichen Entwicklung' (1835). Voegelin tends to reduce all h~~is~~e does not like to a manifestation of gnosticism.....but without assenting to his theses, the text is a useful one. "The interpenetration of cultures reduce men who exercise no control over the proceedings of history to an extreme state of forlornness in the turmoil of the world, of intellectual disorientation, of material and spiritual insecurity. (p.8).....If man is to be delivered from the world, the possibility of deliverance must first be established in the order of being(p.10)..... the aim is always the destruction of the old world and the passage to the new. (p.11)." The general form of Symbolism, Theosophy, The Blue Rider, Suprematism and to some extent, as discussed, De Stijl, are prefigured in the 1830's.

~~In a forthcoming paper I shall be discussing the place of Turner in the development of Symbolism.~~

Footnote to p. 287. Heaven spare us from such a project for many years to come! But the market is being prepared.....

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Chapter Seven

Cultural Autonomy in the Industrial System

None of us has a complete picture or has mastered the immense mass of scattered material, or has been able yet to achieve a rational understanding of events so crammed with human suffering, unprecedented crimes and immeasurable promise....

R.Aron 'The Dawn of Universal History'

This last chapter has a different status from those preceding it: when we address ourselves to contemporary experience we are forced to speculate, since the immediate is not an object of knowledge. But the issues raised require some resolution, since they project forward into present and future time. This chapter has, therefore, the following shape. An example is given, in broad terms, of the difficulty facing 'local variations' in the face of industrial hegemony; this is then related to like problems in the European critical tradition. This leads to a reconsideration of Gothic Revival. The construction of traditions is viewed as an equal and opposite aspect of the anti-traditional force of industrial ideology. This leads to a more general discussion of the critical tradition and the possibility of its renovation. Lastly, some conclusions of a very general type are considered.

* * * *

See Art in America October 1981 'A Special Report : Teheran Museum'. Articles by McFadden, Hobbs and Cockcroft.

In the last days of the Shah of Iran a museum of modern art was founded in Teheran. A large building was constructed in stone and concrete, with ingenious overhead lighting through shafts illuminating a spiral ramp. The architect and chief engineer were American-trained; the management of the museum (as was the case in all other cultural institutions set up by the regime) was in the hands of close associates of the Shah or his family. The board of advisors, however, included Nelson Rockefeller and Thomas Messer, the director of the Guggenheim Museum.

The aim was to provide a survey of Western Art since post-impressionism, and to display the most recent Iranian Art: but it seems that work by Americans outnumbered that by Iranians by ten to one. Great sums of money were expended in or through the leading international dealers, and a remarkable selection of work was acquired very quickly.

When widespread fighting broke out in September 1978, work was transferred to the vaults and guards were stationed to protect the building (which was located near to the hotel district.) The chairman of the directors left for Europe and the museum was closed for most of 1979, under the orders of the new government. In December of that year it re-opened under the direction of another American-trained architect: a banner draped across the entrance read "This belongs to the people, and we represent the culture of the people". The director explained that the museum no longer showed art comprehensible only to an élite, but had adjusted its programme to meet the needs of the people.

The new exhibition included work by European-trained genre painters, photo-journalism of the revolution, satirical work and paintings of street violence.

McFadden op.cit.

p.13.

"There can be little doubt that political didacticism was a primary curatorial consideration in an exhibition of colour-photo blowups of murals from the Mexican revolution, used as stylistic models for much of the art currently produced in Iran."

To be an exhibitor or curator at the museum has lately become hazardous.

Hobbs. op.cit.

p.17. One of the earlier American employees of the museum has commented. "The people, having little secure sense of themselves as members of the modern, took refuge in a timeless Islamic, world. They did not wholeheartedly deny the modern world so much as they selectively rejected aspects of it and turned inward - a posture which seemed to many to suggest historical regression. However, this seeming regression was in fact a rejection of the Shah's unfortunate attempts to replace a traditional Persian identity with a Western modernist one. The Shah in the process destroyed the former and made the latter politically infeasible." On his own reaction to events, he remarks ruefully that "my thinking,clouded by a lifetime's exposure to second-rate movies.....had the disadvantage of turning me into a cliché." He chronicles a sorry tale:"When we tried to show Pakistani workers or South Teheranees modern art, we depended on a number of ideas they were not willing to accept.....to Near Easterners whose great art forms - rugs and gardens - were horizontal rather than vertical, communal and environmental rather than individualistic, Western Art represented an almost diametrically opposite attitude.....Iranians tended to view them more on a cultural than on an individual level, and the work's subtleties were lost on audiences who might quite legitimately respond to a fibreglass casting of Colonel Sanders, or Mc.Donalds golden arches." His account describes and contains this confusion as does a short piece on 'Post-Shah Art' by Eva Cockroft in the same issue of 'Art in America' from which the above has been taken.

ibid. p.19.

The purpose of quoting as above is not to illustrate the systemic contradictions of curatorial life, but to give a concrete example of a very general problem, not by any means confined to 'art'.

The epistemology of industrial visual communications - in particular, the photographic image - sits ill with the teachings of fundamentalist Islam and the practices of its arts, and there is a conceptual discontinuity between the 'westernised' media-based imagery illustrated by Cockcroft and the fundamentalist aims of the revolution the art purported to support. We can ask - what does it mean for an Iranian to adopt a 'Mexican' idiom, and what, under such circumstances, an Iranian idiom might be?

Report for the Center for Defence Information, Washington D.C. (1978) entitled 'Absorbing Modern Weapons: some problems in Iraq' quoted by Mary Kaldor (see below) p.167.

The discontinuity extends still further according to some observers. 'Many Iranians who do have a familiarity with machinery have retained an active dislike of it: they find it ridiculous. Man is the supreme end of existence and should not have to submit himself to the tyranny of schedules, precision etc. which machines require. 'You (Americans) think we are careless, inefficient. But when we do what is wrong, we fail of our own free will...and is not that a kind of Freedom'. 'A willing acceptance and internalisation of the epistemology and work-habits of the industrial system is a necessary and constituting condition of its hegemony - and the very insignia of the success of hegemony.

Graham R. Iran, the Illusion of Power. (1978) p.190.

Yet willing acceptance produces unendurable stress. 'The ancient culture adjusting to the impact of new and alien influences imposes an acute psychological strain in many Iranians...the future taking shape around them is being made of ideas, habits and technologies imported wholesale from outside that undermine or render obsolete traditional values.

This tends to arouse a latent chauvinism and at times xenophobia...'
 ibid. p.194. Graham writes 'the nationalistic stress placed on transhistorical cultural identity underlines the tremendous sense of insecurity that runs right through the Iranian psyche.' Attempts at 'national regeneration', far from healing the psychic wound, open it still further. (We add, in passing, that this sense of insecurity and wound of which Graham writes may be identified with that 'psychic abyss' between positivism and irrationality of which we have already written.)

M.Robinson 'Islam and Capitalism (1977) quoted by Kaldor p.146.

Kaldor M. 'The Baroque Armament (1982) Esp. Ch.5. 'The World Military Order'.

There is a fascinating discussion of this problem in After Babel by George Steiner. (1976) see esp. p 470...

This effect was observed in the very first Islamic nation to engage with industry - Turkey. 'We are Europeans..this phrase is on our tongue like the chorus of a very stirring martial song. All of us, rich and poor young and old, have this phrase on our lips - to be European is our ideal.'
 Mary Kaldor has described the training programmes of foreign military aid as the locus of first encounter between traditional cultures and the modern system. Yet before the formal induction into industry takes place, the psychic transformation is already being produced, in and through language - both the learning of the languages of hegemony - English, French and to a smaller extent Russian- and the subtle changes brought about in the indigenous language and its use. (It is interesting to wonder about the effect upon the languages of hegemony brought about by their international use, and to what degree those for whom those languages are indigenous (the English, for example) are alienated from the use of their own tongue, by it acquiring certain characteristics.)

F.Fanon. 'Black Skin, White Masks'
(1968) p.9.

ibid.p.33.

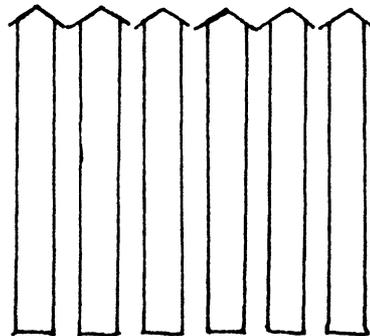
Frantz Fanon has written:"To speak means to be in a position to use a certain syntax, to grasp the morphology of this or that culture-language; but it means above all to assume a culture, to support the weight of a civilisation.' Yet this assumption tears the Europeanised African or Moslem away from his original sense of humanity "The fact that I adopt a language...that I talk down to this poor woman.....the fact that I condescend to her....are the stigmata of a dereliction in my relations with other people."

A.Lipietz. 'Toward Global Fordism'
N.L.R. No.132. March/April 1982
p.58.

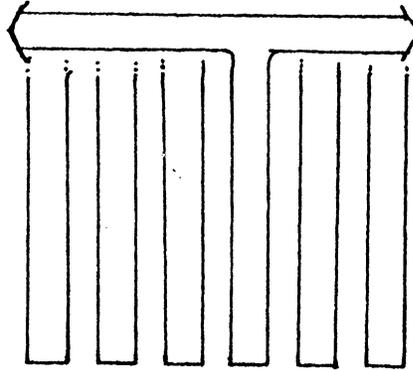
See Footnote.

Such understanding rapidly finds political expression "In many third world countries - Iran or Egypt, for example,- the identification of Marxism with the bourgeois project of limitless industrialization has turned the revolutionary masses away from 'secular' ideologies and Marxism, shifting their revolt into the ambit of reactionary clerical ideologies."

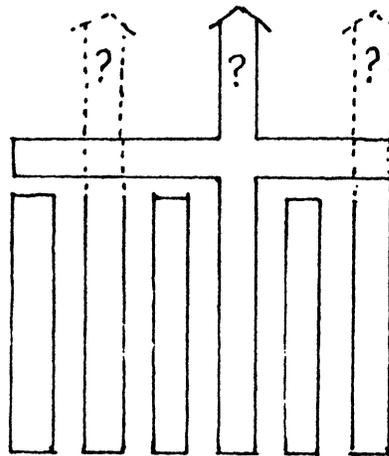
At the most general level of all, this problematic can be given a simple diagrammatic expression, as follows.....



in which the vertical columns represent separate (though not, of course, wholly 'impermeable') autonomous cultural traditions developing through history.



