UNIVERSITY OF SOUTHAMPTON

FACULTY OF ARTS

MUSIC

Doctor of Philosophy

THE DEVELOPMENT OF 'CLASSICAL' PRINCIPLES IN ORGAN BUILDING IN BRITAIN IN THE TWENTIETH CENTURY

John Pickering Rowntree

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ABSTRACT

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THE DEVELOPMENT OF 'CLASSICAL' PRINCIPLES IN ORGAN BUILDING IN BRITAIN IN THE TWENTIETH CENTURY

by John Pickering Rowntree

This study considers the processes and influences leading to the adoption of classical principles in organ building in Britain in the second half of the twentieth century, and the developments in classical organ building from 1950 to 1980. Throughout the study reference is made to the instruments themselves.

To provide a perspective for this development consideration is given to the 1906 and 1909 papers of Schweitzer, the effects of the Orgelbewegung conferences in the late 1920's, and to the emergence of a contemporary school of classical organ building in Scandinavia, the effects of which have spread through Europe and North America.

Consideration is given to the tentative moves towards organ reform in Britain up to the installation of the Royal Festival Hall organ, and to the ensuing neo-classical electro-pneumatic, and mixed-action organs.

A documented chronology is given of all classical organs built in Britain from 1950 to 1980. 'Case studies' of organs of the period are given, as far as possible, in terms of contract, construction, cost, specification, compass, wind pressures, scales, mouth dimensions, pipe materials, voicing treatment, temperament, key and stop action, wind supply, placement, and case architecture. Building practice is further exemplified by the working drawings given in Volume IV. Up until this study almost no such information has been known outside a few builders workshops, e.g., no scalings were available other than some details relating to the Festival Hall and Brompton Oratory organs. Already information relating to some 'early' classical organs has been lost, and changes have been made to some organs. An analysis of the technical aspects of the instrument has been made so that some indication of artistic development and builder style is possible.

The musical changes associated with the classical revival are considered in brief, as are the underlying trends and philosophies of the classical revival.

ABBREVIATIONS

Printed and Manuscript Materials

BIOSR	British Institute of Organ Studies Reporter
BNC File	Organ Files in the Bursar's Office, Brasenose College, Oxford
CC File	Organ File in the possession of the Director of Music, Clare College, Cambridge
COB	The Classical Organ in Britain, 1955-1974
COB II	The Classical Organ in Britain Volume 2, 1975-1978
CM	Church Music and Music and Liturgy
EM	Early Music
ISO	ISO - Information
JBIOS	Journal of the British Institute of Organ Studies
MO	Musical Opinion
MT	The Musical Times
NCA	Organ Files in the Archive of New College, Oxford
NGD	The New Grove Dictionary of Music and Musicians
O	The Organ
OB	The Organbuilder
OR	Organists' Review and Organists' Quarterly Record
OYB	The Organ Yearbook
Sh File	Organ File in Shellingford Vicarage

Institutions and Persons

GDB	Grant, Degens and Bradbeer
H&H	Harrison and Harrison
HNB	Hill and Son, Norman and Beard
QEH	The Queen Elizabeth Hall
RAM	Royal Academy of Music

RC	Roman Catholic
RCM	Royal College of Music
RFH	The Royal Festival Hall
JWW	J. W. Walker

Technical

BOM	Bombarde
BW	Brustwerk
cu	cut-up
cyl	cylinder
ext	external
GT	Great Organ
HW	Hauptwerk or Hoofdwerk
HV	Hovedvaerk
int	internal
l	length
m	metal
Man	Manual
mw	mouth-width
npta	not possible to ascertain
OW	Oberwerk
P	Pedal
Pos	Positive or Positiv
RP	Rückpositiv
RW	Rugwerk
sp	spotted
std	stopped
SW	Swell Organ or Schwellwerk
w	wood
WP	Wind pressure

All measurements (other than pipe lengths, which are given in feet), are in metric unless otherwise indicated.

The following scheme is used to denote pitch:

Pitch		C	c	c'	c''	c'''	c'''' (Keyboard Compass)
	or	C	c	c^1	c^2	c^3	c^4
Note number		1	13	25	37	49	61
Foot lengths		8'	4'	2'	1'	1/2'	1/4'

References are given in brief (Volume II, Section H), e.g.,

Adelung, W. 1972, p.1.

and full details are given in the bibliography (Volume II, section J), e.g.,

ADELUNG, W. 1972 — Organs of Our Time (Bärenreiter, Kassel)

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PART ONE

St. Nicholas, Fravenfeld
Metzler, 1969

Chapter I

The 'classical' organ

> The sound and form of an organ are closely related.... Only instruments fully cased and having mechanical action are considered, because I believe this way of building organs produces the best results as well as the greatest problems. 1
>
> Josef Schäfer

The term 'classical' can be interpreted in a variety of ways. In general terms it suggests a relationship with fine work of a distinctive period in the past and it aims at a "demonstrable harmony of parts."[2] The achievement of such harmony is by the employment of certain basic elements of design. The concern is thus with 'quality' and 'format'. If a definition is looked for, then the Concise Oxford Dictionary defines classical as "first class, standard and restrained,"[3] a definition relating to both quality and format, one implying a demonstration of that which is exemplary or normative.

Just as the formulation, or discipline, of sonata form, the concerto and symphony provided a common musical language for the 'classical' music of Haydn, Mozart and Beethoven, so the discipline of the 'classical' organ provides a format for the organ within which, whilst the possibilities of arrangement are almost infinite, the arrangement is one in which any one aspect affects, and is affected by, others. As Sybrand Zachariassen, of Marcussen, said in 1952, "the construction of an organ, its specification, windchests, action, casework and facade are interdependent, and must be brought into inward connection with one another as a thoroughly planned organic unity."[4]

A classical organ should thus demonstrate wholeness of design; "that to which nothing can be added and from which nothing can be subtracted without disadvantage."[5] This 'wholeness' also implies that the classical organ should show consistency of materials and proportion.

Whilst having dignity and decorum, and where appropriate, grandeur, it should also, as befits an instrument deriving from the folk pipe, be it flute or reed, have the sense of fun, humour and humanity that characterises the best of folk art. A classical organ should not only have internal consistency and proportion but, because organs are placed in buildings, should also demonstrate a sense of scale and relationship within its architectural and acoustic surroundings, and in terms of its hearers and players.

In acknowledging the discipline of the classical organ, an organ builder accepts certain fundamental components of the format, such as pipes, mechanical action and encasement, and seeks to build a first-class musical instrument, one which aspires to standards of excellence in sound, mechanism and appearance. As well as accepting the basic format the builder also acknowledges in artistic terms the restraints laid upon the organ by its nature, by the length and acoustic properties of its pipes, by the mechanism of its action and by its relationship with its acoustic and architectural surroundings. The discipline implied in a classical organ thus provides a means of concentrating the mind and craft of the organ builder upon essentials and, in so doing, allows him to demonstrate his own artistic character and style.

The discipline, or format, does not, however, guarantee quality; it is merely a framework. Quality implies not just that the 'discipline' has been adhered to, but that the organ builder has achieved a certain artistic excellence. Such excellence, or essence, is difficult to define, though in broad terms the difference between good quality and poor quality is clear to most people. Excellence is not only the hard won fruit of experience but is often very costly in materials and effort.

Just as the Gothic cathedral, with its "simultaneous achievement of optimal internal and external design,"[6] can be taken as a yardstick of architectural excellence, so the supreme achievements of a particular organ builder, or school of builders, Schnitger or Marcussen, Silbermann or Metzler, the seventeenth-century north-German School or

the twentieth-century Scandinavian School, may be taken as providing standards of organ building excellence.

The most coherent, and influential, outline of the 'classical' organ was given by Zachariassen, in his 1952 paper at Berne, in which he proposed certain "basic rules":

> "(1) So far as possible all pipework must stand directly behind the case front.
>
> "(2) The pipework should be built into the shallowest possible cases, open only to the front. Divisions erected one behind the other should all be placed in free-standing cases.
>
> "(3) The pipework should be so erected that its ranks run parallel to the case front. The tonally less advantageous chromatic disposition for ranks is to be avoided, at least in larger organs, and for acoustic reasons the pipework should be so arranged within the case that the larger pipes to some extent cover its side walls.
>
> "(4) The depth of the organ behind the front of the gallery should depend upon the height of the organ, i.e., with little height the organ should be brought forward as far as possible, occasionally right to the front." 7

Zachariassen thus starts from the relationship of organ to acoustic and physical space, suggesting that "where height is sufficient, one will erect the divisions one above the other, so that one automatically arrives at the arrangement of divisions which one designates as Rückpositiv, Brustwerk, Hauptwerk and Oberwerk, as indeed happened earlier."[8] Zachariassen noted that, to many people, the arrangement of an organ in this way "may smack too much of the Baroque,"[9] but counters this idea stressing that "it has nothing to do with the Baroque Organ (e.g., Chair organs existed in the Gothic and Renaissance Periods)"[10] and, more importantly, proposed that "this disposition is quite simply and purely a tonal and acoustic matter" creating "the best preconditions at every point for the attainment of really organic sounds of the utmost colourfulness, clarity and beauty."[11]

From this point he proceeds to the matter of specification, which he saw arising from "the scheme of erection of the organ,"[12] and which

has the natural consequence "that principals or principal choruses of the various divisions must stand at octave intervals from one another."[13] The distinctive character of each division is therefore "further strengthened by the position of the divisions, and last but not least by the very various resonances which the different sized cases give them."[14] To the principal registers of each division are then added appropriate flute and reed registers. Zachariassen points out that the specification should not hinder "a good scheme of erection for the organ," and that "it is much better to build a smaller, but well constructed organ, than a larger but worse or even badly erected one."[15]

From overall layout Zachariassen moves to internal detail, drawing attention to the need to use slider chests, with which "it is possible to bring the ratio of space required by the pipework and that required by windchest into the best agreement."[16] Zachariassen also indicated that not only is the onset of pipe speech finer and quieter on the slider chest but also that "the pipes which are to blend with one another best do this when they stand on the same channel and... draw their breath from the same source."[17] The significance of mechanical action was stressed by him because with it the "languids can be given a position more favourable for the onset of speech and so for the tone quality,"[18] and also because the manner in which the key is depressed affects the pipe speech - a matter of importance for the player. The use of open-foot, nick-free voicing was seen by him as arising from the use of the slider chest and mechanical action and resulting in an "exceedingly favourable influence on blending, tone quality and clarity."[19] Zachariassen not only proposed the use of mechanical key action but also mechanical stop action, rejecting non-mechanical stop action because its presence gives "rise to a deterioration in the disposition of the organ,"[20] going on to suggest that non-mechanical stop actions "are often regarded as indispensable because one has become habituated to them in more or less inorganic instruments,"[21] and proposing further that "we cannot allow ourselves to keep something out of sheer habit, which stands in the way of our reaching the highest quality in our organs."[22]

The coherent philosophy outlined in brief above was not arrived at overnight but "step by step, after almost three decades of experiences, both fortunate and unfortunate."[23] It is a philosophy in which matters of balance and proportion have thus been arrived at through accumulated practical experience, through sustained craft work over a long period.

Zachariassen's paper was published in England in the Organ Club Yearbook of 1960, and appears to have passed virtually unnoticed, as did Francis Jackson's proposition (arrived at after experience of organs in Denmark), in the same publication: "That an organ which is too big to be controlled by tracker action is too big....!"[24] Some seven years later Zachariassen's ideas were given prominence in the first of two articles in the Musical Times by Peter Walker entitled "The Positive Organ,"[25] though the source of the principles went effectively unacknowledged. In 1969, Zachariassen's principles were taken up by Peter Hurford who, in a lecture at the 1969 St. Albans International Organ Festival, proposed that "the organ should work musically, mechanically and visually well" and that:

> "these three criteria are interdependent: to work musically well, the organ should be in such a position that it can speak directly into the body of the church or hall and each division should, if possible, be in the same vertical plane. If the organ is properly designed each division is based on a Principal rank an octave apart from its neighbour (e.g. Pedal 16', Great 8', Positive 4' etc.) and this pitch relationship is translated in visual terms to a balanced and visually satisfying entity. The Werkprinzip (for so this is called) is not a passing fad, but a basic tenet linking musical and visual aesthetics. Because of this logical layout, mechanical action is much more simple." 26

Mechanical action Hurford saw as being the more artistic action, offering more interpretative possibilities and allowing players "to realise the full artistic potential of their chosen instrument."[27] Another description of the 'classical' organ was that put forward later in 1969, in a lecture at the Royal College of Organists, by Peter Williams, though Williams preferred the word 'simple' to 'classical':

> "The organ is a musical instrument consisting of a chest or chests of naturally voiced pipes (i.e. those with a simple relationship between the sizes of foothole and flue, and voiced accordingly), connected by a very accurate mechanism to the finger-keys, fed by air at a natural pressure (i.e. such as can be supplied by comfortably weighted bellows blown by a man, or produced by a machine imitating that quality), held in a shallow, carefully planned resonating box open on one or possibly two sides, and placed in a building at a point not only suitable in itself, but also catered for by the builder as he voices the pipes." 28

Though Peter Walker, Hurford and Williams clearly derived their ideas from Zachariassen, Williams' thinking was perhaps the more radical, whilst remaining the most comprehensive.