The horizontal spread of one column cuts off the autonomous growth with a hegemonic 'layer' : an imperialist phase.



Some of the vertical 'growths' die out but others survive in some altered form. The continuing development of the original hegemonic tradition is also problematic : a post-imperialist phase. What relation do the remaining traditions have with their pre-hegemonic existence?

To use Iranian or African examples further would be impertinent and premature. It would be better to consider whether or not the hegemonic role of European art and industrial design has not deeply and problematically changed the relation between us and our own most characteristic products. The hegemonic role of the Euro-American world may have had effects upon its own culture similar to those experienced by the world at large. If so, then attempts to persist in the traditions of that culture begin to take on the parodic character that we see in African 'airport' art, and in tourist entertainment the world over. The foundations of production can no longer be located within the original autonomous stem.

* * * *

And so this study revolves back round again to its point of origin.

'Nobody, however, who has paid any attention to the particular features of our present era, will doubt for a moment that we are living at a period of most wonderful transition which tends rapidly to the accomplishment of that great end to which, indeed, all history points - the realisation of the unity of mankind. Not a unity which breaks down the limits, and levels the peculiar characteristics of the different nations of the earth, but rather a unity, the result and product of those very national varieties and antagonistic qualities.'

This study has hypothesized the existence of two entwined strands of thought; the normative, that sought to establish the means of realised unity, and the critical that sought to preserve antagonistic qualities. It has been suggested that the rise of cultural nationalism is a critical

reaction to the uniformalising and hegemonic culture of the industrial system.

This enables us to locate the varied arts and crafts movements, the successive handcraft 'revivals', and the long rearguard action of craft associations within an ideological complex. This may be described as the 'construction of tradition', as the dialectical counterpart of the anti-traditional force of industry. The one affirming a view of culture as distinct cultures; the other affirming culture as a form of nature.

The instance that most nearly concerns the British reader is the Gothic Revival and allied phenomena.

We have already noted that in England, Germany and France, the Gothic was interpreted as a 'national' style. This took on great architectural significance in England, where the revived style became the principal signifier of authority - through Barry and Pugin's Palace of Westminster, through Street's Law Courts, through Butterfield's Keble College, through innumerable civic buildings, and through the Commission and other churches. The revival can hardly be considered apart from the wider reconstruction of authority that took place throughout industrialised Britain. This was an administrative and political process that begins with the Reform Acts and continues through measures for the improvement of cities, health, education and railways. But

it was also a reconstruction of civic symbolism, and in this process Gothic revival played a notable part. In the consolidation of that authority and that symbolism, a similar role was played by the neo-vernacular of the Arts and Crafts Movement.

In The Invention of Tradition ed. E Hobsbawn and T. Ranger. (1983) p101.
(D, Cannadine 'The Context, Performance and Meaning of Ritual: The British Monarchy and the Invention of Tradition 1820 - 1977.')

A recent study has illustrated the development of royal ceremonial in the 19th century, but has done so without extended reference to the use of architecture and design. Cannadine notes how, in 1820, the radical essayists of 'The Black Book' argued that "Pageantry and show, the parade of crowns and coronets...are ridiculous when men become enlightened": he then traces the several stages by which the disreputable monarchy of that time was elevated into the secular religion of more recent times, through the judicious use of ritual observances that were, very largely, 'invented' traditions. Of crucial importance in this process was the development of a popular illustrated press, employing first woodblock and later photo-mechanical image processes. He does not note how this efflorescence of ritual was foreshadowed in the Oxford Movement and in Pugin's medievalism.

The whole question of the 'invented' tradition has been opened up for study by Hobsbawn and Ranger etc, and it happily coincides with issues raised in this study. Here we will use the term 'constructed' tradition in most cases, since we will normally be concerned with some form of design revival, rather than pure invention. For the Gothic Revival, for the neo-vernacular, there was some prototype, some object of real research (be ~~they~~^{it} cathedrals, barns or old dye receipts) that compel us to speak of 'constructed' rather than purely 'invented'.

See Hobsbawn and Ranger
op.cit. pp.43-100.

Yet there are examples of pure invention too, and it is pertinent to mention them. H.Trevor-Roper has described ~~the described the~~ the development of the idea of 'Highland' costumes and culture as follows. 'The whole concept of a distinct Highland culture and tradition is a retrospective invention'. He goes on to demonstrate the invention of the kilt by a Lancastrian Quaker, and the fanciful 'history' of the 'Sobieski Stuarts' as stages in the invention of a highland cult. A significant stage was the founding of the Celtic Society of Edinburgh (1820), and the activities of Sir Walter Scott as romantic novelist and royal propagandist. Scott's biographer J.G.Lockhart describes the whole process as 'hallucination', but (and this is the main point) hallucinations can have real and lasting effects, particularly in such matters as building.

ibid. p.80 et
seq.

Prominent among these was
the father of Owen Jones.

A like process was at work in Wales, where a 'national dress' was designed by Augusta Waddington, whose husband (a great Monmouth iron-founder) was responsible for overseeing the construction of the Palace of Westminster. Prys Morgan writes of the great effort made to construct (or invent) a Welsh history on the basis of slender (and sometimes bogus) evidence. The aim of this labour (mostly by London based scholars) was to endow 'the constricted, pathetically small nation, which had little to commend it in its present state, with an unimaginably grandiose past, by way of consolation.' He continues 'The Wales we have been describing was not a political state, and for want of such a state the people were driven to give a disproportionate amount of their energies to cultural matters, to the recovery

of the past and, where the past was found wanting, to its invention.... it required a superhuman effort by a small number of patriots." The difficulty with this conclusion, however, is that the process Morgan describes went hand in hand with the ever-extending incorporation of Welsh life into the central industrial system of England ; and that the new/old traditions were enthusiastically endorsed by the local managers of that incorporation.

See also D.B. in Circa
No.14. Feb.1984.(Belfast)
pp.19-20.

There is a good deal in this story that is degrading and cynical, for it belongs in the history of cultural degradation; yet it is not sufficient to describe them in such terms alone, because the enduring quality of these pseudo-myths points to their connection with a much more authentic problem ...the devastation of the inner life of pre-industrial communities by the epistemology of the industrial system. Bluntly speaking, man cannot live by fact alone, but by the word of myth or metaphor. And metaphor we will have, invented or otherwise.

And here, as earlier, we turn back again to the Prince Consort's dilemma that now appears, viewed from this perspective, as a statement of policy. The enthusiastic complicity of the monarchy in these invented traditions (most specially, that of the Highland Cult), and the interest taken by the Prince in (for example) the preservation and teaching of Gaelic, are the dialectical counterpart of modernisation. To have the notion of 'tradition' is to designate oneself as 'modern'.

To reiterate: modernisation consists not simply in universal industry, but also in the construction of localism and tradition.

The overall adoption of Gothic Revival as styling, by the national and civic authorities, as the validation of the new political and administrative reality of mid 19th century England, indicates clearly its ideological function. The nature of Revival architecture, simultaneously technically advanced and rationalistic, while promoting handcraft and 'archaeology', made it particularly appropriate to this purpose. The Palace of Westminster (viewed in this light) begins to appear as a 'technological gothic', concealing within its decorative skin the iron frame of industry and the symmetrical axis of chambers that was supposed to embody a view of the constitution, but a view of the constitution that was now outdated and was a purely ideological notion.

Cf. the 'technological classicism' of the Taller de Bofill.

The adoption of an ecclesiastical form-language to secular purposes reaches its height in structures such as Lockwood and Mawson's Town Hall at Bradford (1870) in which the Heads of State (inc. Cromwell) are given places in rowed niches above an 'early english' doorway.

The Gothic Revival is the primary example of a style created by an altered relation to history, from a deliberate attempt to remythologise that history springing from a sense of alienation from it. It is the first response to a hegemonic experience, arising from within the culture of hegemony.

In the shadows of Gothic Revival it is possible to descry the dim outlines of 'post-modernism'.

Cynical and parodic elements appear in such an exercise, and subsequently take on greater force in the revived neo-neo-classicism of Stalinist Russian architecture, and the dreams of Hitler.

The Rediscovery of Ireland's
Past. London (1980)

p.29. In Great Britain, these constructed or invented traditions were at the service of existing authority; this is not the case with the 'rediscovery' of Ireland's past. Jeanne Sheehy has described the 'growing sense of the connection between culture and awareness of nationality'. There, the scholarly pursuits of an older generation formed ~~the~~ material that could be exploited for political ends. It is instructive to see the revival of Celtic ornament as early as the 1830's, and to find implicated in its progress such figures as Pugin, Owen Jones, M.D.Wyatt and Daniel Maclise. (Maclise being on the editorial board of the Journal of Design and Manufactures, as well as being the painter of such vast machines as 'The Marriage of Eva and Strongbow' (1854)). A rather fine style of small church building came into existence, of which the best example is probably St.Patrick's at Jordanstown outside Belfast by W.H.Lynn (1865-8). This was described as 'The First Attempt in Modern Times to Revive the Ancient Architecture of Ireland'. It appears to be a definite attempt to act upon hints made by Pugin 'If the clergy and gentry of Ireland possessed one spark of real national feeling they would revive and restore those solemn piles of buildings which formerly covered that island of saints....'

ibid. p.66.

from 'An Apology for the
Revival of Christian Arch-
itecture' (1843) quoted by
Sheehy. p.63.

This and similar churches were in a form of Romanesque, and all were associated with an ecclesiological movement in which competing nationalisms were taking shape. In the applied arts, Celtic motifs became very fashionable, particularly for jewelry. In the Celtic Revival period, later in the century, we find attempts to create an Irish national costume: in 1904 'Celtic costumes' were exhibited at the Arts and Crafts Exhibition in Dublin, which combined celtic ornament and embroidery, with flowing fabrics. These are the prototypes of later national dance costumes. The architect W.A.Scott, best known for his work on W.B.Yeat's house at Thoor Ballylee, developed 'arts and crafts' values in an Irish setting, to fine effect.

ibid. p. 148 etc.

See Footnote.....

Sheehy however, is forced to conclude that 'there was no distinctively Irish style, and that the Irish Revival did not pass on a living tradition in art as it did in literature....once again, this was an attempt by intellectuals to force art into a particular mould. In addition, any development of a national art in Ireland was overtaken by the Modern Movement, which did not take the expression of national feelings into account.' She concludes with interesting but undeveloped remarks on the cultural nationalism of small nations.

ibid.p.189.

The latter fate of these movements of cultural nationalism in the British Isles (and the English Arts and Crafts movement is included in these remarks)

has been to provide the tourist trade with marketable souvenirs. But this latter fate was foreseen from the very first, for the construction (or invention) of local traditions comes about through the sense of locality that is heightened by increased travel and visual communication. In our see esp.pp.28-30 and 88 etc. Chapter One it was argued that visual communication through printed imagery can function as a form of packaging, turning foreign places into merchandise and experience into commodity. The reciprocal is also true, that merchandise, commodities, are capable of becoming forms of vicarious existence.

The most blatant examples of this will be found in 'airport art' the world over, in which indigenous or 'folk' object-types are separated from their purpose and turned into a species of currency. Yet if this is true of the informal and trivial aspects of commercial culture, to what extent may this be true of the formal and symbolic culture of architecture and the applied arts. The question inevitably arises - is the Gothic Revival a form of tourist art, albeit learned, beautiful and highly crafted etc..? The corollary of this may be, that all attempts to assert 'tradition' involve us in complex patterns of reification, parodic relationships to 'authentic' models, and so on into a corridor of mirrors. And the conclusion may well be, that in the industrial world the concept of culture can only be parodic. It is here, we shall conclude, that the critical tradition of design theory has some value left to impart.

* * * *

Within the British Isles this localism was almost wholly invented in character, but the same conditions did not apply in other parts of Europe, most particularly Central Europe. The important difference being that in Czechoslovakia and Hungary, in Finland and the Baltic regions the ideal prototype was real. There was a range of village or peasant art, providing a wide selection of possible models upon which "national traditions" could be constructed. As observed in Chapter Three, this was not the case in Britain.

Hobsbawn and Ranger. op. cit. pp.263 - 307. 'Mass-Producing Traditions. Europe 1870 - 1914.'

Eric Hobsbawn has made a wide-ranging survey of the phenomenon in terms of social, political and sporting history, but barely touches on an area where much evidence can be found - the history of design and in particular, costume design. The concept of folk costume comes into existence with nationalism, in central and eastern Europe. Here we must speak of construction or synthesis, rather than invention, for the national styles were synthesized from the array of existing folk-dress types. A significant force in this synthesis may turn out to be costume design for the opera and musical theatre. Here national music and national design could come together (see below).

That this national expression had an historically real prototype, that (in a complex sense) this 'national style' was the possession of a real part of the population, helps us to understand the peculiar political importance of the issue of handcraft.

We have already commented on the 'mittelstand' question in Germany and its retroactive utopianism: we may say that because nationality was seen to inhere in certain design styles, so styles became a focus of nationalist politics.

The Speeches of Adolf
Hitler. ed. Baynes. Vol.I.
p.568.

"In all spheres of our historical and cultural life, the knowledge of our tradition must be the pride of the present and must form a bridge that shall lead into the future."

Adolf Hitler. Speech to the Reichstag.
23rd.Mar. 1933.

The exceptional vehemence of Nazi cultural policy was not the creation of Adolf Hitler, though he brought it to fruition. In his book 'The Battle for Art' (1932) Paul Schultze-Naumburg wrote 'A life and death struggle is taking place in art, just as it is in the realm of politics. And the battle for art has to be fought with the same seriousness as the battle for political power.' Schultze-Naumburg had taken over the school at Weimar, and had attempted to reintroduce some older ideas. Linz writes 'The central idea of the Bauhaus, which had been to achieve a total integration of art and industry, was now replaced by the long obsolete ideal of the medieval artisan's guild.'

Quoted by B.Linz in 'Art
in the Third Reich.(1979)
p.45.

The real situation, as we have noted, was much more complex, and it would certainly be a mistake to attribute 'heimat' and 'guild' notions to the Nazi movement, which simply employed the rhetoric of a Schultze-Naumburg to unnerve the opposition (who, as we have seen, could share such ideas).

But that Hitler could deploy 'tradition' is an indication of the size and depth of the 'volkisch', the 'heimat' and the 'handwerk' reaction: it was not confined to right-wing or petit-bourgeois craftsmen, but existed in tandem with normative ideas, often within the same institution and even the same individuals. Hitler's appeal to 'tradition' and to 'community' could seem to transcend and resolve such contradictions. The appeal of fascism, its lasting appeal, lies in the capacity it seems to offer - of bridging that psychic abyss. And while industrial culture exists, it will always contain the possibility of fascism.

In Baynes. p.569. (IIth Sept. 1935.)

Baynes. p.584. (Opening address 'The House of German Art' 18 July.1937)

See Graham op.cit. p.193.

See also previous chapter for similar statements by Zhdanov.

'All man's great cultural creations have arisen as creative achievements out of a community consciousness....they are the expression of the soul and the ideals of the community'. 'The objection that only a small part of a people can understand and take its share in artistic experience, and thus be interested in art, is false'. 'We (need) the readiest and most intimate agreement of the great mass of the people; an art which must rely upon the support of small cliques is intolerable.' It is in the logical form of this reaction that Hitler's words would be echoed by the former Shah of Iran at the opening of his 'parliament' in October 1975. 'The determination of our nation that in this new era (Iran's cultural spirit) should obliterate all signs of weakness, decline, corrupt disorder, reflects the intellectual meaning that the positive and immortal Iranian culture should be cleansed of all pollution which might have crept into it through foreign elements.'

A critical understanding of varying forms of populism must be attained if we are ever to investigate the working out of populism in design. In the gross examples of Nazism or the rhetoric of the Shah it is easy to see the parodic vehemence taking shape in architectural projects, monuments and regalia. In the Nazi case, Linz has shown convincingly that in the fine arts the prevailing tendency was to the reintroduction of the academic genres: the dominant aesthetic concept of the whole regime being a version of Decorum. But many and more subtle examples of populism exist in such fields as private housing developments. Here, especially in Britain, the retrospective or neo-vernacular tendency of the critical tradition has given rise to an extraordinary range of house styling. (At the time of writing this, the author passes every day an estate of very small ill-built houses on which plastic 'georgian' details are being affixed; the advertisement for the estate reads 'A Return to Traditional Values').

The miserable denouement of the German critical tradition, and the innocent but no less parodic styling of British domestic design needs to be contrasted with Scandinavian critical thought. There, as Gillian Naylor has observed, there was a prolonged and successful attempt to realise some of the aims of the arts and crafts movement. In Sweden, Norway and pre-eminently Finland craft traditions survived to be encouraged and to form part of the modern state. The 'volkisch' symbolism, that in Germany took on sinister meanings, was fruitfully aligned with modernisation and democracy.

The motto of the Svenska Sløjdföreningen (The Swedish Society for Industrial Design) was 'Swedish Handicraft is the father of Swedish Independence': the society was founded as early as 1844 with the aim of protecting the country's craftsmen when the guild system was abolished and free-trade instituted. Its purposes were also educational, and self-educational, and it had a clear view of its role. Gilliam Naylor has summarised as follows "What distinguishes Swedish theory (and this applies with some reservations to Scandinavia as a whole) from that of other countries was: first its concentration on an ideal of domestic simplicity and self-sufficiency; second, its encouragement of a surviving craft tradition, and third, its avoidance of complex dogma and abstraction. Such a theory as did develop was basically practical and pragmatic, concentrating on democratic priorities rather than abstract aesthetics.....its ideals were tempered by the nature of the society it served, and were therefore neither elitist nor utopian."

In an unpublished MS.

my italics

When in 1909 the society launched its most ambitious exhibition - the 'Art Industry Exhibition' in Stockholm, it was the domestic architecture and design that most attracted international attention: "These, with their emphasis on the vernacular, were unique; the demonstrations of unpretentious one-family houses small farms, and working class apartments had no counterpart in Europe at that time." Yet it was observed within Sweden that craft production as such was still unable to meet the demands of quantity, and was therefore, irrespective of intention, exclusive. In 1916, the society was reorganised on Werkbund lines; but so as to bring traditional crafts into the industrial system rather than to exclude them : craft workers never became (in Le Corbusier's phrase) an 'anemic class.'

G.Naylor. *ibid.*

In Finland the nationalist impulse behind the craft system and its revival was still more strongly marked, and took form at the same time as the achieving of political autonomy. Once again, long-lasting craft associations were an important feature, as was the existence of a vigorous vernacular style. (There were also several interesting personal links with the English Arts and Crafts movement). Similar though abortive movements existed in the Baltic states and in Hungary, where the 'transylvanian' style is of considerable interest and quality. In Central Europe, romantic nationalism often took the form of a 'return to ethnic roots' coupled with an incipient modernism. These matters are complex and difficult to investigate: it is likely that the basic concepts could best be studied in the world of music. The commanding figure in such a study would be Béla Bartók, who was simultaneously grounded in deep knowledge of ethnic 'local variations', yet whose music, while not ceasing to be consciously national, is also transmuting ancient and 'volkisch' material into an art of 'realised unity'. The studies of Bartók and Kodaly were consciously conducted against a view of history in which 'for centuries the life of European peoples has been in continuous transition from an unwritten agrarian folk-culture towards an urban culture of books and factories.' It would be instructive to compare Bartók with Vaughan Williams and Sibelius, not from a musicological standpoint but from one rooted in ideological criticism.

Kodaly Z. Hungarian Folk Music (1971 ed) p.13.
See Footnote.....

What can be said with certainty, is that similarity of theory by no means leads to similarity of actual achievement. Critical ideas in England, Scandinavia and Germany led in each case to dissimilar conclusions in each case, the critical theory being part of a different national

process. Actual production met ideology on different ground. Normative design reform, on the other hand, being essentially internationalising and hegemonic may be said to have had a broadly similar significance everywhere, there being a greater coincidence between the two forces.

The elegant and practical neo-vernacular of Scandinavian design became, abroad, the sign of particular formations of the European bourgeoisie; and at home it by no means achieved the status of a 'national style'. The popular-commercial market of Scandinavia is hardly to be distinguished from that of any other industrial country, and craft production (even when fruitfully allied with industry) has remained exclusive.

* * * *

The moral dilemma of persisting in craft production as an affirmation of value had long been noted. Morris's exasperation echoes down decades - the bearers of national identity and cultural autonomy were also simply 'ministering to the swinish luxury of the rich'. In more recent times they have been providing the parody-objects of tourism and airport art.

J.Peter. in 'Idea 1955; international design annual' (1955) p.vi. The justification for the craft system has come to be seen more recently in direct marketing terms. "Design...has to stop kidding itself about the honest availability of low cost design by pointing to a few good-looking glass tumblers in a dime store. For the shocking truth of it is, with machines churning out billions of products all over the world, the bulk of well-designed things are still handicraft or virtually handicraft objects produced in relatively limited numbers."