The coherent philosophy of Zachariassen, and his followers, had, however, roots in the earlier part of the century. As early as 1906, Schweitzer[29] demonstrated a clear grasp of the harmony and inter-dependence present in fine old organs, and in England, as early as 1915, Arnold Dolmetsch showed how this harmony had been lost, as well as showing an understanding of the essential features of an artistic organ:

> "The makers of 1815 worked on much the same principles as those of 1615. In most houses there was a little organ, soft and sweet, easy to play.... The church organs had in addition that power based on sweetness which constitutes majesty. The change came on, and for the sake of louder tone, pressure of wind was doubled and trebled. The same pressure acting on the valves which let the wind into the pipes made them too heavy for the fingers to move through the keys. A machine was then invented which did the work at second hand. Instead of shutting your own door, if you call a servant to do so, the door may get shut but, not so quickly. So the music of the organ dragged on after the player's fingers as best it could. Personal touch, which did so much for phrasing and expression was destroyed." 30

The good qualities of old organs, stressed by musicians such as Dolmetsch and Schweitzer was, as Williams points out, part of "a general current flowing towards greater historical awareness"[31] in music. Initially it was considered that "the test of every organ,

the best and only test, is Bach's organ music,"[32] giving rise to the term the 'Bach' organ. Then, as awareness of the music of Bach's predecessors grew, there appeared the 'Praetorius' organ and the 'Schnitger' organ, the work of Schnitger being seen, as Phelps comments, as "a general guide to the principles of the art in matters of tonal design, scaling and voicing."[33]

Another general term used for Orgelbewegung instruments was 'Baroque', a term used in England in the 1930's to describe Lady Jeans' new mechanical-action organ. The Willis House Journal, The Rotunda, of March/April 1933, carried an editorial entitled "This Baroque Business" which discussed the Germanic "baroque revival" and proposed (somewhat alarmingly), that in England "we need a Hitler of organ building to blaze the trail of progress."[34](!) In post-war England the intense debate surrounding the planning and installation of the Royal Festival Hall organ in the 1950's saw the word 'Baroque' used in a controversial sense by no less than Ralph Vaughan Williams[35] to describe this organ.

The word 'Baroque' appeared in many contexts, pejorative and otherwise, from then on in the musical press. Downes, for example, in November 1950, wrote an article entitled "Some Reflections on Baroque", in which he discussed the meaning of the word, though it did little to clarify matters, except insofar as it suggested that the nineteenth century organ "in emulating the orchestra" had destroyed its essential unity as a musical medium.[36] The term 'Baroque Organ' was also used, by writers as diverse as Emery[37] and Bonavia Hunt[38] as though it described a specific organ type, a type, however, more "imaginary than real."[39]

In 1954, the year of the installation of the electric-action, 'reformed' organ in the Royal Festival Hall, Thurston Dart, in The Interpretation of Music, took up the line established by Dolmetsch and, in his section on "The Organ", bluntly stated:

> "During the last 400 years the sound of the organ has been more completely transformed than the sound of any other musical instrument whatsoever. The traditional tracker action, associated with the

> instrument from the earliest times and giving the player the most intimate possible link between finger and pipe, has been swept aside in favour of electric or pneumatic systems necessitated by the great increase in size of the modern organ and the immoderately high wind pressures made possible by mechanical systems of blowing; but the delicacy of phrasing and articulation that characterised all good playing on a tracker-organ has been swept aside too, and few organists of our own time realise that their interpretations of music written before 1800 are for the most part caricatures of the originals." 40

In the same section Dart also succinctly discusses stylistic differences of period and place, in a manner far more helpful than the acrimonious and futile discussion over the 'Baroque' versus 'modern' controversy surrounding the Festival Hall organ. Dart's comments, however, appeared to pass unnoticed by the English organ establishment.

In addition to 'Baroque', the terms 'classic' and 'classical' have been used in relation to 'reformed' organs. As early as 1925 Beaumont used the word 'classical' to describe the Willis organ in Farm Street Jesuit Church.[41] The terms did not really come into vogue in England until the post-war years, and more especially the years following the installation of the Royal Festival Hall organ, though prior to that Downes, in 1948, had written on "Interpretations of Classic Organ Music" in which he described the difference between the "revived" instruments and the "modern" organ as originating from "tonal design, pipe scales, wind pressures and the resulting tone from the pipes."[42] Downes left aside "the question of remote-control key-action," though noting the absence, in modern key-actions, of "that intimate control over the speech of the pipes which only a direct, mechanical action gives."[43] The vacillation evident in Downes' remarks, and retained by him through into the 1970's, gives some substance to Phelp's criticism that he was "a reformer without clear convictions."[44] It might also be commented that Downes' use of the word 'classic' may be seen as stemming from his experiences in the inter-War years in America, a period which saw the rapid rise of the 'American-Classic' organ.[45] A more historical approach to the word 'classical' was that proposed by Sumner, in a lecture in 1961 at the Incorporated Association of Organists' Congress in York, that the period of the classical organ

was from the publication of Praetorius' Syntagma Musicum in 1619 to the death of Gottfried Silbermann in 1753.[46] From the 1950's onwards the terms 'classic' and 'classical' became used essentially as slogans for the 'reformed' style organs, first those with electric action, then mixed mechanical and electric action organs (e.g., the Italian Church, and St. Helen's, York organs by J. W. Walker).

Gradually, following the first Scandinavian organs by Marcussen and Frobenius in the 1950's and 1960's, the ideas of Zachariassen took root in England and, since the publication of the two volumes of The Classical Organ in Britain, in 1975 and 1979, there has been a reasonable consensus of opinion as to the meaning and appropriateness of the term 'classical organ', i.e., an organ built along the lines outlined in the early part of this chapter. Williams in 1976 commented that "the term is a 'tautology'. Either an organ is constructed properly ('classically') or it is not an organ."[47] Whilst acknowledging this, there remains a need for such a term, if only (to quote a later remark of Williams), "to distinguish sense from nonsense."[48] At a different level, the need remains for such a term in order to describe contemporary organs in which there is a tautness won, not just by copying from the old masters, but by adoption of their format; organs in which the builder has made each aspect of the instrument his, whilst remaining controlled by the nature of the organ, in order, (to re-phrase Fisk) that "music be played right."[49] At this level, classical organs may be described in terms used by Lutyens with regard to the classical orders in architecture:

> "When right they are curiously lovely -
> unalterable as plant forms." 50

Chapter II

Organ reform in Europe and North America prior to the Second World War

The organ reform movement may fairly be said to stem from the visit of Albert Schweitzer, in 1896, to the Liederhalle in Stuttgart to hear the highly praised new organ. The organ, however, did not satisfy Schweitzer and, from then on, he referred to the occasion as his "Damascus at Stuttgart."[1] His comment was indeed clear:

> "When I heard the harsh tone of the much belauded instrument and in a Bach Fugue which Lange (Organist of the Stiftskirche) played to me I perceived a chaos of sounds in which I could not distinguish the separate voices, my foreboding that the modern organ meant in that respect a step not forward but backward suddenly became a certainty." 2

The principle implicit in Schweitzer's statement, that of the organ as an instrument of polyphony, was to remain with him throughout his life. From it was to grow the organ reform movement. Equally his concern for beauty of tone was also never to leave him.

From 1896 to 1906 Schweitzer spent his free time becoming acquainted with many organs, old and new. At the same time were written his two volumes on Bach.[3] This study of both Bach and organs can hardly have failed to influence each other, and it is perhaps of interest to see, at this stage of organ reform, musicology and organ design philosophy develop alongside each other. It might also be recalled that, at this time, Schweitzer was also a theologian. The threads of musicology and theology were to re-appear at various points in the development of organ reform.

In 1906, after ten years of study, Schweitzer produced his pamphlet The Art of Organ Building and Organ Playing in Germany and France.[4] Much of the pamphlet was devoted to discussion of the different approaches of French and German organists to performance, and to condemnation of the commercialism of organ building, but a significant part

outlined very clearly some of the fundamental pillars of organ reform, the use of mechanical action; better tone quality; adequate choruses, and good position. At the same time, however, Schweitzer also sowed the seeds of the eclectic organ, a matter much less commented on, in his search for the perfected organ type - for an organ in which the French and German schools could be synthesized. Schweitzer wrote "as one who is convinced that an agreement between the two types of organs and the two different conceptions must be reached."[5] This concept of the eclectic organ was to be taken up in a variety of ways in the first half of the twentieth century, and beyond.

In the 1906 pamphlet Schweitzer laid the foundation for the return to mechanical action. His condemnation of other playing actions was clear: "Our organ pneumatics is a dead precision. It consists in the transmission of power solely through wind pressure. It lacks the vital and elastic quality of the lever,"[6] and he went on to comment "how many who played well and clearly on their old mechanical organs now smear on the new ones."[7] The converse was equally clearly expressed: "Only with the tracker does one come into really intimate relationship with (his) organ,"[8] and "The tracker system at St. Thomas' in Strasbourg is well over a hundred years old; but it is a marvel to play a Bach fugue on. I know no other organ on which everything would come forth so clearly and precisely."[9] In these lucid and telling statements was set out this major matter of principle: the return to mechanical action.

In the matter of organ tone, Schweitzer was equally critical of the practice of utilizing unlimited wind production to produce power rather than richness. Quoting a distinguished organist, "we have succeeded now in making an organ of fifteen stops that produces the full effect that formerly an organ of thirty stops produced."[10] Schweitzer commented: "The aberration could not describe itself better."[11] His concern for beauty of tone was also expressed clearly in relation to both foundation stops and mixtures:

> "When the basis itself has no lovely unity of tone
> what becomes of the whole instrument?" 12

and,

> "When one hears a modern organ, one hears the foundation stops and the mixtures rolling along unblended; whereas the mixtures are designed to enter into the tone colour of the foundation stops to make them light and transparent, that is adapted to polyphonic playing," 13

concluding,

> "Back to the polyphonic organs desired by Bach; away with the orchestral organs! More delicate foundation stops! The harmonious unity of the foundation stops! Away with our few shrieking mixtures! Many soft mixtures!" 14

His strongest condemnation was, however, reserved for the commercial practice of the period, the continuous pressure for cheaper prices resulting in poor quality factory- or mass-produced organs. The blame was placed not entirely upon the organ builders but also on the organists:

> "In general we organists cannot deny that we have followed the tendency of the times towards cheapness; and that we often gave the contract to that man who for the same price offered one or two more stops, even though they were only a little aeolina or a little piston, and that we did not ask if at the same time artistic work, that is work that does not need to take either time or pay into consideration, was still possible," 15

and he suggested that:

> "we (the organists) who decided what organs should be built, and supposed that art could profit from this undercutting competition, shall be dishonoured, because we did not sufficiently comprehend, what as pupils of the old Bach we should have comprehended, that an organ builder can be an artist only when he is engaged as an artist by an artist." 16

Schweitzer's 1906 essay is concluded with some final comments on the differing performance practices in Germany and France. In general he extols the French approach, noting not only the importance of the Swell

division with "its effect on the entire instrument,"[17] but also stressing that, in the case of the French organists, "one finds an absolute precision in pressing and releasing the keys which results in blending, and clear, natural phrasing."[18] In relation to this "precision," Schweitzer draws attention to the significance of "the French organs with their mechanical action."[19] While the 1906 essay, fired with enthusiasm of the moment, over-stresses some minor matters of organ construction (e.g., the divided Cavaillé-Mutin windchest), nevertheless it "shows an astonishing grasp of some of the essential points in the mechanical design, construction and placement of the organ."[20]

These ideas for renewal and reform in organ building gradually attracted attention and, in 1909, Schweitzer was invited to address the Third Congress of the International Music Society in Vienna. In preparation for his paper, Schweitzer sent a questionnaire[21] to organists and builders throughout Europe. This produced much information and provoked considerable discussion.[22] In his 1909 paper, the threads present in his 1906 pamphlet were all developed further.