Arguments of this form have sustained the continued 'craft revivals', though the open acceptance of market arguments has been muffled by the withdrawing 'noise' of the arts and crafts ethic. Craft production has come to be exactly what Morris and Ashbee feared... 'working with great skill for the very rich' (at the top end of the market) and (at the bottom end) providing parodic status-signs. Most recently a class of craft objects has come to be incorporated into the fine arts, as when museums have begun to collect 'once off' pieces from 'artist-craftsmen'. The modern artist-craftsman is much better understood as working within a fine art system, than within anything substantially connected with a 'craft tradition'. Thus in Britain and America the promulgation of craft councils has followed closely upon the art councils, and the demarcations between them and within them are subject to logical confusion and not a little absurdity. And accordingly, such craft-workers and their products are as internationalised and as much part of industrial hegemony as the fine arts.

See Footnote.....

This in turn has led to a revival of critical thought within the craft discourse which has taken the form of a neo-critical demand for a return to the 'traditional' values of the craft revival.

See also Ch.3.

The incorporation of the crafts into the fine arts and the confusions that ensue therefrom have recently been described by Frayling and Snowdon.

In 'Crafts' No.56 May/June 1982
p.19.

They write "If there is one development which radically separates some of the 1970's craftspeople from their roots in the Arts and Crafts movement, it is the progressive downgrading of the concept of skill...They are busy reinforcing precisely those divisions - between brain and hand, design and making, design management and skilled labour which the Arts and Crafts movement was originally trying to break, or at least challenge." They go on to argue that we require some re-thinking of Arts and Crafts accounts of the labour process, since recent research shows that the simple 'de-skilling and alienation' model of earlier historians of industry needs to be modified, most particularly in the light of More's 'discretion' element.

See Ch. 7.6.
reprinted in 'Oppositions' No.22
Fall 1980 trans. D. Blaurock.

The direction of their argument, as applied to this thesis, is that the critical tradition of design theory must adjust to new definitions of skill. Adolf Behne's article 'Art, Handicraft and Technology' of 1922 (already cited) argued a like case against the First Bauhaus Programme. "Technology is nothing but perfected craftsmanship. At least, the distinction is a fluid one. With every instrument introduced between hand and material, craftsmanship approaches technology. In this way, is there not a tendency toward technology implicit in every craft? Is not the technological process in principle one of stronger, more intense intellectualization."

In the light of new cybernetic technologies which enable the former hand-worker to record his own 'organic' hand processes (his autographic and gestural unicity), and to programme a robot device to replicate what was hitherto thought to be unreplicable, the above arguments gain in force. Behne goes on to distinguish between craft and technology: "In craft, the unity of invention

and execution is in one person: in technology it is split between the one who invents here and the one who executes there." But it is just this split (with which the critical tradition is so much concerned) that is bridged by the application of cybernetics to hand production.

The heart of the critical quarrel with the industrial system must then be seen to be moving from a particular type of production, to a particular style of control at the point of production; More's 'discretion content'. If we bear in mind the writing of Charles Babbage upon the importance of machine tools and the coming 'science of calculation', this second level of the critical tradition portends a new type of synthesis between arts and manufactures: one that must modify the concept and profession of design and design management. If the profession of 'designer' be considered (as we have done here) as deriving from the industrial division of labour, then modification of that division must work itself through the whole design process.

Such topics have been frequently discussed under the heading of a 'post-industrial' epoch; there is no need to add to such a large body of speculation. Much more immediately we can point to the concept of designer or architect as the 'enabler' and servant of design process, rather than as its initiator. Of considerable interest, is the theoretical and practical work of Yona Friedmann and others in similar fields, who have sought to bring scientific and industrial methods to bear on 'self-build' and 'community design' situations. That is, to apply 'objective rationality', positivist epistemology and utility in a non-managerial role.

{See Footnote.....

Much of this chapter has been concerned with the parodic character of constructed or invented traditions, and their link with the critical concept of design reform. By attaching importance to the means of production rather than to control of the productive process, the arts and crafts movement diverted the attention of design reform from the central question of design management, and attached it to style. The guild socialism of Ruskin, the communities of Ashbee and other, the Marxism of Morris, notwithstanding, the effect of the diversion into style meant that the final outcome could only be parodic, serving the particular desires of a clientele determined to 'ruralise' and disguise its industrial reality.

A renovated critical tradition will have nothing to do with handcraft values as such, and everything to do with 'discretion' - with the control over work and production. The consequences of this upon design style are unforeseeable, but it is possible to imagine a 'self-build vernacular' in housing foreshadowed in the Stead and Stead/Lewis houses, and in recent housing by Walter Segal. The customizing of many articles, from cars to clothing, the design of kits and assembly systems, the increased availability of small machine tools and computer-aided devices are all lines of development that point toward an increased autonomy of styling. Here it may be possible to see the outlines of a new outcome of critical thought.

See Arch. Journal. 31. Jan. 1979 and A.J. Information Library Dec. 1980.

* * * *

The Studio.Vol.1. 1893. p.237.

In an interview with C.F.A.Voysey,
cited in Ch.1.

H.Read 'Art and Industry' 3rd rev.
ed. (1952)

That design reform had, in so many areas, achieved very little indeed is a constant theme since the Great Exhibition. The reactions to that exhibition have been noted, but they have been repeated ever since. In 1893, the first issue of 'The Studio' complains "How wide a gulf still yawns between the furnishings of the house today as it might be and the.....cheap bric-abrac and the costly, which are all more or less rubbish.....etc.'" In the preface to his 1952 edition of 'Art and industry' (originally published in a more optimistic vein in 1934) Herbert Read writes of "a certain failure of nerve. Journals which were formerly progressive and experimental in their outlook have indulged in sophisticated antiquarianism.....an unashamed nostalgia for 'ornament' or 'style' ". He blames "The massive inertia represented by manufacturers and consumers, two intangible groups that combine to 'pass the buck' to each other - the buck in this case being the responsibility for the perpetuation in nearly every trade except engineering, of design that has neither beauty nor efficiency."

'Failure of nerve' and 'massive inertia' are not adequate explanatory categories, though they betray the voluntaristic streak in all design reform polemic. When dealing with such an enormous phenomenon as popular-commercial taste we are confronted with the intersection of immense capital investment and an immense cultural investment in the form of habits and expectations developed by innumerable forces over many years as part of the psychic adjustment necessary for the industrial system to exist at all. In the face of such power it should be clear that the design reform movements were primarily concerned with the formation of ideology, rather than changes in production.

T.Adorno and M.Horkheimer.
 'The Dialectic of Enlightenment'
 (1966) p.xiii.

As experienced throughout its history, industrial production has always been accompanied by the managerial 'triad' described in the last chapter; and in every case this has affected the whole material culture, the image arts and the customary arts. There is evidence enough to argue that this triad, far from achieving emancipation and enlightenment and 'realised unity' (as the Prince Consort and the design reformers hoped), far from speaking a 'language of freedom and power', has induced an equal and opposite reaction. "Believing that without strict limitation to the verification of facts and probability theory, the cognitive spirit would prove all too susceptible to charlatanism and superstition , it (made) a parched ground ready and avid for charlatanism and superstition."

The overwhelmingly obvious fact of the history of design since the 1830's (as opposed to studies in taste) is that the popular-commercial market has changed so little. This fact, which like the sun cannot be looked at without the aid of instruments and reflection in darkened rooms, hangs over all attempts at a history of 'design reform'. The pictorial expression of the new industrial system took its form then, and those main delineations, conventions and genres still hold good today, despite the range of new visual media. Likewise, over the realm of product design the standards of 1851, however modified by new materials and processes, still hold sway. Heavy decoration and ornament, historicist styling, 'ignorant' confusion of styles, naturalistic illusion - in a word, kitsch, still rules. Into this stylistic mill has been fed every sort of 'modernism' and every 'ethnic' or 'craft' exemplar. And this is transformed into the taste for the antique (itself a recent phenomenon, deriving from the 1830's).

See Footnote.....

The category 'popular-commercial' is, of course, a very gross one, and a wide-meshed sieve in which to catch the fine grains of reality ('polished with sand of human soul'), but the following very general propositions seem worth consideration with respect to the design of consumables : that the prodigality of late capitalism provides a form of autonomy in consumption which is given in the variety of choice, from which by ingenious combination and re-use, an exceptional wealth of meanings and allusions can be constructed. (It is exactly this stylistic (and ~~perhaps~~ surrogate) autonomy which is the object of so much envy in the non-capitalist industrial countries.) And: that the emblematic gorgeousness, colour-saturation, floral patterning and pell-mell intensity of incident acts as the substitute folk-art of a declining industrial proletariat. But a discussion of these propositions lies far outside the scope of this study.

Read. op.cit (4th ed. 1956) p.12.

See Footnote.....

Read also noted (in 1934) a 'sense of failure' in the domain of architectural design. "I think there is now a general realisation accompanied by resignation and even despair, that the finest achievements of modern architecture do not compete with the finest achievements of the good styles of the past." This is because "the continuous chain of sensibility, which stretches from prehistory to the threshold of the present age, on that threshold lies snapped". Read's conclusion represents - in the terms of this study - a reassertion of the metaphorical structure without which 'art' and 'industry' cannot be unified.

ibid.p.9.

"There can be no general recovery of style without the recovery of an organic tradition".

The difficulty with such an account of modern architecture (from which a great number of subsequent criticisms have flowed since it was penned), is that it treats objects as style, not as the products of a complex system - of indeed two complexes - that of production and that of ideology. This is so obvious as to be truistic, but it is worth repeating: designed objects are the products of complex systems and cannot be explained in terms of style. A major part of those systems is provided by the industrial 'triad' of utility, positivism and objective rationality.

Read. *ibid.* (4th ed. 1956) p.14.

For a discussion of this see
Bahro R. The Alternative in
Eastern Europe (1978). See
Footnote....

Read describes this as the "functionalism in industry, to conform with which we have invented vocationalism in education (~~and~~ which) is the exact opposite of humanism". Read's hope of reform by 'education through art', admirably articulated in his writings, remains vain because that triad is the essential and all-dominating centre of the industrial system, to which the formal education system is a mere adjunct. And this would seem to be true whatever the formal political or cultural apparatus.

Adorno and Horkheimer *op.cit.* p.9.

That this should be the exact opposite of humanism is not surprising, for we have to deal with the central problematic of an industrial culture - the alienation of human beings from the most characteristic products of their culture, and the breaking of 'the chain of sensibility' that connects groups and individuals to the past from which they gain identity. "Men pay for the increase of their power with alienation from that over which they exercise their power."