By 1909, the spread of pneumatic action was acknowledged by Schweitzer in his paper, but he made it clear that players found it insufficiently precise. As expressed by two of his respondents:

> "Even the better pneumatic systems are always somewhat disconcerting to me when I play; I retard, I hurry, as though at every moment I had to struggle with the instrument to make it obey my rhythmic intention," 23

and,

> "When I play a composition in quick tempo I feel betrayed and sold out; I drag, I hasten, I play incorrectly, and it is as if I were kneading dough." 24

Despite the advance of pneumatic action Schweitzer suggested that: "More than once the thought was expressed that, in small and middle-sized organs, the connection between the keys and the chest should be mechanical."[25] The seeds of reform were growing. The advantages in

terms of blend and tonal quality of the slider windchest were clearly expressed, Schweitzer citing not only preference but objective experiment as confirming the superior tonal qualities obtained from the slider chest. In spite of these advantages, Schweitzer felt that builders who had turned to the non-slider chest were unlikely to return to the slider chest.[26]

Tonal qualities were again discussed by Schweitzer. Here, whilst there was praise for the voicing of individual stops, there was criticism of the total ensemble which was felt to be "too stony, too dull, too flat, too blustery and too coarse,"[27] and with "a plenum in which many builders confuse noise with fullness of tone."[28] Inevitably, alongside tonal qualities, the matter of wind pressures was considered. These, Schweitzer suggested, were too high and resulted in excessively narrow-scaled pipework with unduly high mouths. As in the case of the slider chest, so in terms of wind pressure, Schweitzer again quoted definitive evidence for his arguments: the then average pressure was around 100 mm as against Silbermann's 65-70 mm.[29] What is perhaps most astonishing, however, in this discussion of 1909, is Schweitzer's comment, "When we are concerned with wind pressure and scales we are at the centre of the problem,"[30] and "in the end the question of scales is not a problem in higher mathematics and physics, as it sometimes might seem, but a problem of simple artistic experimentation and intuition."[31] Thus, to bring "scales, wind pressure, and tone into harmony is... the task confronting organ builders if they wish once again to create tuneful and beautiful instruments."[32]

As for specification, Schweitzer commented on the desire for "an organ richer in lovely overtones," and that "on all sides more mixed (mixture) stops are demanded," together with an "enrichment of the manuals with good reeds."[33] Significant, at this stage, was Schweitzer's noting in the responses the presence of clear cultural differences in specification and design, e.g., the French preference for reeds, the Italian preference for Ripieni, and the importance of the Pedal Organ in Germany.

The Swell received attention, the preference being for "every organ to have a well-constructed and well furnished swellbox,"[34] and Schweitzer made clear a preference for the Swell to affect the plenum of the total instrument, a central aspect of the romantic organ of builders such as Cavaillé-Coll, and the French school of players. Matters such as "borrowing" and "extension" of registers were roundly condemned.[35] Details of console and pedal board were discussed, and it is interesting to note the preference for a concave pedal board, though it was a very recent invention.[36] Schweitzer rejected the plea for organ keyboards to be standardized to piano keyboard dimensions and put the case for shorter organ keys and manuals close together, pointing to the difference in playing style between the organ and piano.[37] On console layout and playing aids, Schweitzer suggested that these should be planned naturally, and also planned in relation to the organ repertoire.[38] His lengthy discussion is summarized in one terse phrase "the simplification of the console."[39] In terms of the visual appearance of the organ, it is interesting to note Schweitzer commenting that it is economy that makes for inadequate case design. Equally of interest is the stress laid by him on the architectural and tonal significance of the Rückpositiv division.[40] In general terms, the response showed firm criticism of architects who "assign the organ.... to a completely inadequate and unsuitable position."[41]

As in 1906, Schweitzer again tackled the matter of organ cost, and again condemned the practice of poor quality organ building of doubtful artistic value and poor durability brought about by "the conscienceless, mutual underbidding of the organ builders, by the false economy and the shortsightedness of buyers and organ inspectors."[42] On the matter of organ inspectors, Schweitzer commented that people pointed to the "ignorance, the conceit of infallibility, and the instincts of a pasha, which are not infrequently found,"[43] as well as to the existence of "intelligent and excellent inspectors."[44] He also suggested the need for organists to develop expertise so that "the construction of each organ becomes for the builder and several organists an opportunity for fruitful discussion and intensive collaboration."[45] As well as emphasizing that the buyer must be intelligent and understanding when commissioning an organ, he also stressed the importance of the builder being an artist, suggesting that "only capable builders should

be maintained,"[46] and that "where master joiners set themselves up as organ builders they ought to go quietly under; and when workers in the construction of organs make themselves independent without a penny of capital there is also nothing we need to do to help them."[47]

Schweitzer's farsightedness was also shown in his comments regarding fine organs of the past which "should be adopted and classified as historic monuments,"[48] coupled with a warning "not to force new and enlarged organs into old cases."[49]

Whilst the replies to his questionnaire were not all in agreement, it is clear throughout his lecture to the Vienna Congress that Schweitzer draws out, though in more detail, the fundamental principles expounded in his 1906 pamphlet: the need for organs of quality in tonal, mechanical and architectural terms. Through these two 'papers' of 1906 and 1909 Schweitzer established the basic principles of organ reform, and became, though perhaps in retrospect, the "father-figure" of the organ reform movement.

The ideas of Schweitzer, and his appreciation of the qualities of old organs, whilst not falling entirely on deaf ears, at first spread but slowly from Alsace to elsewhere in Europe. Players such as Emil Rupp and Karl Straube were influential in the spread of ideas and especially in the development of greater historical awareness of the organ repertoire. In 1907, the year following the publication of Schweitzer's first pamphlet, Walcker built a 'reformed' organ for Rupp in St. Paul's, Strasbourg,[50] and in 1909 built an organ, designed and opened by Schweitzer, in St. Reinholdi, Dortmund, which attempted a synthesis of German and French organ styles.[51] It was not, however, until the early 1920's that further major development took place.

In 1921, in the south of Germany, on the border of Alsace, was built the first Praetorius organ in the Music School of the University of Freiburg. The impetus for the building of this organ came from Professor Wilibald Gurlitt, who proposed that:

> "each and every kind of music possesses its own particular sound: that every style of composition is intimately connected with a certain tone-quality, which can be reproduced only by means of the instrument, or instruments for which it was originally written; and that only in this way its full beauty can be revealed." 52

A very remarkable statement for 1921. The basis of the specification was one given by Praetorius in Volume II of Syntagma Musicum (Appendix A, 1), and the organ was the first attempt to reconstruct the sound of a renaissance/baroque organ, though no attempt was made to reconstruct the disposition, placement, construction and temperament of such an organ. Inaugurated by Karl Straube,[53] the organ was used for research and teaching until the Second World War when, sadly, it was destroyed in the bombing of Freiburg on November 27th, 1944.[54] Interestingly enough, the organ was written up in England as early as 1922 by Matthews, in an article concluding with the following comment, "It [the organ] is an interesting experiment in organ building which Dr. Gurlitt hopes English experts and organ lovers will come and hear for themselves."[55] As far as can be ascertained, however, the invitation passed unnoticed.

In northern Germany, at about the same time as the first Praetorius organ was built in 1921, the Scherer-Schnitger organ at St. Jacobi, Hamburg (Appendix A, 2), was, as Andersen describes, "rediscovered by Harms and Hans Henny Jahn."[56] Whereas earlier Schweitzer had, to a considerable extent, spoken to deaf ears, people now listened to the Jahn brothers, and not just to them but to the Jacobi Kirche organ. Musicians became aware that this was not just an old and antiquated, though not worthless, instrument, but an organ with a wealth of tonal resources. Not an organ "dug out of dust",[57] but an organ played week in, week out, from the sixteenth century. As Jeans[58] and Brouwer[59] have remarked, Hans Jahn was a religious-mystic pacifist with somewhat esoteric leanings, obsessed with the organ and seeing it as a "model

of the universe."[60] Whilst the Jacobi Kirche provided him with a remarkable example of a fine old organ, nevertheless his 'mystical' thinking appears to have led to him being responsible for certain "fundamental misunderstandings,"[61] not least the division of narrow- and wide-scale registers into 'male' and 'female' groups, a matter affecting stoplists and registration, but having little historical foundation. Jahn's influence was considerable, not least through his organisation of the 1925 Organ Conference in Hamburg and Lübeck, attended by Ramin, Harms and Straube,[62] and at which Jahn gave an "inspired paper, 'Register Names and their Meanings', which included a catalogue of mostly historical scales."[63]

The 1925 Conference was followed by another in 1926 in Freiburg-in-Breisgau. This latter proved to be the real platform for the Orgelbewegung. Influential in it was the Praetorius organ of 1921, and the personality of Christhard Mahrenholz. Mahrenholz was, at one and the same time, an outstanding theological, liturgical and musical expert, reminiscent in a way of Schweitzer, and, from the beginning, he established a close relationship between organ reform and liturgical reform.[64] In this he was joined at the conference by the Benedictine monk, Fidelis Böser, who spoke on "Organ and Liturgy."[65] Mahrenholz's thinking at this time, in relation to the organ, is demonstrated by the 1925 Furtwängler and Hammer organ for the Marienkirche, Göttingen (Appendix A, 3), where Mahrenholz was Assistant Pastor, for which he drew up the stoplist and scales. The organ was a 'compromise' pneumatic-action instrument, of a type later referred to as the Hindemith organ[66] (Hindemith was a participant in the Freiburg Conference). As both Williams[67] and Brouwer[68] have suggested, the 'German' element in the 1925 Conference cannot be overlooked. The Orgelbewegung was but one of many national-cultural movements, e.g., the Schützbewegung, in Germany in the 1920's. Though Schweitzer was seen as the father figure of the Organ Reform Movement, and his 1906 pamphlet was reprinted in 1927, the 1926 Freiburg Conference established a far more revolutionary direction than Schweitzer had conceived, a direction confirmed in later conferences.[69] As a result of the discussions at the Conference, it was the Northern European organ school, rather than any eclectic general purpose organ, or Silberman/Cavaillé-Coll synthesis (implicit in Schweitzer's thought), which became the historical model for the Organ

Reform Movement. As Glatter-Götz wrote: "Cavaillé-Coll was declared devil and Schnitger Messiah."[70]

The basic model, or platform, for the Orgelbewegung as it evolved, has been succinctly outlined by Phelps, a description which should, on account of its clarity, be quoted:

> "The organ is primarily a polyphonic instrument; therefore all aspects of its design and construction must be worked out toward the goal of producing the transparent tonal textures indispensable for the ideal presentation of the polyphonic literature. Therefore the scaling of the pipework is to derive empirically from the requirements of each situation according to time-honoured principles of variable scalings to be observed in the work of the old masters. The voicing of each pipe is to be such as to develop a musically transparent and functional tone, which inevitably means working entirely on key-chambered or slider chests, using pipes with open toes and minimum wind pressure (usually well below 75 millimeters, or 3 inches) and avoiding the use of nicks, and at all times using these and other appropriate techniques in a manner consistent with the requirements of each situation. The materials for the construction of pipes should always be the finest possible for the tone and function.
>
> "The organ is ideally a sensitive and responsive keyboard instrument, and the performer must be placed close to his instrument and have direct control of the key mechanism. Therefore only direct mechanical key action is suitable and musically acceptable.
>
> "The organ should speak freely toward the main listening area and therefore must be placed in a freestanding and somewhat elevated position within the room it is to serve, and it should preferably be located on the central and longest axis of the listening area. In order to accomplish the most efficient projection of the sound of the instrument throughout the room, in order to provide maximum contrast between the sound of each division, and in order to provide maximum resonance, blend, balance, and warmth of tone, the pipework of each division should be encased in a suitable shallow enclosure, open only on the side toward the listening area, with the Principal rank of the division standing 'en facade' in the open side.

"The tonal design of the instrument should be developed according to the requirements of the literature to be played, with the polyphonic literature given first consideration but with suitable additions to broaden the scope as funds and space permit. Attempting to achieve too broad a scope with too limited resources should be avoided, as this results in an instrument not really suitable for any literature and thus unworthy of the church.

"The names chosen for the stops should be a simple indication of the function, tone, or type of pipe construction, according to well established traditions. Meaningless copying from older stop lists should be avoided.

"As a basic method for building a tonal design appropriate to the requirements of the traditional polyphonic literature, the 'Werk principle' concept as developed in the North German or Schnitger school is to be used as a guide. This provides for the development of the integrity of the individual division by assuring its completeness at whatever size may be required while at the same time providing a well-defined contrast between each division in respect to both basic pitch and quality of tone. The Principal of each division will thus be at a different octave pitch and the other stops chosen accordingly.

"The physical arrangement of the organ and its architectural appearance should also be worked out according to the principles of the functional 'Werk' concept of the Schnitger and similar schools. Thus the displayed facade of the organ offers a functional presentation of the tonal design of the instrument and the pitch relationship of the component divisions. The organs should normally have a shallow vertical structure with the manual divisions placed generally one above another with the pedal at the sides, but above all the treatment should be suitable to the individual situation.

"Suitable acoustics for an organ require that the major surfaces of the room remain natural and 'untreated'. Equalization of the difference of the reverbration periods between the empty and full room is desirable, so absorptive treatment of the seating surfaces is usually permissible. In general, acoustical control in new buildings should be achieved through the careful design of the shape of the building and other surfaces, and not through the use of absorptive devices." 71

As Phelps has also commented, the Conference divided from the outset into two more or less distinct groups, one advocating a strict return to restoring and reproducing the work of earlier builders, the other taking the work of Schnitger and his school as its model in matters of tonal design, scaling and voicing, a model which would meet, as Mahrenholz suggested, "the task it has to accomplish above all else in the religious life of the people of the present day."[72] Whilst the 1926 Conference laid stress on all aspects of the organs of the North German school, perhaps the most immediate response was seen in tonal disposition, as is shown by Mahrenholz's stoplist (Appendix A, 3), for the Göttingen Marienkirche, which shows the return to more balanced, logical specifications for the performance of the "polyphonic" literature. Further conferences followed: Freiberg (1927), Göttingen (1928) and others,[73] as did a string of learned papers on technical matters.[74] The period also saw the re-publication of early treatises such as those of Schlick, Antegnati, Praetorius, Werckmeister, Adlung and Dom Bedos,[75] and new editions of the old organ masters, e.g., Scheidt, Lübeck and Buxtehude.[76] The contribution of Mahrenholz in these areas was remarkable, including a doctoral study of the life and works of Scheidt in 1923,[77] and the re-publishing of Adlung and Dom Bedos[78] mentioned above.

Though the impetus from these German conferences was considerable, the emphasis in the 1920's and 1930's remained on reformed stoplists and scales, as demonstrated by Mahrenholz's 'magnum opus', Die Orgel Register, and his smaller volume on scaling, Die Berechnung der Orgelpfeifenmensur, rather than on the use of mechanical action. In 1928, the statement was made at the Congress of the Guild of German Master Organ Builders in Berlin that "the re-introduction of mechanical action would be technically, liturgically and artistically a retrograde step."[79] Indeed, as late as 1934, Steinmeyer wrote in The Rotunda:

> "We have organists who wish to retain tracker action and who believe a perfect result in playing can be obtained only if there is a personal contact between player and the organ pipe. Others do not want to do without all the acquisitions of modern organ building (perhaps they are right) and do not want to miss the electric action, not to mention octave couplers, free combinations, general crescendo etc." 80

Builders such as Steinmeyer, whilst remaining committed to the eclectic organ, were not untouched by the re-discovery of the old organ literature, as shown in the seventy-two-stop organ for St. Luke's, Munich, with its 'Italian' scales in the Positive, its romantic Swell Organ, and sprinkling of mixtures and baroque voices.[81] Of more interest in terms of reform was the experience and insight being gained by Kemper, and others, in the restoration of old organs by Schnitger and his school in the North, as also through the building of new neo-classical organs by Kemper in Hamburg, Danzig and Frauenburg.[82] The significance of the Orgelbewegung in Germany lies perhaps most in the growing pressure from players for reform, as implied in the above comment of Steinmeyer, a pressure, in general, to which the builders reacted slowly. For a more committed response to reform from organ builders it is necessary to look beyond Germany in the inter-War years.

Alongside the work in Germany was another, virtually 'solo', organ reform movement in Denmark, that of Sybrand Zachariassen, who became head of Marcussen at the age of twenty in 1920. Whilst not unaware of the work of Schweitzer and the German organ movement,[83] and having met and talked with Ramin at the opening of the Marcussen organ in Silkeborg,[84] Zachariassen's reforms were fundamentally influenced by his careful observation of the results of restoring old organs, especially those with mechanical action. These observations of organs, in a country where organ design had remained relatively conservative, convinced Zachariassen of the superiority of mechanical action and of slider chests, fundamental issues insisted upon by Schweitzer. Other organists, such as Bangert and Wöldike, were also influential. In 1929 the first new Rückpositiv was built and, in 1930, the forty-four-stop mechanical-action, slider-chest organ for the Nicolai Kirke, Copenhagen (Appendix, A, 4), was completed. A clear Werkprinzip - Hovedvaerk, Rygpositiv, Brystvaerk and Pedal - organ was built in Ribe in 1932 whilst at Kerteminde in 1938, through the presence of an old case (as later at Sorøin 1942), the significance of the organ case was established.[85] By the end of the 1930's, Zachariassen was producing virtually nothing but mechanical-action organs. In 1925, Zachariassen had been joined by Poul-Gerhard Andersen, whose skills in case design, coupled with Zachariassen's skills in construction and voicing, within an established firm of craftsmen, were to prove dramatic. By the advent of the second

World War few, if any new Marcussen organs were built without fine cases. The War effectively prevented organ building in Central Europe, other than in Denmark and Switzerland; in Denmark, Marcussen managed to complete the Choir Organ in the Gruntvig Kirke, Copenhagen in 1940; and in 1944 (under German occupation), completed the organ in Jaegersborg Kirke, Copenhagen - two remarkable organs which will be considered in the following chapter.

The first effects of the German organ reform movement were seen in Holland around 1930 with the building of a three-manual organ by Furtwängler and Hammer in the Jerusalem Kerk, Amsterdam, in the style of the Marienkirche organ, Göttingen. In the following year, 1931, Mahrenholz gave a lecture to the Dutch Organists' Society in which he energetically opposed the unit organ and the idea of the 'universal' organ.[86] In a succeeding conference, at Utrecht in 1934, Dirk Flentrop put forward a plea for the mechanical-action organ with slider chests and Rugwerk. His comments were plain:

> "The mechanical slider chest forces the organ builder to deliver better work...
>
> "In the same manner, a mechanical slider chest organ encourages the organist to play better...
>
> "The result is that one phrases better and plays more accurately....
>
> "A very important function of the (Rug) Positief is the leading of congregational singing.
>
> "Let organists and organ builders work more closely together, and let organists venture to allow a bold disposition to be built...
>
> "If one doesn't dare to design a good new organ, then better to copy one of our fine old organs..." 87

Flentrop, who had started work with his father in 1927, at the age of seventeen, asked the advice of Schweitzer, who was visiting Zaandam.[88] Schweitzer arranged for him to study and work in Alsace, but, because of the French labour regulations, it did not prove possible. In the event, Flentrop, served his apprenticeship with Faust in Germany and Frobenius in Denmark from 1927 to 1930,[89] before returning to his father's firm. Flentrop was impressed with the Furtwängler and Hammer organ in the Jerusalem Kerk, and had also become acquainted with Mahrenholz and with Jahn. As a result Flentrop, with Mahrenholz's Die Orgelregister in hand, began to work on reformed lines. The results he found "were certainly not what I [Flentrop] was looking for."[90] His experience in restoring the 1663 Smith organ in Edam, and the mid-eighteenth-century organ by Muller in Beverwijk, led him to think beyond the stoplist, and gradually the importance of the slider chest, mechanical-action, and case, as well as the stoplist, pipes and scales, and pressures became clear.[91] Other Dutch builders were also moving in the same way: in 1937 Strunk built the first new Rugwerk in the present century in a church at West-Ijsselmonde and, in the same year, Strunk's pupil, Leeflang, built a mechanical-action organ for Ooltgensplaat-Langstraat.[92] In 1939, just prior to the War, Flentrop produced his first slider-chest, mechanical-action organ, a twelve-stop organ ordered by the Dutch Government in 1938 for the World Trade Fair in New York. The prospect, disliked by Flentrop, was imposed by a government architect, and the pedal stops were on electric action.[93] As Flentrop said, in his lecture at Duke University in 1980, "It took even more years before I made my first tracker organ with a real organ case."[94] In June 1940, a month after Germany invaded Holland, Flentrop took over his father's firm. Despite the War, the New York World Fair Organ was installed in the church in Kiefhoek, Rotterdam.

The pattern of organ reform in Switzerland was similar to that in the rest of Europe. In the 1920's interest in historic organs was expressed by Ernst Schiess of Solothurn,[95] who was a participant in the 1926 Freiburg Conference. As in Germany, so in Switzerland, the "new developments during the twenties for a long time concerned only specifications and scaling", and "many of the 'reform organs' were built with electric key action."[96] In the years before the Second World War however the

firm of Metzler moved along similar lines to those of Marcussen and Flentrop, establishing a clear lead in Switzerland in classical terms. Under Oskar Metzler (Senior) the firm reverted to the use of slider chests in all organs in 1935, and in 1937 and 1939 were built the first modern mechanical actions in Switzerland, for a house organ in Dornach and in the Zollikon Dorfkirche.[97] These were followed by a simple N-chest organ "of telling freshness"[98] in Zurich-Altstetten. By the end of the war Oskar Metzler had decided to abandon non-mechanical key actions, realising the prediction of his father, Jacob, "You will see the day when once again only mechanical actions are made."[99] It was not long before other Swiss builders, such as Kuhn,[100] began to follow suit, resulting in the emergence of an organ culture in which both the restoration of old organs and building of new ones has been of a remarkably high quality.[101]

In the United States, where Germanic musical influences have always been strong, there was also development of organ reform, mainly during the 1930's. Phelps has commented upon the influence in North America of Schweitzer, and of the Widor-Schweitzer edition of the Bach organ works, an influence which was initially felt more in tonal terms, in the quest for the right tone colours for the works of Bach, than in other ways. Matters of "mechanical action and ideal phrasing were easily passed over as too idealistic and out of touch with reality, for everyone knew that electricity was here to stay."[102]

During the 1920's, organists such as Melville Smith, the first American pupil of Nadia Boulanger,[103] and Lynnwood Farnham[104] brought back memories of historic European organs, as well as ideas for reform. The first tangible result of these was the collaboration between Smith and Holtkamp (who were much influenced by Schweitzer),[105] which, with the goodwill of Arthur Quimby, Curator of Music at the Cleveland Museum of Art, led, (in 1933), to the addition of a free-standing Rückpositiv division to the Skinner organ in the Museum[106] (Appendix A, 5). In 1940, Holtkamp wrote a pamphlet, Present Day Trends in Organ Building, which advocated the use of slider-chests and stressed the importance of good organ placement. By the end of the Second World War, he had re-built and re-worked the whole of the organ in the Cleveland Museum - an organ

described by Walter Blodgett[107] as "the Nation's first substantial instrument in Classic Concept"[108] (Appendix A, 6).

Despite his use of electric action and unencased pipework, Holtkamp's work, especially his re-establishment of "the primacy of chorus,"[109] had considerable influence upon musicians such as Power Biggs, and builders such as Charles Fisk, (who was employed by Holtkamp, and who was to become a builder of some distinction). The trend towards classicism at Cleveland by Holtkamp was soon followed by G. Donald ('Don') Harrison, of Aeolian-Skinner. Harrison, an Englishman, brought with him a knowledge of the traditions of English organ building, as exemplified by the Willis firm (of which he had been a director), and also an enthusiasm for the work of Cavaillé-Coll.[110] To this knowledge Harrison added a knowledge of the work of Schnitger and Silbermann, and, in particular, of the organs of Gottfried Silbermann.[111] This occurred mainly through a visit to Europe in 1936, in company with the player Carl Weinrich, who had been a pupil of Farnham.[112] This tour led to Harrison producing two 'classical' organs, the first in the Germanic Museum, Cambridge, Massachusetts (Appendix A, 7), the second being the Praetorius organ (Appendix A, 8), in Westminster Choir School, where Weinrich was Head of the Organ Department. The placing of the first of these, known as "Baroque Organ-Experimental, No. 951", in the Germanic Museum was due to a suggestion from Power Biggs - it had originally been destined for a studio.[113]

The influence of Power Biggs has been discussed by Fesperman,[114] but it is important to note that his persuasive playing and many broadcasts, including a series from the Germanic Museum from 1942 to 1958, had a profound effect on organ design and playing in the United States. It was not only radio, but also recordings, which had a marked effect, especially the initial ones by Weinrich from the Westminster Choir School, and the early recordings of Schweitzer. As Fisk wrote: "none of my early work would have been possible without records."[115]

An interesting, and detailed, sidelight on developments in America is given by Downes in Baroque Tricks,[116] in which he described the changes to the organ in Princeton University Chapel (where Downes was appointed

as the first Organist and Director of Music) and his growing friendship with Don Harrison. The experiences of Downes in this period were to have a considerable effect on the movement towards organ reform in England.

Chapter III

Classical organ building in Europe and North America from the Second World War to around the middle of the Century

Inevitably, the impetus of the Organ Reform Movement suffered as a result of World War II. It did not, however, come to a standstill; indeed, as Andersen wrote: "There was no break in development during the Second World War or after it. In Denmark especially, organ building continued along the established lines."[1] These lines were of course 'reformed' ones, exemplified at first by the organs in the Gruntvig Kirke and Jaegersborg Kirke, Copenhagen.