* * * *

Human variety (the 'local variations and antagonistic qualities'), insofar as it is dependent upon continuity, is incompatible with the industrial system in any form yet experienced. For those who have had industrial development thrust upon them, continuity and identity are severed: for those within whose culture industry had its genesis and for whom industry actually is the continuity, the severance has the character of self-alienation. The author of this study suspects, but would not care to demonstrate, that in no people is this process more acute than in the British (and particularly the English). It is clear that this subject begins to touch upon pathology, and to induce psychiatric or similar analogies, that are to be avoided.

Cf. George Kubler: see Introduction.

But the question of continuity, or tradition, is unavoidable. Such history as this may be is founded on the premise that objects outlive people, and constitute the material form of time: and as the self is constituted in and by memory, so groups and nations attain identity through shared remembrance in the form of myth, epic, chronicle, history and material forms. This identity is not, except in the most general sense, given; it is created and indeed struggled over, for it is the foundation of ideology and inseparable from the questions of authority, legality and the exercise of power. Thus an interpretive history, such as this seeks to be, supposes this struggle and in doing so, supposes a future.: an interpretive design history no less than a political history.

Thus, in conclusion to these remarks upon the 'critical tradition' in its new role, a measured degree of prescription is in order.

We can define two linked projects that require practical and theoretical work; work in which the activities of design history and art history have a part.

The first arises directly out of the lasting concerns of the critical tradition; it consists in the historical and theoretical definition and elaboration of the concept of skill; and in particular of the 'discretion element' in the productive process. We have already suggested that the critical tradition, by reactively over-valuing manual processes, condemned itself to minister to the swinish luxury of the rich. By stressing the means of production (handcraft) rather than the control of production (which is not determined by means as such, but by social relations), an inadequate account of the effects of industrialization was promoted. For historians, this suggests that much more thought and effort must be directed toward the "gründerzeit" of the early industrial period: and indeed, there is evidence that this is under way. This applies clearly to all types of material production; the aim being, to study what Greysmith calls 'the sign language of a people changing from a predominantly rural to an increasingly urban culture.' (Though the concern here has been with British experience, it is obvious that such a project has global significance). The theoretical aspect of this work, already under discussion, will be found to have important consequences in teaching and learning: in recent years an attempt, largely successful, has been made to impose through the education system a concept of 'skill learning' that supposes skills to be detachable from the context in which they are practised. This will find no support. A critical theory will also seek to re-instate tacit learning as intelligent, and criticise not 'scientific design methods' as such, but the concept of 'scientific method' that underpins them.

See Chapter One.

The role of design theory in this first project is to clarify the nature and limits of 'the professional', in order to see what 'discretion' might concretely mean in later or even post-industrial systems. Control at the point of production opens the question of design management, and the area of 'community design' and 'self-build' movements. It is in this direction that the practical force of a renovated critical tradition will be applied.

See Footnote.....

Bahro. op.cit. p.253

ibid.p.261.

In so far as the critical tradition embodies a mythical structure, then "Today, utopian thought has a new necessity". It seeks a general and not particular emancipation "to put an end to the destructive pressure that the civilisation coming out of Europe has had on the life of all other peoples."

The second linked project will concern itself with the problem of continuity, and may be outlined by means of critical quotation from an essay by Dalibor Vesely.

D.Vesely. 'Community and Architecture I.: Kentish Town Project' A.A. 1982 p.12

"To avoid the meaninglessness of the contemporary city it is not necessary to search for some ideal order in the pre-industrial past. It is possible to start from the given reality of any existing city and to discover, in most of them, a residuum of tradition sufficient to support a consistent, imaginative and sometimes even radical re-interpretation of the status quo."

This residuum of tradition is not given; it must be defined and struggled over.

ibid.p.9

"The relatively sudden disappearance of traditional knowledge created a vacuum filled with problematic equivalents in the form of new rational principles....we (now) find it uncomfortable to abandon the certainty of intellectual constructs for the uncertainty of historical understanding."

Yet an historicising of our experience is the only way to understanding the condition of self-alienation. The question is - what kind (whose) historical under-

-standing?

ibid. p.7.

"Modern culture is not a monolithic phenomenon but reveals the duality of dogmatic and critical movements, at least from the beginning of last century....the current debate about modernism in architecture leaves too much unanswered. It is too often taken for granted that modernism constitutes an epoch, style or monolithic phenomenon which can be accepted or dismissed in terms of a declaration. Such an illusion can evolve only in a critical vacuum and as a result of the gradual disappearance of traditional culture from the public realm of life. It has become possible to believe that the reality of life is determined entirely by science, technology and their ideologies. If culture, tradition and history itself become suspicious notions, how can one know what is the criterion of reality.?"

The beginning of understanding is that modern culture, unlike pre-industrial cultures, is essentially dogmatic and critical. This duality penetrates all its features - science and technology as well as culture, tradition and history.

ibid.p.8.

"The tradition of European Architecture....is a reality which does not depend directly on our personal interpretation or understanding; it is present in culture as latent meaning and as a set of possibilities and limits for each creative act."

It is not now solely 'European culture' that exists as a set of possibilities for us, but all that can be incorporated: European culture is no more an entity (a'monolithic phenomenon') than 'Modern culture'. Since aspects of European culture - perhaps even its very core, as embodied in the academic tradition - undertook the task of providing the built form of industrial hegemony (the armour of Leviathan), then its art and architecture cannot be simply 'present'. They have been distanced by our alienation and their recovery as 'latent meaning' must be either through critical/historical effort, or as parody. It may now be best to say that all culture is equidistant from us.

ibid.p.7. The task is ' to restore to architecture (etc.) the credibility of poetic imagination and a sense of authentic reality'. That is, within the terms of this study, to satisfy both reason and imagination (cf. Charles Henry), through a natural philosophy, and to deliver this is built form.

The degree to which this re-iterates the dilemma with which this study began is left to the reader to decide, after journeying through these pages.' The relations between these concepts form a language.... in countless fragments: piecing them together is too hard for me. I can only make a very imperfect job of it.'

See Chapter One. p.2.

Footnote to p.303. Lipietz following other writers, distinguishes between industrial heartlands and peripheries. In the first the problem is to adjust existing labour-capital relations; in the second to create them. Fordism 'involves a mode of capital accumulation...based on radical and constant change in the labour process so that the workers 'know-how' is incorporated in the form of machinery...and the continual adjustment of mass consumption to the historically unprecedented rise in production generated by intensive accumulation' (p.34). He argues that 'while certain newly industrializing and eastern-block countries are trying to 'hook on to the ~~central schema~~ a accumulation schema of central Fordism; the creation of the necessary social (labour-capital) relations so destabilises the political structure, through accumulated debt, as to create a 'crisis of Fordism' (See Poland, Mexico, Iran etc.)

- Footnote to p.309. The Prince Consort (who appears in this study as a figure of remarkable insight) strongly urged the introduction of Gaelic and Welsh into the curriculum of country schools in Scotland and Wales. The royal patronage of the Highland cult is a part of this policy. No such interest, however, was extended to Ireland. (See Albert, Prince Consort. by R.R.James. Hamilton London 1983. p.194 etc.)
- Footnote to p.312. I am here indebted to an essay by a student at Belfast Polytechnic. In this essay Mary Harrigan showed that Irish dance costumes were invented to fill the need felt by the absence of 'national costume'; once invented, it then began to take on a development and 'traditional' quality of its own.
- Footnote to p.319. These ideas passed into Hungarian musical education, which is incomparably fine. Recently attempts have been made to do the same for visual education; teachers such as Ferenc Lantos have been occupied in developing a systematic and elementary teaching method that relates to folk decoration.
- Footnote to p.321. At the time of writing a dispute is taking place in the pages of 'Crafts' magazine. Peter Fuller and others have rejected this 'fine-art' ethic, but other writers regard the avant-garde of craft as being as much critical of of 'traditional craft values' as of 'industrial values'.
- Footnote to p.323. As noted in Ch.5, both Stead and Lewis later involved themselves in 'user-design' and 'self-build' work; Stead as a colleague of Friedmann. Refs. to Friedmann appear in such sources as 'Architectural Design' (No.7 1973 and No. 11 1974) in 'Werk' (Vol 63. No.1. (1963), as well as in his own writings such as in D.A.T.A. • ed. Hill (see our ch.5) and in 'Pour Une Architecture Scientifique' Belfond. Paris 1971.
- Footnote to p.326. I mean by this, the trade in antique furniture. The earliest references I have ever come across that describe anything like the present day trade, all point to the 1830's. But it is an obscure business - then and now.
- Footnote to p.327. The recurrent rewritings and emendations of this book record the changes in attitude and optimism of the writer in a most interesting manner.

Footnote to p.328. The argument here is indebted to Rudolf Bahro's 'The Alternative in Eastern Europe' (N.L.B. London 1979) Many passages are relevant to this study; but most of all his general theme, that 'actually existing socialism' has, objectively, functioned as the agent of industrialisation rather than human emancipation. 'Subalternity, which in varying degrees and characters affects the overwhelming majority of people today, is an effect of the entire mode of production, and can therefore only be overcome with its transformation.'(p.273).

Footnote to p.331. The notion of autonomy, of a changed notion of professionalism and new transactional attitudes leads also in the direction of the 'community arts movement'; but there is a further range of problems here with which there is not space to deal.

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APPENDIX : Notes on a general theory of production.

Distinguish between the real object (that exists independent of all thought) and the object of study (which is the reproduction of a real object in thought). What governs categories of thought does not coincide with the order that governs real categories in real situations. There is no identity between logical order and historical order. The problem for thought is to map logical order (necessary for study) onto historical order (the order of reality).

"I should think that a comprehensive theory of models would have important repercussions in the world of art." John Ernest; 'Constructivism and Content' in *Studio International* April 1966. p.150.

In "The Shape of Time : remarks on the history of things" (Yale Univ. Press 1962) George Kubler writes (p.1)

"Let us suppose that the idea of art can be expanded to embrace the whole range of man-made things, including all tools and writing in addition to the useless, beautiful and poetic things of the world. By this view the universe of man-made things simply coincides with the history of art. It then becomes an urgent requirement to devise better ways of considering everything men have made."

Kubler does not attempt such an immense programme but makes observations as to what concepts might be employed and what sort of issues raised. References to this little book are scarce but telling. Andrei Nakov in his introduction to 'Le Dernier Tableau' (trans. of texts by Nicolai Tarabukhin; Paris 1974) considers Kubler's programme as the prolegomena to a purely materialist theory of art. Bernard Smith (see below) refers to him. There seems to be a reflection of his 'prime object' concept in 'A New Theory of Art'

by Donald Brooks (Brit. Journal of Aesthetics. Vol 20. No 4.) in which Brook describes 'relative', 'absolute' and 'super-absolute' art works in their relation to successive works. Kubler's theoretical ambition is toward, in my view, a materialist formalism of process: it would seem to have roots in the work of Gottfried Semper.

Kubler's preliminary concepts employed and modified here are 'the formal sequence', 'prime objects' and 'replicas', and 'drift'.

A formal sequence is a succession of like objects: this sequence may be 'open' (that is, unfinished) or closed. Stone axes would appear to be a closed sequence unless we are compelled to use them again. 'Cathedrals' however, are not a sequence, but a class of ecclesiastical/liturgical buildings: the formal sequence into which some cathedrals would fit would be 'structures having certain formal/engineering properties such as x,y, etc.' Formal sequences are composed of prime objects and their replicas. Prime objects, like prime numbers, are unpredictable and cannot be made to conform to any known formula. They are summations and resolutions of formal properties and problems; they are succeeded by innumerable replicas that form the bulk of all artefacts. These replicas are not identical copies, but progressively less similar likenesses; they are less similar because of the slow 'drift' of changing needs, techniques and habits.

His 'remarks' are extremely rich and suggestive of possible further lines of thought; his examples telling. The book runs counter to the guiding notions of symbolic language and iconography that have dominated art history in the past decades.

Bernard Smith in 'Art and Industry; a systematic approach' (Studio International; April 1974). is critical of the prime object concept but is otherwise greatly indebted to Kubler. His first intention is to free art history from the embarrassment of the 'movement' model. Movements, he argues, do not all belong to the same order of explanation. He then proposes an alternative model. " Although the model that I shall now describe may be said to be sociological, I am less interested in its sociological implications, as explanatory of social structure, than in its potential value for providing a balanced and adequate account of art and the industrial society." His notes are, in fact, brief; and what follows is my modification of them - his 'art-craft-industry systems model' as developed over some years of teaching toward than 'balanced and adequate account'. In this model three distinct but related sub-systems are differentiated from one another by the relation of prototype to replica.

It is proposed that there are three ways of getting things made. They are distinguished from one another on logical rather than circumstantial grounds. The first of these is the 'art-system'.

The art system produces art objects; it does not, however, produce replicas (except in certain special cases). Each unit or object, however can and does stand in a prototypical relation to its successor in a formal sequence. Objects in the art system are normally artefacts, but they may also be 'found' or 'described' and then incorporated into a sequence. These objects are hypothetical, descriptive or prescriptive models of the world or some part of it (Cf. Brook op.cit. Ernest op.cit.) That is to say, they signify. When replicas of art objects are made, they are made within the other two systems (e.g., engravings, reproductions etc.) The existence of a later unit does not render an earlier unit in any sequence obsolete, though the drift of taste may make it less interesting. Moore does not drive out Michelangelo,

nor does Le Corbusier invalidate Bramante. Formal sequences are of many kinds - genre, oeuvre, the tradition, the series etc. Sequences of one are conceivable. Any means of production or material may be employed; though many conventions exist.

In association with the objects are the many institutions - academies, colleges, societies, dealers etc. All those working therein support and add to the art-system by their discourse, which is a part of that system. The makers - 'artists'-have a variety of institutional roles they can perform. This cluster of roles, institutions and interlocking discourses varies but maintains certain cores of belief, prejudice, argument etc. some of which are of great antiquity. The origins of the art system are prehistoric, though the form of the institutions has varied greatly.

In the craft system, replication is normal, but not identical. In recent years we have come to value certain levels of variation and the steady drifts of the units in a sequence. (It is the understanding of the variability level that forms the core of Ruskin's argument in 'The Nature of Gothic'). Normally craft workers follow a traditional or a well established prototype which may be the work of a master craftsman. For this reason we can distinguish between sequences of prototype and sequences of replicas. Where units in a sequence are unreplicated (that is to say, unique) they are likely to be objects of special use (and therefore not in the art system), or objects which encroach on the art system, and it is a nice point to argue whether, for example, some oriental rugs belong to the one or the other. (Such nice cases are no embarrassment to a general theory of this sort, since the aim is not to be precise in all cases, but to render certain sorts of problem visible and to give a ~~plausible and~~ useful explanatory structure. Recently much craft'work has properly been within the art system. (See Ch.7.)

Smith makes a number of fine distinctions between what he calls static, organic and

mutational craft sequences, according to the level and kind of variation and drift. Unlike the art system, objects in the craft system can be rendered obsolete. Craft production implies no special means of production, since new crafts develop all the time (tool-making, experimental equipment etc.)

Craftworkers have a variety of roles within a variety of institutions, often ancillary to art or industry. The origins of the craft system are prehistoric: but guilds, lodges, brotherhoods and trade associations have been replaced by craft centres, colleges, apprenticeships and a mass of less structured activity.

The displacement of craft by the industrial system as the producer of the mass of objects has resulted in the revaluation of craft activity, notably by the arts and crafts movements. The advent of the industrial system made the distinctions between art and craft logically visible and socially palpable.

The industrial system differs again in that it supposes replicas and demands that they be identical replicas. The requirement of identity in replication is ideal rather than actual and depends on the degree of precision available: therefore machine production is normal today. A particular class of workers are engaged on quality control to ensure that the sequence of replicas does not drift more than a certain degree from the originating prototype. The demand for precision and identity has implications in terms of the tools used, the management of the labour process and the design process, and the lifestyles of workers in the system, and problems of hierarchy and control that constitute the recent social history of the world.

In industry we can identify the sequence of replicas as existing independently of the

sequence of prototypes. The prototype sequences drift over time and may exhibit some of the features of the art and craft systems. Industry certainly employs 'skilled craftsmen' and the distinction between prototype makers and the replica makers is important in social development, class and union history.

Obsolescence is expected: this year's model drives out last. There is 'progress'.

The institutions of the industrial system are the firm, the technical college, the training board, the union, the supporting financial structure etc.

The origins of the industrial system are usually held to be in the 'industrial revolution' of the early 19c. But there are very ancient, though not prehistoric examples. Coinage, weaponry and printing are the most obvious. The minting of coins is particularly interesting: it combines a fundamental mechanical means of replication - die stamping, with a combined wealth and propaganda function. Identity of replication is imperative, since imperfection wrecks the basis of transaction and exchange.

Weaponry and the equipping of armies has, from the most ancient times, included aspects of industrial production. The relationship of war to industry is symbiotic.

The printing of patterns and books is also another early example. It was within the printing industry that many of the organisational aspects of industry first appeared; that is, if we discount the example of military organisation.

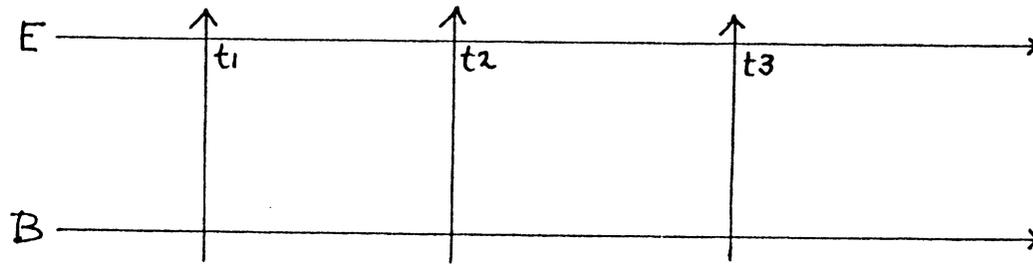
A fourth example is the development of mould-made ceramics during the Sung dynasty: moulding being another fundamental means of identical replication.

I describe this three-way general theory, adapted from Smith and Kubler, as logical, since it depends upon such categories and concepts as models, prototypes, replicas, identities etc.. The distinctions made are logical before they are sociological; and they do not depend upon conventions.

In a general theory of this kind all artefacts and interventions into the natural environment are seen as forming a figure in time and space, growing through present time into the future. Kubler describes this as the 'object-mass'. Most human activity is subsumed into the renewal and replacement of this mass, which sustains and is sustained by continued effort. The figure consists of all existing artefacts and their traces and all that have existed, arranged in their formal sequences of prototypes and replicas. Some of these sequences are closed though still forming part of the mass (e.g. stone axes); others have ceased to exist and are no longer knowable except through oral or written record (such as the feathered cloaks of the Aztecs); yet they form part of the figure.

An understanding of the object-mass and the figure it cuts through space and time presents problems analogous to an understanding of language: that is to say, a synchronous cut through the mass at any time is a different study than a diachronous cut along the mass at any one level. If there are general rules of language and a deep structure common to all utterance, then there may be the same in the mass. For example, phonetic drift may have an equivalent function to stylistic drift. And we may wish to distinguish between the 'langue' of a tradition and the 'parole' of its immediate aspect. This description of the object mass enables us to take in theories of autonomous stylistic change together with a study of real historical conditions, by shedding light on the question of 'relative autonomy'.

Any formal sequence, and any object in that sequence has one axis of determination - that of its place in the evolving figure of the object mass: it has another axis of determination in its relation to the whole mass at any given moment. Since the systems of production (art, craft and industrial) are descriptions of aspects of the productive base, any specific product (a painting , a chair, a motorcar) is an element in the superstructure (an art object, craft object or industrial object). The meaning of objects changes accordingly.....



Where E is some element in the superstructure (e.g. a ladder-back chair) and t_1, t_2, t_3 its state (meaning) within the object mass present at that time, being subject to the horizontal and vertical axes of determination. Neither alone is sufficient to determine the state of an E; the state of \tilde{E} is not reducible to a single axis. Each achieved state modifies each axis reciprocally.

This helps to explain the persistence and mutation of traditions in spite of profound changes in the 'base'. Consider, for example the ladder back chair as vernacular furniture , then as arts and crafts revival, and then as a pseudo-antique: the design has not changed, though its fabrication has. The design may be said to be an autonomous element..... subject perhaps to longer term 'evolutionary laws'.