Gruntvig Kirke, Copenhagen, Choir Organ: Marcussen, 1940

Hovedvaerk		Rygpositiv	
Principal	8	Traegedakt	8
Nathorn	8	Principal	4
Oktav	4	Rørfløjte	4
Quint	2 2/3	Quintatön	2
Oktav	2	Scharff II	1
Mixture IV	1 1/3	Krumhorn	8

Pedal		
Subbass	16	
Nathorn	8	(from HV)
Oktav	4	(from HV)
Fagot	16	

The Gruntvig Kirke Choir organ by Marcussen may be considered the first fully thought-through, new, classical organ in the twentieth century. Today, over forty years later, it remains an organ of great character and beauty, one preferred by many (including Erik Frobenius and Rudolph von Beckerath, and others who attended the 1976 International Society of Organbuilders Conference, as well as by the present Organist, Thomas Pedersen),[2] to the much larger, 1965, 'west-end' organ, also by Marcussen. The specification, drawings (Appendix D, 1,2), photographs (Figure III/1,2 and Appendix E, 1-5), and scales (Table III/1), show

Figure III/1

Gruntvig Kirke, Copenhagen
Marcussen, 1940

Figure III/2

Gruntvig Kirke, Copenhagen
Marcussen, 1940

Table III/1

Gruntvigkirke Copenhagen	Hovedvaerk	C-f'''	WP 70 mm

	C		c		c'		c''		c'''			
Principal 8' ϕ	137.5		82.1		49		27.7		16.5			
mw	1/4.1											
Oktav 4' ϕ	89		49		27.9		16.8		10.9			
mw	1/4.1											
Quint 2 2/3' ϕ	65		34.8		20		12.9		8.6			
mw	1/4.5											
Oktav 2' ϕ	46.9		26.6		15.7		10.7		8			
mw	1/4.25											
			Rygpositiv									
Principal 4' ϕ	75.4		45		26.8		14.7		9.4			
mw	1/4.25											
Quintaton 2' ϕ	33.8		21.5		13.8		9		6.4			
mw	1/4.25	to	1/3.5									
Krumhorn 8' ϕ	npta											
			Mixture Compositions									
Mixture IV C	1 1/3	1	1	2/3								
c	2	1 1/3	1	2/3								
c'	2 2/3	2	1 1/3	1								
g''	4	2 2/3	1 1/3	1								
Scharff II C	1	1/3										
e	1	2/3										
a	1 1/3	1										
e'	2	1 1/3										

Giesecke

Notes: (i) Where mw followed by one entry is given it applies throughout
(ii) Scales of other registers npta

Source: S. Zachariassen, 4:3:82

very precisely the 'reformed' organ of Zachariassen; mechanical action, slider chests, separate encasement of divisions, order and importance of divisions, and principal choruses at octave distance. The principals are rich and clear, with speech transients evident, the flutes very warm. Some light nicking is present, though it is not certain when this was done. The employment of the Quintatön 2', an innovation of Marcussen,[3] was a remarkable success, giving both colour and penetration in the rich acoustic. Two details of construction are notable: the use of a compensated action with floating backfall beams,[4] invention of Marcussen,[5] and a small regulator[6] with an upper-board hinged on one side, a fore-runner of the in-built regulator.

Architecturally, the organ is in the three-tower Lübeck, Marienkirche tradition,[7] with the Rygpositiv an 'echo' of the main case. It was designed in conjunction with the architect Klare Klint.[8] The traditional aspect of the organ is enhanced by the use of shutters, or 'wings', for both cases (Figure III/1, 2). Aspects owing less to tradition are the pipe shades and impost detail, which are proportioned to the pipe diameters, and the use of proportional length pipe feet, the longest pipe having the longest foot. This gives much movement to the pipe mouth lines and upper case contour. The case profile and detail, in conjunction with the mouth movement and 'wings', gives the organ a light, or floating, appearance.

The sound quality of workmanship is evident from both the case and internal construction, as also from the excellent functioning of the organ today, the only change to which has been the provision, in 1950, of a new bass octave to the Fagot to replace the second-hand pipes used originally.[9]

Of equally sound craftsmanship was the organ built by Marcussen at Jaegersborg:

Figure III/3a

Jægersborg Kirke, Copenhagen
Marcussen, 1944

Figure III/3b

Jaegersborg Kirke, Copenhagen
Marcussen, 1944

Jaegersborg Kirke, Copenhagen: Marcussen, 1944

Hovedvaerk		Rygpositiv	
Principal	8	Traegedakt	8
Rørfløjte	8	Principal	4
Oktav	4	Rørfløjte	4
Daekfløjte	4	Quintatön	2
Rørquint	2 2/3	Scharf II	1/2
Oktav	2	Krumhorn	8
Mixture IV	1 1/3		
Trompet	8		
Brystvaerk		**Pedal**	
Gedakt	8	Subbass	16
Spidsgedakt	4	Oktav	8
Principal	2	Gedakt	8
Quint	1 1/3	Fagot	16
Cymbel I	1/6	Regal	4
Rankett	16		

Influential in the building of the Jaegersborg organ was the Organist, Finn Viderø. As Figure III/3[4] shows, its classical form is very clear; indeed, as Andersen has written:

> "Many people classify this organ as a seventeenth-century instrument.... Invariably the profiles and ornaments are responsible for this error since neither the pipe groupings, the shape of the towers, nor the materials has a relationship to any historical period. ....the construction was carried out along strictly functional lines and with all possible simplicity." 10

Thus the logic of the Werkprinzip was accepted, but the expression was twentieth-century. The working drawings (Appendix D, 3), show the constructional details of the organ. Though the detail cannot be ascribed to any period, the organ clearly stands in the North German tradition of the Lübeck Jacobikirche and Steinkirchen, with its Hauptwerk, Rückpositiv, Brustwerk and, in effect, 'Pedal towers', though the Pedal stops do overflow into the space behind the grilles between the Hovedvaerk and the 'towers'. The latter are also un-roofed. The stoplist, showing German and Spanish influence, is clearly an extension of the Gruntvig Kirke design, but with an en-chamade Trompet. The organ was the first in recent years to revive the Iberian placement

Table III/2

Jaegersborg	Hovedvaerk	C–g‴	WP 65mm

	C		c		c′		c″		c‴			
Principal 8′ φ mw	124·3 1/4	to	71·2 1/4·5		42·5		25·9		16·3			
Rørfløjte 8′ φ mw	60×120 1/4·7	to	40×80 1/5		45·8		28·5		18·5			
Oktav 4′ φ mw	69 1/4·1		40·6		24·4		14·8		9·6			
Gedaktfløjte 4′ φ mw	60×80 1/5·3		52·1		33		20·8		13·2			
Oktav 2′ φ mw	42 1/5·4		26·1		16·5		10·8		7·4			
			Rygpositiv									
Principal 4′ φ mw	64 1/4·25		37·7		22·6		13·8		8·8			
Rørfløjte 4′ φ mw	36×72 1/4	to	23×47 1/4·5		27·3		17·4		11·6			
			Brustwerk									
Gedakt 8′ φ mw	59×80 1/4	to	47·2 1/4·5		29·4		18·8		12·5			

Table III/2

Jaegersborg	Pedal	C-f'	WP 65 mm

	C		c		c'							
Subbass 16' ϕ	125 x 185		79 x 118		51 x 77							
Principal 8' ϕ	135·3		79·3		46·2							
mw	1/4	to	1/4·5									
			Mixture Compositions									
Mixture IV C	1 1/3	1	1/2	1/3								
c	1 1/3	1	2/3	1/2								
fs	2	1 1/3	1	2/3								
fs'	2 2/3	2	1 1/3	1								
fs''	4	2 2/3	2	1 1/3								
mw	1/4·5											
Scharff II C	1/2	1/3										
c	2/3	1/2										
c'	1	2/3										
c''	1 1/3	1										
c'''	2	1 1/3										
mw	1/4·5											
Cymbel I C	1/6											
B	1/4											
e	1/3											
b	1/2											
e'	2/3											
b'	1											
cs''	1 1/3											
mw	1/4·5											

Note: (i) When mw given as, e.g. 1/4 to 1/4·5, this indicates a change in mw over the course of the rank.
(ii) Further scales n/stg

Source: S. Zachariassen, 16:6:83

of the Trumpet. The scales (Table III/2), are very narrow, and the voicing is mild, giving "the fluework a somewhat Spanish character."[11] Andersen's objective, an organ with "an absolute ensemble of fluework and reeds,"[12] was demonstrably achieved. Balance and ensemble are the hall-marks of the organ, not only within a stop, but also between stops, between manuals, and between the organ and church acoustic and architecture. Whilst remaining broadly as originally constructed, the action was rebuilt in 1982 by Andersen's Orgelbyggeri, under Peter Bech-Nielsen, with a new floating-beam system, to give a greater depth of touch.[13] Tonally, there were no changes. The influence of the organ on visitors, as also through Andersen's book Organ Building and Design, and Richter's recordings,[14] was considerable. In England it was featured in a BBC programme in January, 1959, presented by Cecil Clutton, in which Viderø demonstrated various stops and combinations of registers on the organ.

Three years later, 1947, saw the building, by Marcussen, of the organ in the Gustavs-Kyrke in Copenhagen. Here was an early attempt, within classical discipline, to cope with the problem of the Swell division in a medium-sized organ of thirty-one stops (Appendix A, 9). Hovedvaerk and Rygpositiv are in the normal position, with the Principals at 8' and 4' pitches in prospect. The arch in which the organ stands effectively prevents more than Hovedvaerk and Rygpositiv being in prospect.[15] The Pedal, therefore, stands behind the Hovedvaerk, and with this was also placed the third manual which, as Andersen wrote, "could be installed most successfully as a crescendo werk."[16] The relationships between these organs and those of the past is clear today, though it is equally clear that the Marcussen organs were not style copies but style-derivative. A Marcussen organ whose case design was deliberately derivative, indeed almost archaic, was that completed in 1949 in the Oscarkirken, Stockholm. Its case was almost identical with the main case of the Jacobikirche organ in Lübeck.[17] As Blanton has pointed out: "Where the Pedal towers and Rückpositiv of the prototype (Jacobikirche, Lübeck) are of a different period from the main case the Oscarkirken organ possesses a unity of design."[18] A more overtly twentieth-century expression of the classical style, as conceived by Marcussen, was the organ installed in Varde (Appendix A, 10), in 1952. The influence of Andersen, who lived in Varde, as an organ architect

is clearly evident, and the relationships with Jaegersborg are very clear.[19] This organ also reached a wide public in Europe through the recordings on Erato made by Marie-Claire Alain.

On a smaller scale, though of no less distinction, was the "Sweelink" organ[20] (Appendix A, 11), built in 1953 at the instigation of the Dutch organist and adviser Lambert Erné, for the NCRV radio studio in Hilversum. As der Galien wrote: "The inauguration had a startling effect. The leading Dutch firms recognised openly: 'This level we have not reached yet.'"[21] Here was an example, a "finger-post." The influence of the organ was immense, not only on builders such as van Vulpen,[22] but also because Erné was in charge of the planning of organ recitals at NCRV, recitals not only listened to in Holland and surrounding areas but also heard in eastern England on Hilversum 402. Similar recognition and influence was accorded to the 1956 Marcussen organ for the Nicolaikerk in Utrecht (Appendix A, 12), where Erné was organist. This large-scale three-manual instrument, with an asymmetric (but Werkprinzip) case by Andersen,[23] not only influenced organs such as that by van Leuven in the Grote Kerk, Almelo (which had a literal copy of the Utrecht specification),[24] but was also described in 1959 by R. J. Moseley as "outstanding", though he also commented:

> "I felt this Danish organ might grow a little fatiguing to the listener after anything more than the short audition we had, and I regard it as an extreme example of a style from which there is already a marked reaction. The suitability or otherwise of such organs for accompanying an Anglican service, or for playing organ music from the time of Mendlessohn to Parry, Whitlock and Hindemith is a controversial question." 25

Other visitors, notably Maurice Forsyth-Grant and Frank Bradbeer, were much impressed,[26] and again this organ too was heard by listeners to Hilversum 402. The combination of excellent architectural design, sound tonal design and fine craftsmanship, gave Marcussen no shortage of orders, and the post-War years produced a seemingly endless stream of fine organs from the Aabenraa workshop.

The work of the Frobenius firm followed a similar pattern to that of Marcussen. Through the influence of Schweitzer, who became a life-long friend of Theodor Frobenius (as later his sons Walther and Erik), and also of Emil Bangert (Organist of Roskilde Cathedral),[27] was developed a respect for the good qualities of old organs and interest in ideas of organ reform. In the 1920's, restoration of the organs in the Cathedrals of Roskilde and Aarhus was undertaken with Schweitzer's views in mind; mechanical action was used as far as then thought possible, the first new slider soundboards since the beginning of the century were constructed, and a 'reformed' stoplist was employed. At Aarhus the eighty-eight stop specification[28] demonstrated Schweitzer's ideas on the combining of German and French tonal ideals in one organ. In 1940, Frobenius restored the fifteenth-century organ in St. Peter's, Malmö, making a new Rückpositiv to replace one lost in earlier years. As Williams has commented, this shows not only that "builders were recognising the Werkprinzip as a method of enlarging organs but that they were, perhaps unintentionally, beginning to follow in the old builder's footsteps."[29] It was Frobenius' "first all-tracker organ with slider soundboards."[30] As with Marcussen, Frobenius became aware of the significance of the organ case when building a new organ in an old case in 1947, in this instance that of the seventeenth-century organ at Tønder.[31]

A number of small one-manual organs, Vetterslev, Gadstrup and Brorson[32] followed and, in 1948, Frobenius built an eleven-stop instrument for Vestemarie Kirke, Bornholm.[33] This latter organ employed a Rückpositiv and the design was made in conjunction with the architect Hardi-Fischer. Frobenius was clearly influenced by Schweitzer in his desire for beautiful tone. Whilst adopting the principles of organ reform, he nevertheless retained a milder style of voicing than Zachariassen, and also developed a distinctive prospect style. The elements of this latter are seen in the Brorson and Vestemarie organs. It is a style deriving from a blend of 'contemporary' handling of shape and timber, as in the 1950 organ at Kalvehave (Appendix A, 13), allied to an 'Italianate' use of pipe contour in the prospect. Kalvehave was the first organ to employ what was to become known as the 'Frobenius' or 'Scandinavian' prospect (Figure III/4). At Kalvehave the flats were laid out in five groups, in fourths, giving a steep fall to the pipe tops of each flat,

Figure III/4

Kalve have
Frobenius, 1950

Source
E. Frobenius

contrasted with the rising pipe mouth lines, resulting from the use of inversely proportional length pipe feet. In this organ the general ethos of post-war Danish art and craft was clearly influential, as was the influence of specific architects such as Mogens Koch, Marius Andersen and Fin Ditlevsen.[34]

As Phelps has commented with regard to Marcussen, "the pressure of the excellence of their work has forced development elsewhere,"[35] a pressure felt by Frobenius. From 1948 onwards, Frobenius emerged as a builder of comparable stature to Marcussen. In 1953 the three-manual thirty-six stop organ for Sct. Jacob's, Copenhagen,[36] demonstrated the conviction with which Frobenius could handle the Hamburg prospect, Hauptwerk, Rückpositiv, Brustwerk and Pedal towers, whilst keeping to a flat prospect and an Italianate pipe contour. On a smaller scale was the two-manual and pedal organ with Hauptwerk, Brustwerk and Pedal towers, for Vamdrup Kirke[37] (Appendix A, 14), a disposition which Frobenius brought to its most graceful expression in The Queen's College, Oxford, in 1965. The architect in both these instances was Fin Ditlevsen.