The points t_1, t_2, t_3 are ^{also} the points of intersection between production and ideology (see ref. to Dickens in the 'Introduction')

Such a theory, as part of the process of knowledge production, does not, and logically cannot, coincide with real historical concrete situations. The purpose of such a theory is to make certain propositions first thinkable and then ^{usable} ~~practicable~~, and therefore to make them possible objects of real historical and concrete investigation. A rigorous theory (and hence history) of production would have to have some logical order, with norms of argument, demonstration, proof etc. (See Althusser and Balibar. 'Reading 'Capital'' pp46-47 etc. Brewster trans.)

It is assumed through all this that art and design history are in a primitive state of fact collection and conjecture, much as science was at the 'phlogiston' stage of chemistry.

Without an attempt at a general theory there is nothing to guide study, for all objects are simply contingent.

An Additional Appendix

From the Academic to the Industrial: a note on "scientific aesthetics" in Britain.

An attempt at a scientific aesthetics lies behind much of the early design reform movement, and culminates in the formation of the Department of Science and Art in 1853. This attempt has its foundations in the academic discourse of the 1830's. The following bibliographic and other notes are intended to open up the topic for discussion. (See pp 174 - 180 above).

George Field (1777 - 1854) first comes to notice as a colour chemist. Much of his work was spent in the improvement of dyes and pigments (though details are hard to come by). In the course of these and optical experiments he designed and invented new pieces of apparatus. He received a Gold Medal of the Society of Arts in 1816. The D.N.B. says of him that "his dexterity and care in the preparation of fine colours set all competition at defiance". He was known to Turner, Constable and Girtin, and there are references to him and his colour theories in the literature (esp. J.Lindsay (1966) p.205 et sq.; and many refs. in Gage (1969). See also Schmid (1948) and Schweizer (1982). No bibliography has been published; it appears to be as follows.....

1817

'Chromatics: an essay on the Analogy and Harmony of Colours'.

printed for the author by A.J.Valpy. Pamphlet form.

1835 A second edition published by John Weale (?), enlarged.

See also Finberg's 'Life of Turner' p.120

See Schmid.F. 'Colour Circles' Art Bulletin Vol.30 1948 and
Schweizer, P.'John Constable, Rainbow Science and English Color Theory. Art Bulletin . Sept. 1982. (useful and interesting material).

I845 A third edition, new and augmented, with several plates and a frontispiece. Published by David Bogue. The same frontispiece was printed by John Weale in W.S.Inman's translation of Frederic Portal's "Symbolic Colours in Antiquity etc." in I839, with many references to Field. This suggests the second edition was published by Weale. Some copies exist with an elaborate frontispiece by Bartolozzi.

I835

'Chromatography: a treatise on Colours and Pigments and of their Powers in Painting. Published by subscription, by Charles Tilt; printed by A.J.Valpy. Dedicated to Sir Martin Shee P.R.A. and to the Artists of England. This is a very handsome book, with several plates.

I84I An improved second edition

I869 A third edition with additional material by T.W.Salter.

I873 A fourth edition. ditto.

I885 A fifth edition, modernised by J.Scott Taylor. (a very extensive re-write). The subscription lists to the first edition of this book is crowded with the names of notable R.A's (Turner, Etty, Shee, Eastlake, Reinagle etc.) The same applies also to....

I839

'Outlines of Analogical Philosophy: being a primary view of the principles relations and purposes of nature, science and art' published by subscription by Charles Tilt. Two volumes with illustrations in the text.

I850

'Rudiments of the Painters Art: a grammar of colouring applicable to operative painting, decorative architecture and the arts.' Published by John Weale with illustrations.*

Schweizer op cit. describes this work as a 'paean on the relation between science and artistic technique and progress'.

1858 A second edition
 1870 A third edition, revised by R.Mallet.
 1888 A fourth edition, enlarged by E.A.Davidson.

There are also five contributions to "The Pamphleteer" which are all in some measure versions of sections of the 'Outlines'...

Vol.9. 'Tritogeneia; a brief outline of the universal system' (this was reprinted twice up to 1846)

Vol.12. 'Dianoia;' 'the third organon attempted, or elements of logic and subjective science'.

Vol.15 'The Analogy of the Physical Sciences Indicated'.

Vol.17 'Aesthetics, or the Analogy of the Sensible Sciences Indicated'.

Vol.23. 'Ethics, or the Analogy of the Moral Sciences Indicated'.

Lindsay (1966 p.249) makes a reference to an "Analogy of Logic" which is probably the 'Dianoia', republished in 1850. I have also seen an advertisement for a devotional work entitled 'Words of Christ'.

David Ramsay Hay (1798 - 1866) was well known as an interior and decorative designer, and in that capacity gave evidence to the 1835-6 Committee of Enquiry. He lived and worked in Edinburgh, was responsible for the decor of Scott's house at Abbotsford, and was prominent in literary and intellectual circles.

According to one report he assisted Clerk Maxwell in his colour experiments.*
 in 1846 he was awarded a silver medal of the Royal Scottish Society of Arts for a machine for drawing ellipses. As with Field it is important to draw attention to Hay's experience of 'normal 'science for though we would be hard put to describe their theoretical writings as scientific in any modern sense, both

See Catalogue 4I by Sims, Reed and Fogg Ltd. Notes by Stuart Durrant.

E.S.Dallas. 'Poetics' (1852)
and 'The Gay Science' (1866).

men knew of and were involved in the normal science of their day. Hay was a leading member of the 'Aesthetic Club' (mentioned above) which met on a regular basis to discuss relations between science and art. Though one member described the club as a 'symposium with good Scotch tippie', it was also a gathering of some seriousness. Another member, as noted, was John Goodsir, and another the essayist E.S.Dallas, who wrote on a 'science of prosody' and of a 'scientific poetics'. I have no evidence that Hay and Field were acquainted, ^{at} ~~by~~ Hay makes many references to Field.

Hay's bibliography would appear to be as follows, though no claim is made here for completeness. Even more than Field, Hay re-wrote and re-used material, added chapters, removed sections and made life difficult for bibliographers.

1828

'The Laws of Harmonious Colouring adapted to Interior Decorations, manufactures and other useful purposes.' Wm.Chambers. Edinburgh. This book is Hay's portmanteau title; it went into six editions, with considerable variation. The fourth edition has an extra chapter relating to the 1835-6 Enquiry; the fifth has an important section on "Aesthetical Taste"; the sixth includes material on German colour science and references to Goethe. All editions that I have seen have extensive references to Field. The later editions also have interesting inserted press commentaries on the earlier work. (2nd. ed.? 3rd. ed. 1836, 4th ed.1838, 5th ed. 1844, 6th. ed ?)

1842

'The Natural Principles and Analogy of the Harmony of Form' Wm.Blackwood. Edinburgh. With plates and illustrations.

1846

A nomenclature of colours, hues, tints and shades applicable to the arts and natural sciences, to manufactures, etc. ' Wm. Blackwood. Edinburgh.

This consists of a bound text and a box of shade cards; an early example of this sort of publication.

1844

'An essay on ornamental Design, in which its True Principles are developed and elucidated etc.' Wm. Blackwood, Edinburgh. Also, in the same year, and with a slightly different title, by David Bogue, London. 57 plates.

1849

'The Principles of Beauty in Colouring Systematized' Wm. Blackwood, Edinburgh.

M. Gartside. "An Essay on Light and Shade, on Colours, and on Comp. in Genera" 1805. attempts an 'order of colours in point of illumination', and proposes the first colour 'solid'. A very intriguing little work, with a 'system for composing with coloured blots'.

(Dedicated to David Roberts R.A.) This book is interesting for a sustained attempt to develop a numerical scale for brightness of colours, based upon Field and (possibly) Gartside. It has interesting press comments. The date given is of the second edition; I have been unable to find the date of the first edition.

1851

The Geometric Beauty of the Human Figure Defined etc. Wm. Blackwood. Edinburgh.

1856

"The Science of Beauty as developed in Nature and Applied in Art" W. Blackwood Edinburgh. Many plates. (A mathematical analysis of form developing out of earlier writings and pre-dating such later theorists as Zeising, Hambidge and Ghyka.)

Other titles I have encountered but been unable to date are "Proportion, or the Geometric Principle of Beauty Analyzed", and 'On the Science of those proportions by which the Human Head and Countenance, as represented in works of Ancient Greek Art, are distinguished from those of ordinary nature' Both

published with plates by Blackwood. There is also an essay on the proportions of the Parthenon, and a number of titles in the proceedings of the Society of Arts. (see D.N.B.).

Much of this work was first addressed to the Aesthetic Club or other societies in the form of lectures or discussion papers; related material will be found in 'The Edinburgh Review', 'The Athenaeum' and other journals mentioned by Hay. An account of the Aesthetic Club will be found in the 'Anatomical Memoirs of John Goodsir, with a biographical memoir by H. Lonsdale.' ed. by W. Turner. (2 vols. Wm. Blackwood, Edinburgh 1868) According to Lonsdale, Goodsir believed his 'Newtonian laws of growth' would be based upon a crystalline triangulation as the root of all organic form, and that this had masonic reference. Was the Aesthetic Club a masonic association? The 'Court Gazette' reviewing Hay's 'Natural Principles and Analogy of the Harmony of Form' on April 1st. 1843 thought along such lines (we may disregard the date, I think). An uncredited reviewer wrote "It is startling proof of the depth of the Egypto-platonic or geometrical philosophy as transmitted to the Templar Freemasons." A writer in 'The Athenaeum' wrote at the same time "Mr. Hay ...has arrived exactly at some of the identical proportions of the Platonic Theory...demonstrating the inherence of certain fixed and essential principles of proportion and beauty in the human soul".

Such conjecture is neither surprising nor interesting as such; what matters here is the direct conjunction of pythagorean lore with the beginnings of industrial design, and of the new 'industrial instruction', about to be propagated by the Schools of Design.

Before investigating the Schools of Design and the drawing book prepared for them by William Dyce (another Scot), it is worth re-iterating that Field should be seen against the general background of English revived neo-platonism (see my note to p. 178, above).

As observed above, Field received his gold medal from the Society of Arts when the secretary was Thomas Taylor, the platonist. Here we have the significant conjunction of early industrialism with speculative geometry and a pervasive theosophical tendency. Taylor, through Emerson, is part of the intellectual genealogy of Louis Sullivan, Frank Lloyd Wright, and R. Buckminster Fuller.

Although Field makes reference to Kant, Hegel and Fichte, I believe he must also be understood against this characteristic mixture of pietism and technology - all intermingled with Swedenborgian mysticism and the wilder moments of Joanna Southcott. It may be recalled that leading engravers such as Sharp and Pye (who has already figured in these pages in Ch. 2) were intensely involved in these cults. The rosicrucian or alchemical aspects of Field (and Hay's putative masonism) are also part of a considerable publishing activity in these directions during the 1820's and 30's. Very many instances, serious and trashy, may be cited. The Followers of Joanna Southcott and the Ancient Deists of Hoxton are worthy of more serious attention than mere condescending amusement, for they are the indices of extreme social stress and psychic dislocation. The reader may well also want to investigate the secular religions of Comte, and Saint-Simon; and in the English context, the works of "Shepherd" Smith.

(For an introduction to Smith and his 'universalism' see J.F.C.Harrison 'The Second Coming; popular millenarianism 1780 - 1850' Routledge, Kegan Paul. London 1979.) Smith argued that "a perfect analogy subsists between the physical and the metaphysical or moral world. The same laws are at work in each, for both belong to the universal nature, which is one grand unity throughout." (The Shepherd 20.Sept. 1834) (See also Harrison's 'Robert Owen and the Owenites in Britain and America' London 1969).

This language is very close to that of Field.

I believe we may easily deduce from this (and if space permitted, a much more substantial argument could be mounted) that one component of the 'scientific aesthetics' of Field and Hay, is not the science of argument but that of revelation; the gnostic science of Frederic Portal (see above p.179). Portal by way of comparative religion arrives at the same place as Field arrives at by systematic deduction - a lingua adamica of the eye..... Field's historical role was to cast this ancient tradition in such a form that it could be picked up by Hay and others who could turn it into a general theory of design and 'industrial instruction'.

We are able to trace this process with some precision through the successive pages and editions of Hay's writings (especially the "Laws of Harmonious Colouring)), and can connect them with the origins of the Schools of Design.

For example, the fourth edition of that book is dedicated to 'The Society for promoting Practical Design and a knowledge and love of Arts among the People'. The additional chapter on the 1835-6 Committee of Enquiry cites evidence to that body; and then, after a disguised autobiographical sketch and a plea for the serious recognition of the profession of designer, Hay outlines a basic drawing programme of primary lines, shapes and solids, to be undertaken by young people to train both eye and hand..

For example, the fifth edition contains the chapter 'An attempt to define aesthetical taste" which with a wealth of references to Burke, Addison and others moves onto Field and Pythagoras. He argues for "rules of grammar and composition"...."until we can, by the assistance of science, so far systematize the elementary principles of the arts of architecture, sculpture and painting, as to give an equal degree of facility to their appreciation by mankind generally, the higher works in those arts....will not be sufficiently distinguished from the performances of ignorance and presumption." He goes on to conclude that taste "depends upon certain scientific and irrefragible principles, and it is only by study of those...that it can be rendered available in the Arts of Design....until the attention of pupils in our schools of design is directed to the study of scientific principles...and until lecturers elucidate the principles....we cannot expect much improvement in the arts themselves."

For example, the attempts made by Hay to establish numerical scales of brightness may be compared to Babbage's ^{arguments for} ~~attempt to~~ standardising of colours.

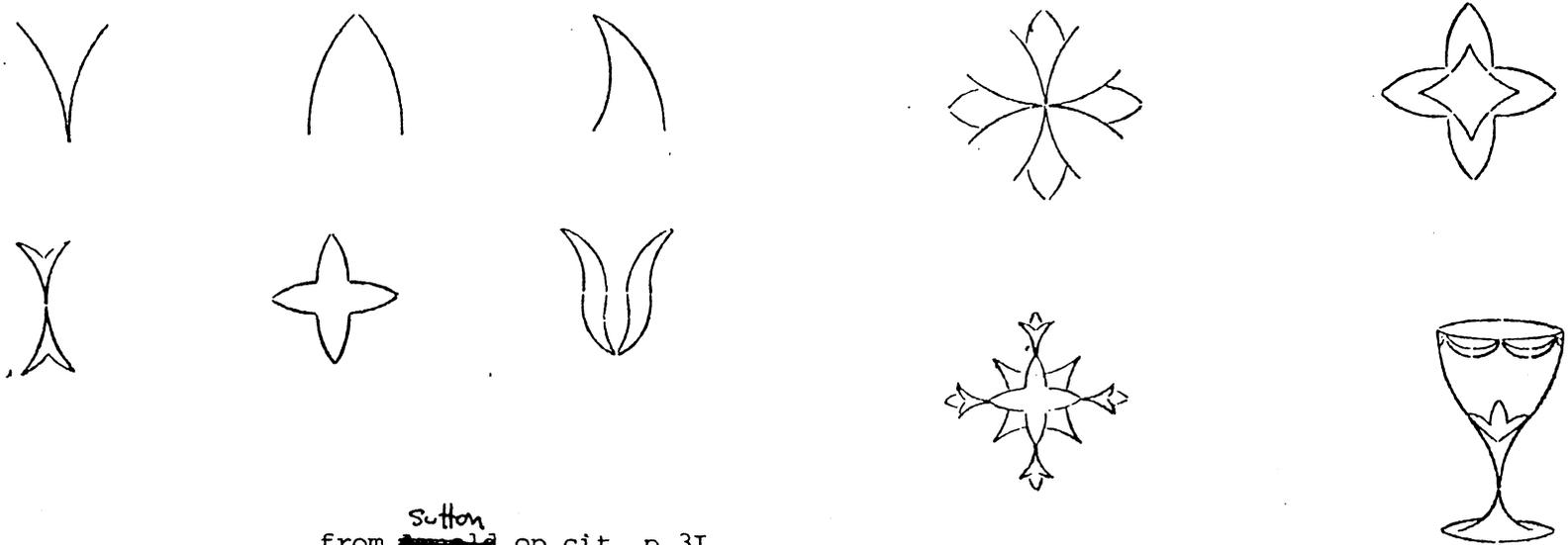
The evidence to the Committee that Hay cites in the fourth edition comprises all these themes viz: James Crabb on the science of colouring (19 Aug.35) James Skene (23 Aug.35) - an attack on the decline of academic teaching and the need for a "central establishment" teaching a "regular system". (See also Charles Toplis on 31 Aug. 35, and Hay himself on 15 June 36). Another interesting piece of evidence that Hay does not mention is that of R.R.Reinagle (another subscriber to Field's works) who on the 17 June 1836 gave evidence on the relation between geometry and the antique, with 'typical' curves. This is followed significantly by evidence on a 'beautiful system of machinery for working marble'. Hays medal from the Society of Arts was for a drawing machine that is a precursor of such automatic routers and (when linked to the descendant of Babbage's calculating engines) of cybernetic production.

Another important text, linked to Hay's interests and reproducing Reinagle's evidence is G. Phillips "The Rudiments of Curvilinear Design" (1839).

With this in mind we may now turn to that curious production 'The Drawing Book of the Government School of Design; in six parts' by William Dyce. (1842) I propose to interpret this as a digest of these ideas, informed by related ideas encountered by Dyce on the continent, and by the reflection of these ideas in the Froebel and Pestalozzi schools. The reader is also referred to the useful book by Gordon Sutton 'Artisan or Artist; a history of the teaching of arts and crafts in English schools' (Pergamon Press 1967 esp. Ch.2). This book, otherwise admirable, is written in ignorance of this background to the "drawing book" and the founding of the Department of Science and Art.

The first Pestalozzi - inspired school in England was founded by the 'Home and Colonial School Society' in 1836; it was staffed by Pestalozzi's former colleagues and supporters and in the extensive drawing programmes followed the ideas of Pestalozzi's disciple Johannes Buss. He had devised what he called an 'ABC of Form' from 'elements' "In this manner all the elements of form, straight or curved, are introduced and mastered. The perception is cultivated and the hand trained. The forms are now combined by the pupils, and this strengthens and stimulates the inventive faculty." (^{op cit.} ~~Arnold~~ p.31)

^{Sutton} ~~Arnold~~ prints an interesting page of this **work**, having no artistic merit, but illustrating the combinatorial method.



^{Sutton} ~~Arnold~~ from ~~Arnold~~ op.cit. p.31.

FIG. 5. "Inventive" drawing. A development of Buss's "alphabet of form", probably Krüsi's own invention. (From *Pestalozzi* by Hermann Krüsi, 1875.)

Froebel, like Pestalozzi, was primarily concerned with the child's developmental education through drawing, but the actual drawing exercises he gave and the concepts that inform them are recognisably from the same lineage as 'industrial instruction'. In 1805 Froebel taught drawing at a school in Frankfurt: "My method in this subject was to work out the thorough comprehension and the representation of planes and solids in outline, rising from the simplest forms to complex combinations." (^{op.cit.} ~~Arnold~~ p.35.) In 'The Education of Man' (1826) he writes "the horizontal and vertical directions mediate our apprehension of all forms...In our imagination we constantly draw these lines across our field of vision.... (etc.) (^{op.cit.} ~~Arnold~~ p.38)

I have not had opportunity to investigate this lead further, but it is clear from the extensive quotations made by Arnold that Froebel and Pestalozzi are part of the 'normative' tradition perfectly exemplified by the Department of Science and Art. What Arnold describes as their "obsession" with the vertical and horizontal axes and with primary linear forms and 'networks', is the standard pedagogical method at this point when the academic tradition is being transformed into the normative tradition of industry (the relevance of this to the placing of Humbert de Superville is clear enough, I think).

And behind all this...Phillip Otto Runge, perhaps....

See Stiny.G. 'Kindergarten grammars; designing with Froebel's building gifts' Environment and Planning B No.7. pp409 - 462.

That the Froebel method of 'gifts' and 'occupations' forms part of the background of the Bauhaus curriculum will become clear on the publication of recent research by Gillian Naylor. Of some interest here is the attention recently payed to Froebel by Stiny and others in the pages of 'Environment and Planning'B'.

How far Dyce was influenced by the teaching methods of French craft schools I am quite unable to tell; I have seen examples of drawing books from such provenance that fit well with his drawing book. But Dyce was certainly well acquainted with German artistic circles through his friendship with Overbeck and the Nazarene school in Rome, and these contacts were maintained all through this period. Dyce subsequently travelled Germany and reported back to the Department on his findings of German art education. Dyce thus figures as a 'link man' in this configuration. His drawing book is therefore a compendium of these received ideas.

See Andrews.K. 'The Nazarenes'
Oxford. 1964. pp81-84.

See Parl. Papers 1856.

Dyce is an interesting figure whose activities deserve much more study than they have yet received: I regret I have had no time or opportunity to do such work myself. It is possible he may be found to be the central figure in this whole 'web'.....

In preparing this appendix I want to record my gratitude to the Royal College of Art Colour Reference Library, and its helpful staff.