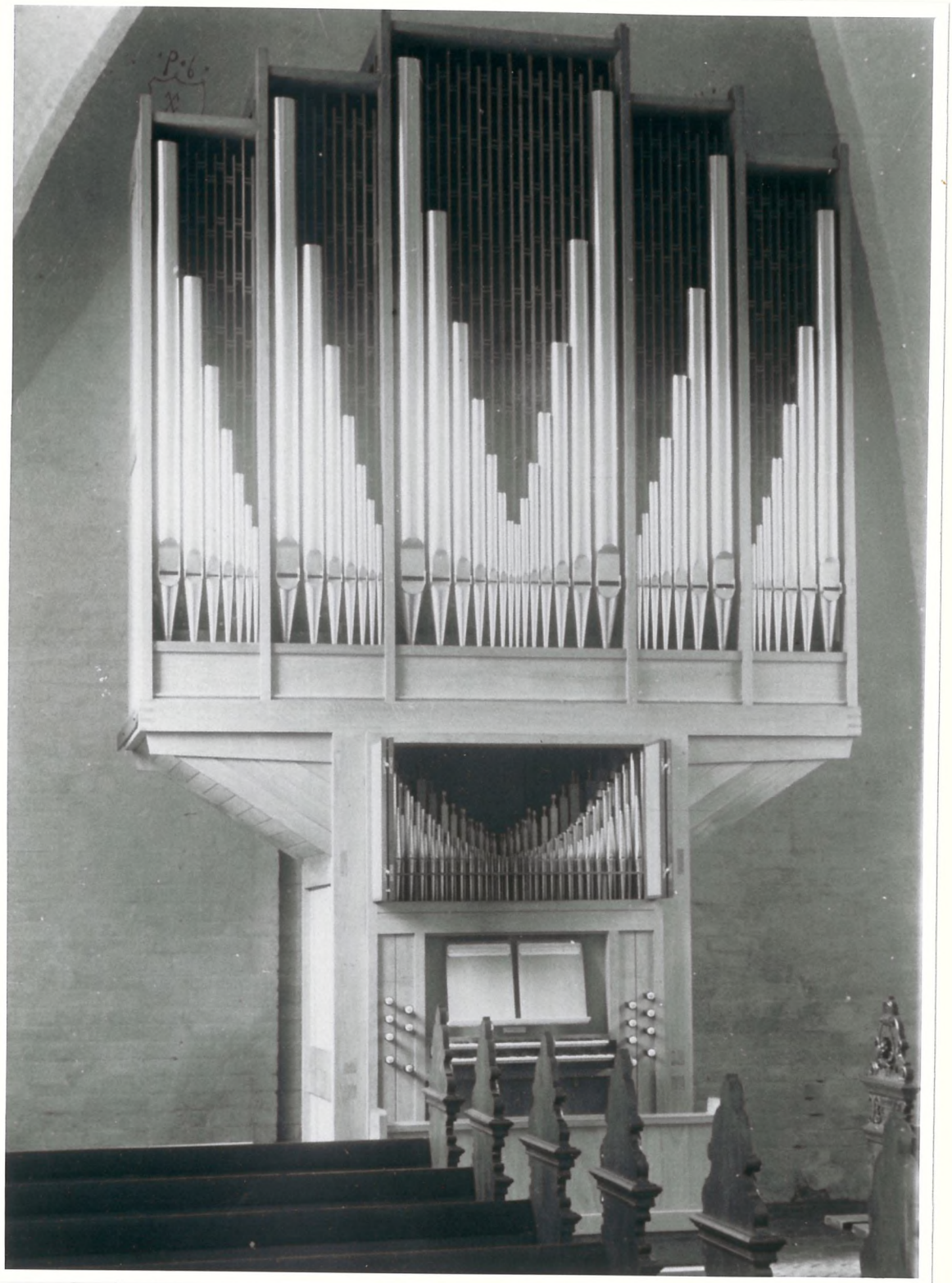
The small organ at Tranebjerg, Samsø, built in 1956, also involved an architect, Marius Andersen. Its specification was:

Tranebjerg Kirk, Samsø: Frobenius, 1954

Hovedvaerk		Brystvaerk	
Principal	8	Gedakt	8
Rørfløjte	8	Rørfløjte	4
Oktav	4	Principal	2
Waldfløjte	2	Quint	1 1/3
Mixtur			
Dulcian	8		

Pedal		
Subbass	16	
Principal	8	(HV)
Nathorn	4	
Fagot	16	

Figure III/5



Tranebjerg
Frobenius, 1956

Source
E. Frobenius

The quality of the design is not only due to fine architectural proportions, but also to the use of principals in prospect laid in six groups, giving an exaggerated stagger to the line of pipe tops in a manner again reminiscent of old Italian organs, and contrasting strongly with the horizontal pipe mouth line (Figure III/5). 1954 also saw the building of a small organ of some distinction in the Frederiksberg Hospitals Kapel, Copenhagen;[38] again an architect, Svend Andersen, was involved. The organ is an interesting design for a small positive, in that it gets the sound of the organ away from the player and above the heads of the congregation. It also has the stop-action rocking-levers placed outside the case, both features to be found later in the 1959 organ in the Danish Seamen's Church, London. The elegance, or simplicity, characterized by the architecture of organs by Frobenius, such as Tranebjerg, is reflected in the simplicity of their specifications and refinement of voicing. From the 1950's onwards the position of Frobenius, as that of Marcussen, was assured and influential, both in Denmark and overseas.

As with Marcussen in occupied Denmark, so Flentrop in Holland managed to continue with some organ building. In 1943, despite the War, he completed a large three-manual, thirty-two-stop mechanical-action instrument with Hoofdwerk, Rugwerk, Swell and Pedal for the Grote Kerk, Wageningen, an organ destroyed in the liberation of Holland in 1945.[39] It was not, however, until after the War that Flentrop was able to determine the future policy, or philosophy, of his work. His own description is very telling:

> "Starting from scratch it seemed a simple and natural decision to do it the way as was advised by Professor Schweitzer, the way as I had seen in Edam, Beverwijk and in several other old historical organs." 40

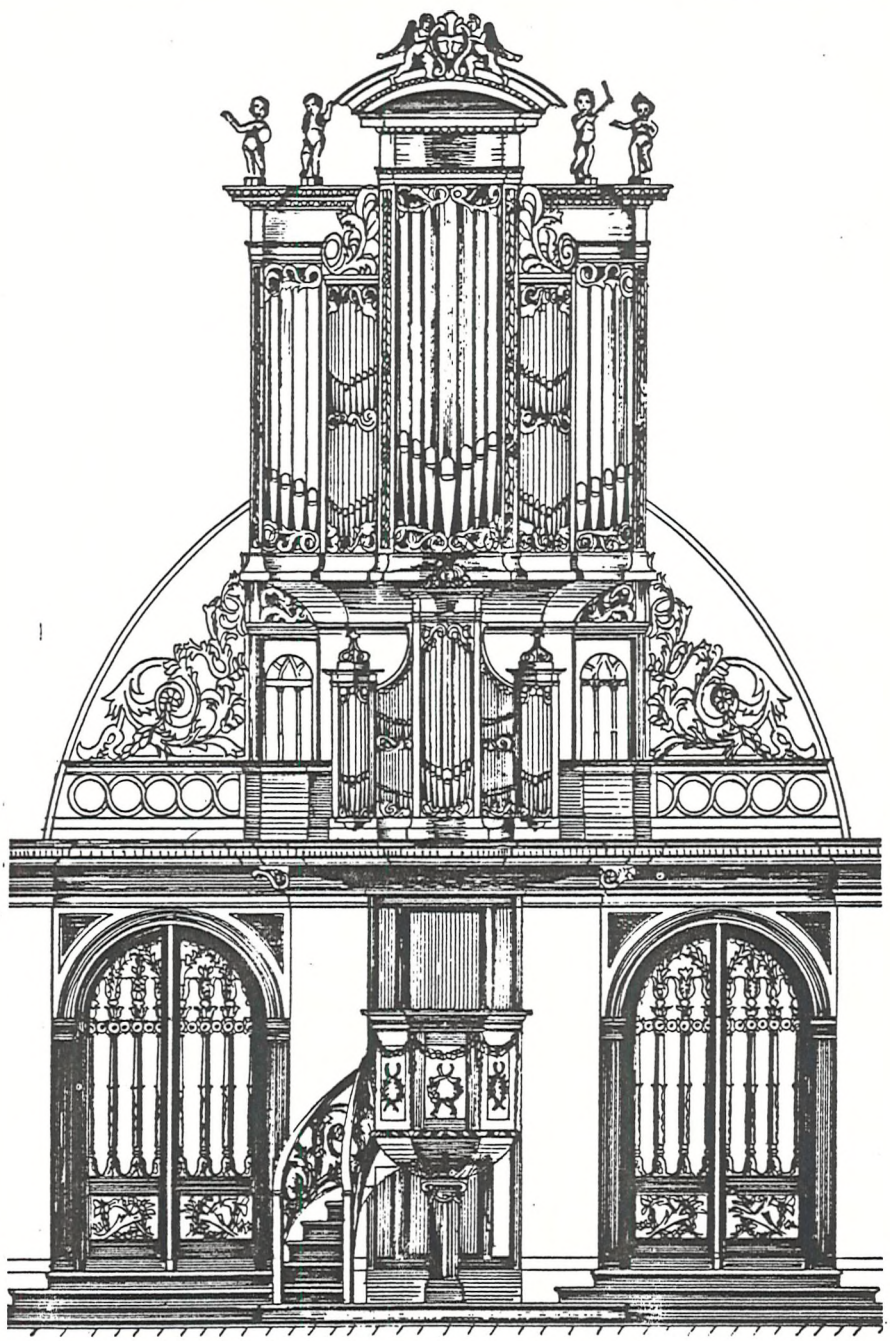
Flentrop's work on the St. Lauren's Kerk, Alkmaar (reviewed by Downes in 1951),[41] and the Schnitger organ at Zwolle were important: "In the Zwolle organ we learned a lot about the relation between the several parts of an organ."[42] Also influential was Schweitzer's advice to "give more attention to the art of organ building and to get away from

mass produced parts."[43] In his lecture at Duke University in 1980, Flentrop mentions not only the amount of learning that he and his men needed, but also the financial, technical and musical problems arising from the adoption of this approach. Finally, Flentrop reached the point where "we could make everything we wanted in our own workshop.... resulting in organs of a true unity in design, material and way of making."[44] The process was recalled by Flentrop as one in which the most significant feature was "the satisfaction we all had in working at it, in making something we really liked."[45]

In the immediate post-War years, a number of new organs were built by Flentrop: Hilversum (1947), Driebergen (1948) and Bussum (1948).[46] However, it was at Loenen aan der Vecht in 1950, with a design (Figure III/6), which arose from that of a Bätz organ destroyed by fire in the church, that Flentrop felt his commitment to classical principles was most clearly demonstrated:

> "This Loenen organ I consider my first real tracker organ. Not because it has trackers. I had made several organs with trackers and slider chests before the Loenen organ, but because it is an organ in which everything is present to make it a fine musical instrument....
>
> "....From then on, to my retirement last year, (1979), I didn't stay exactly on the same point. I changed and so did my organs, but principally I worked on the same lines as I had set out for the Loenen organ." 47

Figure III/6



Nederlands Hervormde Kerk Loenen a/d Vecht Holland

Flentrop, 1950

Source
Jongepier, J. 1976

It had the following specification:

Ned. Hervormde Kerk, Loenen a/d Vecht: Flentrop, 1949-50

Hoofdwerk		Rugwerk	
Prestant	8	Gedekt	8
Roerfluit	8	Prestant	4
Octaaf	4	Roerfluit	4
Spitsquint	2 2/3	Gemshoorn	2
Octaaf	2	Quint	1 1/3
Mixtur VI		Scherp IV-V	
Dulciaan	16	Regaal	8
Pedaal			
Subbass	16		
Octaaf	8		
Nachthoorn	4		

These three last-mentioned organs, Driebergen, Bussum and Loenen, were visited by many American organists,[48] and also brought to the attention of English musicians and builders by Downes in The Musical Times,[49] but his article appears to have had but little initial effect.

It was also in January 1950 that what became known as the "Driebergen Conference" was held. Initiated by Flentrop, it brought together the builders van Leeuwen and Mense Ruiter, and the players Oussoren, Stam, Schuurman, Erné, Hendrikse and Engels,[50] and aimed "to promote through mutual exchange of thoughts the necessary orientation of organ building towards the development of the church music of the last decades."[51] Among its recommendations, the Conference proposed:

> "Organs shall not be a combination of all kinds of styles, but each organ shall have its own style, its own identity. (A so-called universal organ cannot be made).
>
> "The sliderchest with tracker action is to be preferred above all other systems.

"That in general, organs should be built as:

One Manual:	Positiv
Two Manuals:	HW, RW, Pedal
Three Manuals:	HW, RW, Pedal and Oberwerk, or, if there is not sufficient height, a Brustwerk
Four Manuals:	HW, RW, OW, BW, Pedal

and that,

"the organist should be seated centrally at the front of the organ in the main case: 'No detached consoles'." 52

These principles were taken up by the Congress of the Dutch Society of Organists the following year, at which Flentrop, Erné, Reda, Vente and Zachariassen gave lectures,[53] which went on to suggest that:

"The art of organ playing has to be brought on the same level as has been reached by organ music and organ building. It is necessary that before making designs for new churches or for restoration of churches, the architect has to consult the organ builder about placement and design of the organ." 54

These were indeed radical conclusions for organists to adopt.

The principles enunciated by the Driebergen Conference were given prompt expression at Groenlo[55] in 1951.

Ned. Hervormde Kerk, Groenlo: Flentrop, 1951

Hoofdwerk		Borstwerk	
Prestant	8	Holpijp	8
Roerfluit	8	Spitsfluit	4
Octaaf	4	Prestant	2
Quintadeen	4	Quint	1 1/3
Vlakfluit	2	Sesquialter II	2/3
Mixtur IV-VII	1 1/3	Cymbel I	1/6
Trompet	8	Regaal	8

Pedaal	
Subbass	16
Prestant	8
Nachthoorn	4

Table III/3

Groenlo	Hoofdwerk	C-f'''	WP 76 mm

	C		c		c'		c''		c'''				
Prestant 8' ϕ	–		81		47		30		17				C-Fs from Roerfluit 8'
Roerfluit 8' ϕ	133x 120		77		50		32		20				
Octaaf 4' ϕ	79		48		28		18		12				
Quintadeen 4' ϕ	60		37		23		14.5		10				
Vlakfluit 2' ϕ	52		34		22		15		10				
Mixtuur IV-VI 1 1/3' ϕ	33		remainder		not	possible to ascertain							
Trompet 8' ϕ	115		remainder		not	possible to ascertain							

Table III/3

Groenlo	Borstwerk	C - f'''	WP 60 mm

	C		c		c'		c''		c'''			
Holpijp 8' ϕ	96x78		60		39		27.5		18			
Spitsfluit 4' ϕ	74		46		15/37		12/22.5		8/13			
Prestant 2' ϕ	44		29		17		11		8			
Quint 1 1/3' ϕ	32/44		18/28		11/18		7.5/13		7/10.5			
Sesquialter II 2/3' ϕ	20		n/pta remainder									
Cymbel I 1/6' ϕ	5.8x 4.2		remainder		n/pta							
Regaal 8' ϕ	9.6x 9.6		remainder		n/pta							
			Pedaal									
Subbass 16' ϕ	206x 203		142x 140		100x 100							
Prestant 8' ϕ	148		88		48							
Nachthoorn 4' ϕ	74		46		28							

Note: According to Niland (o 150, p.74), Flentrop "normally uses a quarter mouth, cut up a quarter. Nicking is sparse and sporadic, undictated by rule of thumb."

Table III/3

Groenlo			

Mixtur IV-VI C	1 1/3	1	2/3	1/2								
As	2	1 1/3	1	2/3	1/2							
gs	2 2/3	2	1 1/3	1	2/3							
fs'	4	2 2/3	2 2/3	2	1 1/3	1						
fs''	4	2 2/3	2 2/3	2	2	1 1/3						
Sesquialter II C	2/3	2/5										
c	1 1/3	4/5										
c'	2 2/3	1 3/5										
Cymbel C	1/6											
As	1/4											
f	1/3											
as	1/2											
e'	2/3											
as'	1											
e''	1 1/3											
as'''	2											

Source: Flentrop worksheet, 19 March, 1956 and communication from D. Flentrop, 8.6.83.

Figure III/7

Groenlo: Flentrop, 1951

Here, Flentrop, in consultation with the adviser Johannes Légène, who had had much experience of Danish organbuilding, built a graceful two-manual organ (Figure III/7). The determination of Flentrop to have a free-standing, encased, organ on the gallery led to problems; especially those of access to the new west gallery and lack of space at the rear of the organ. It was decided to cut a niche at the rear of the gallery and, in Flentrop's words:

> "to everyone's surprise there was found an old niche filled with bricks.... of exactly the same size as was wanted for the new organ, same width, same height. We came to the conclusion that in all probability there had been in the past another organ of just that same size. Did it tell us that our design had the correct relation to the architecture of the church, like most organs of the past have? Making the niche the problem of the staircase was also solved. In the niche was found an entrance to an old staircase, a winding one, made inside the 7ft. thick wall." 56

The charm and influence of the Groenlo case, made of oak and designed by Légène,[57] were considerable. It was copied, for example, by Blanton in his design for the Hofmann instrument in Albany, Texas,[58] and by Mander in his 'Denham' extension organ,[59] as also that in Teddington in 1957.[60] Groenlo also received a stream of visitors, including Schweitzer and Downes, and Geraint Jones recorded a programme there for the BBC.[61]

The tonal disposition showed a careful balance between principals, flutes and reeds, and between solo and chorus registers, a balance remarkable for the date, and all within the context of a seventeen-stop organ. Niland, whilst noting the good qualities of action, case and voicing, suggested, however, that:

> "The great lesson we would do well to ponder is that by the addition of a few romantic stops in a swell box, and a couple of composition pedals it could tackle almost any legitimate organ music ever written." 62

This was a view still being propounded by Clutton in 1977.[63] The fundamental lesson, in Flentrop's words, that:

> "A work of art is not created by taking only some of the necessary components, or by throwing in all the components without the most delicate distribution of emphasis among them," 64

had been entirely missed.

The scales, with narrow 'Scandinavian' style principals (Table III/3), give the organ a clear sound. The lower pitched registers do retain considerable warmth, but the upperwork has a trace more sharpness. The flutes are voiced with more pronounced transients than the principals. In general, the mouth-widths and cut-ups are around one-quarter. (The acoustic today is, however, more resonant than when the organ was built.)[65] The key mechanism (Appendix E, 6, 7), is suspended, via squares, and is clean and precise. Only two couplers were provided, Hoofdwerk to Pedaal and Borstwerk to Hoofdwerk. The wind supply was from in-built regulators beneath the chests, fed from a large reservoir placed behind the case. The final impression today is of a totally convincing organ which has great assurance - though small, it fills the vast church with a rich, un-hectoring sound.

Whilst the tonal disposition of Flentrop's organs in the early 1950's showed a sure touch, derived from Scandinavian practice, the same could not be said in every instance with regard to architectural design: the cases at Dinteloord, Schoondijk, Kruiskerk, Zaandam and Bosarp were dull and heavy, lacking the grace of Groenlo, and seemingly designed without the help or inspiration of a person such as Legêne.

1952 saw a further step forward on the part of Flentrop in the building of an organ in Doetinchem, an organ described by Williams as "the perfect classical organ."[66] It was a distinctive essay in the North-German, 'Schnitger' style having Hoofdwerk, Rugwerk, Borstwerk, and Pedal towers on the gallery rail. It demonstrated very clearly the post-War reformed style of Zachariassen, with its slider chests,

Figure III/8

Doetinchem: Flentrop, 1952

mechanical action, encased, free-standing departments, open-foot voicing with minimal nicking, and principals standing at octave distance in each division. The specification was straightforward, other than in the provision of only one 16' Pedal stop, a flue stop, though this had classical precedent in the work of Schnitger, as at Steinkirchen.[67]

Ned. Hervormde Kerk, Doetinchem: Flentrop, 1952

Hoofdwerk		Rugwerk	
Quintadeen	16	Holpijp	8
Prestant	8	Quintadeen	8
Roerfluit	8	Prestant	4
Octaaf	4	Roerfluit	4
Gedektfluit	4	Octaaf	2
Nasard	2 2/3	Quint	1 1/3
Octaaf	2	Scherp IV	1
Mixtuur V-VI	2	Sesquialtera II	2 2/3
Trompet	8	Dulciaan	8
Borstwerk		**Pedaal**	
Eikenfluit	8	Prestant	16
Fluit	4	Octaaf	8
Prestant	2	Octaaf	4
Gemshoorn	2	Nachthoorn	2
Octaaf	1	Mixture IV	2
Cymbel II	1/6	Bazuin	16
Regaal	4	Schalmei	4

The painted, pine, case made by a local carpenter,[68] was symmetrical and traditional, and was seen by Williams as "an improvement on the freer non-classical cases of Marcussen-Andersen (e.g., Utrecht, Nicolaikerk),"[69] though there is a slight weakness in the pipeless inner flats, on the Hoofdwerk prospect, a weakness similar to that at Jaegersborg (Appendix E, 9, 10 and Figure III/8). It also incorporated, as at Groenlo, non-classical winding (having in-built regulators), and spring-loaded sliders,[70] patented by Flentrop.[71] Copper was used for the Pedal Principal. The influence on writers such as Clutton[72] was considerable, though a certain lack of perception on his part was commented on by Roger Yates.[73] The sound is similar to Groenlo, a shade warmer as the scales suggest (Table III/4), with no extreme emphasis on transients, giving a warm flow of sound in the rich acoustic. The key action is clean and precise, though not especially

Table III/4

Doetinchem	Hoofdwerk	C - f'''	WP 65 mm

	C		c		c'		c''		c'''				
Quintadeen 16' ϕ	155		92		57		34		21				
Prestant 8' ϕ	145		88		50		28		17				
Roerfluit 8' ϕ	120		77		50		34		21				Int. chimney
Octaaf 4' ϕ	77		45		28		18		11				
Gedektfluit 4' ϕ	70		43		28		18		13/15				
Nasard 2⅔' ϕ	55		32.5		20/26		14/18		9/11				
Octaaf 2' ϕ	46		29		17		10.5		6				
Mixtuur V-VI 2' ϕ			24		15		9.5		6				
Trompet 8' ϕ	npta.												

Table III/4

Doetinchem	Rugwerk	C-f'''	WP 60 mm

	C		c		c'		c''		c'''				
Holpijp 8' ϕ	107		68		42		29		20.5				
Quintadeen 8' ϕ	–		49		35		24		17				C-B from Holpijp 8'
Prestant 4' ϕ	80		48		31		19		13				
Roerfluit 4' ϕ	73		45		26.5		7/19		6/12				
Octaaf 2' ϕ	46		30		18.5		10.5		7				
Sesquialter 2 2/3' ϕ					20		12.5		8				
1 3/5' ϕ					14		8		6.5				
Quint 1 1/3' ϕ	23/32		16/21		10/13		7/9		5/6				
Scherp IV-V 1' ϕ	21		13		8.5		6		-				
Dulciaan 8' ϕ	npta												

Table III/4

Doetinchem	Borstwerk	C - f'''	WP 58 mm

	C		c		c'		c''		c'''			
Eikenfluit 8' ϕ	np	ta										
Fluit 4' ϕ	71		43·5		27/36		15/24		8/13			
Octaaf 2' ϕ	41		27		19		12		7·5			
Gemshoorn 2' ϕ	34/49		22/31		14/19		10/13		8/8·5			
Octaaf 1' ϕ	21		13		9		6·5		4			
Cymbel I 1/6' ϕ	np	ta										
Regaal 4' ϕ	np	ta										

Table III/4

Doetinchem	Pedaal	C –	WP 76mm

	C		c		c'		c''		c'''			
Prestant 16' ϕ	220		145		89							C-F stp
Octaaf 8' ϕ	148		85		48							
Octaaf 4' ϕ	84		51		32							
Nachthoorn 2' ϕ	68		40		25							
Mixtuur IV 2' ϕ	50		30		19							
Bazuin 16' ϕ	n/p	ta										
Schalmei 4' ϕ	n/p	ta										

Note : mw in general around 1/4 throughout organ.

Table III/4

Doetinchem			

Mixtuur V-VI 1 1/3' C	1 1/3	1	2/3	1/2	1/3							
c	2	1 1/3	1	1	2/3							
c'	2 2/3	2	2	1 1/3	1	1						
c''	4	4	2 2/3	2	2	1 1/3						
c'''	4	4	2 2/3	2 2/3	2	2						
Scherp IV C	1	2/3	1/2	1/3								
B	1 1/3	1	2/3	1/2								
as	2	1 1/3	1	2/3								
a'	2	2	1 1/3	1								
gs''	2 2/3	2	2	1 1/3								
Cymbel II C	1/3	1/6										
A	1/2	1/3										
g	2/3	1/2										
f'	1	2/3										
d''	1 1/3	1										
c'''	2	1 1/3										
Mixtuur IV C	2	1 1/3	1	2/3	through							

Sources: Communication from D. Flentrop, June, 1983, and Clutton, C. 1954, O 134, p. 92 et seq.

light,[74] and the stop action is heavy. The console (Appendix E, 11, 12), was in the 'old style' with a straight, flat pedal board, short manual keys[75] and turned stopknobs in the style of Müller, with labels beside them. These stopknobs were copied by Mander, as at Jesus College Cambridge.

Alongside Flentrop, other Dutch builders were moving forward. Leeflang built a three-manual, mechanical-action instrument with a Rugwerk in 1950,[76] and other mechanical-action organs were built by Ruiter,[77] van Leeuwen[78] and van Vulpen.[79] All of the organs discussed so far (in Holland), were in Reformed churches, understandable when, as van der Galien[80] has pointed out, the Reformed Church had established a committee which fought for change on the basis of classical ideals. The driving force of this committee was Erné, whose experience of the quality of Danish organ building had resulted in his being responsible for the installation of the Marcussen organs in the NCRV radio station and Utrecht, Nicolaikerk. He was also responsible for instigating the Conference of Organists and Organ Builders in January 1953, to which Sybrand Zachariassen was invited. Zachariassen's lecture, "Present day organ building problems and possibilities of solving them in practice" proved, for many, "nothing less than a revelation and formed the starting point for the (from now on) very quickly progressing revival of Dutch organ making."[81]

The effects of the conference, and the Marcussen NCRV and Nicolaikerk organs, were marked by a third event in 1953, the tragic flooding of south-west Holland. This resulted in the building of many organs, some gifts from other countries, to replace those damaged, with the result that "the islands to the south of Rotterdam became a paradise with an incredible variety of organs,"[82] not just Dutch, but also from Hammerberg, Seiffert, Muhleisen, Kuhn, Metzler, Marcussen and Frobenius. The opportunity for close-at-hand experience of contemporaneous works by many distinguished 'reformed' builders gave enormous impetus to the organ revival in Holland. From 1953, classical principles were firmly adopted throughout Holland, and Dutch builders, not only Leeflang, van Vulpen, van Leeuwen and Ruiter, but also Reil, Vierdag and Verschueren and others, followed Flentrop's lead. There were, in addition, further fine imported organs by Marcussen, Frobenius, Ahrend and Brunzema, Metzler and others. At the same time, the work of

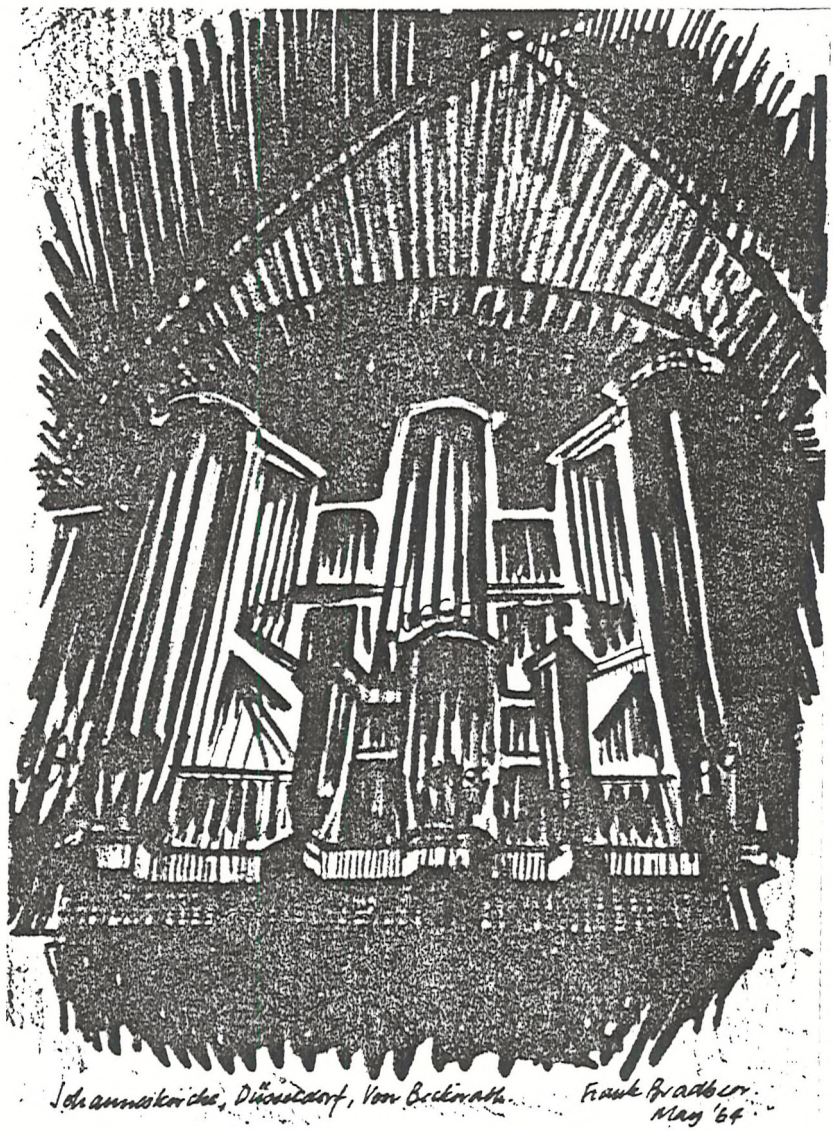
Flentrop and others spread to many other countries, especially the United States.[83]

The post-War years in Germany saw an inevitable demand for new organs to replace the losses of the War, a demand which led to the rise of numerous firms. Development was also stimulated by the presence of official organ advisers for each locality, by the embarras de richesse of thousands of new churches (built with the 'church tax'), and by the fact that organs which were gifts to the churches were tax-deductible items.[84]

Pre-War Germany had had a tradition of large, industrialized, factory building, exemplified by Walcker. The smaller post-War firms, on the whole, tended to be more craft-based and 'progressive' in their approach. For these smaller firms, the developments in organ reform of the pre-War years were taken as their 'starting point'. Principal among these builders were von Beckerath in Hamburg, Karl Schuke in Berlin, Paul Ott in Göttingen, and Ahrend and Brunzema of Loga bei Leer. The work of von Beckerath, Ott, and especially Ahrend and Brunzema, was particularly influenced by their experience of restoration of old organs; von Beckerath at Steinkirchen and in the Jacobi Kirche, Hamburg; Ott at Lemgo; and Ahrend and Brunzema at Westerhusen and Uttum. Both Ahrend and Brunzema had been apprentices of Ott, and, in their respect for old organs and old building practices were without equal.[85] Other rather less-well-known firms, such as Führer of Wilhelmshaven and Hammer of Hanover, followed a similar pattern of development. It is noteworthy that, in the main, these firms were situated in northern Germany, and mostly in the area dominated by the work of Schnitger, whose style was most favoured by the Organ Reform Movement builders and theorists. Other firms made a contribution to the progress of organ reform: Kemper of Lübeck, Walcker of Ludwigsburg, and Steinmeyer of Passau, though their work remained dominated by large factory-style production.

The Schnitger influence is seen very clearly in the early work of von Beckerath who, by 1953, had built a mechanical organ of no less than sixty-five stops in the Johanneskirche in Düsseldorf (Appendix A, 15).

Figure III/9



Source O 179, p. 137

The massive scale of this 32' organ, very apparent in the sketch by Frank Bradbeer (Figure III/9), is immediately seen as standing in the tradition of the larger, indeed largest, organs of Schnitger (Hamburg, Nikolaikirche sixty-seven stops; Jacobikirche, sixty stops; Magdeburg, Johanniskirche, sixty-two stops). The organ also demonstrates its adherence to the principles of reform with its choruses at octave distance, Pedal 32', Hauptwerk 16', Rückpositiv and Oberwerk at 8', and Brustwerk at 2' pitches. Only two years later, in 1955, another large organ, with a seventeenth-century-style divided Rückpositiv, was completed by von Beckerath in the Petrikirche, Hamburg. Architecturally it was a plain, but imposing concept[86] (Appendix E, 14). Perhaps a more elegant, yet nevertheless dramatic organ, typifying the then thinking of the Organ Reform Movement, was that by von Beckerath, built in 1957 for the Trinity Lutheran Church, Cleveland, Ohio[87] (Appendix A, 16). Architecturally, however, both these latter organs suffer to some extent from the false length pipes in prospect and, in the minds of some,[88] from their box-like forms. As is clear, the scale of the major organs of von Beckerath in the immediate post-War years was vast by any standards.

Karl Schuke re-established his family firm in Potsdam, in East Germany, in 1945. In 1950 he founded a branch of the firm in West Berlin, Berliner Orgelbau Werkstatt, and in 1952 he withdrew from Potsdam. From 1953 onwards, he built up his own new firm based on the Berliner Orgelbau.[89] By the mid 1950's, Schuke had established a clear style which took into full account the simplicity of the new, and restored, post-War churches. From 1955 onwards, he turned entirely to the building of mechanical-action organs. Two examples of his style in the mid 1950's are St. Ansgar (Appendix A, 17), and the Kaiser-Friedrich-Gedächtnis-Kirche (Appendix A, 18), in Berlin. The architectural style employed by Schuke was severe; simple box-like cases, in which decoration was eschewed. The facades usually employed either direct symmetrical Werkprinzip disposition, as at Zum Heilsbronnen, or progressions in thirds, as in the Tersteengenkirche, Düsseldorf.[90] This style was brought to 'total' fulfilment in the imaginative sixty-four-stop organ for the Kaiser-Wilhelm-Gedächtnis-Kirche, (Berlin), in 1962.[91] His specifications followed earlier organ reform lines,

but still with tendencies towards eclecticism. The inclusion of non-traditional mixture/mutation types, Sept-Noncymbel, Obertön and None, for example, was seen as a concession to 'modernism', inevitable in the climate associated with the use of contemporary materials in church architecture. Whilst the firm of Schuke produced instruments of a small and medium size, the tendency is evident, as in the case of von Beckerath, to build organs of a considerable size, many of which were in excess of forty stops.[92]

The effect of the work of von Beckerath and Schuke was enormous, not only on other German organ builders such as Klais, but especially on visitors from overseas, such as Forsyth-Grant, for whom these organs, with their dramatic architectural forms, well-constructed mechanisms and striking tonal qualities, as also the sheer scale of many of them were a totally new experience. As Forsyth-Grant wrote to Andrew Williams "I regard Professor Schuke's Organs as the best I have ever come across."[93] The excitement of contact with such work is well conveyed by Frank Bradbeer's sketches in The Organ[94] and in his note-book.[95]

Also visited by Forsyth-Grant[96] was Paul Ott of Göttingen, who set up in the 1930's and distinguished himself as a builder of small positives and as a restorer. In Phelps words, "As an antiquarian, Ott has few peers in Germany,"[97] and his influence on the younger German builders was considerable. In post-War years, he re-established himself, again as a restorer, his work on the Slegel/Scherer organ in the Marienkirche, Lemgo, being of considerable significance. By 1956, however, he had completed the new organ in the Kreuzkirche, Bonn, one which derives in part from the single Pedal tower and four-manual design of Schnitger at Norden. This again shows the German tendency to build on a large scale at this time (Appendix A, 19; Appendix E, 15). A simpler organ, and perhaps more satisfying in architectural terms, with its symmetrical Hauptwerk, Rückpositiv, Brustwerk and Pedal 'towers', was the instrument in the Christuskirche, Göttingen, (Appendix A, 20) completed also in 1956.

As mentioned, possibly the most important of the small builders were Ahrend and Brunzema - who became "the most outstanding among the antiquarians."[98] Equally, they produced some notable new organs, and by the end of the 1950's, some fifteen such had been built. All of these were deliberately in the manner of the earlier builders, having slider chests of oak, mechanical key- and stop-action, a variety of tin/lead alloys (often with high lead content), and also hammered metal for pipework. Their oak cases were shallow, and built on an oak frame, the latter giving "full expansion of tone."[99] Examples of their new organs in the 1950's were Veldhausen (Appendix A, 21), Bremen Farge (Appendix A, 22), and Scheveningen[100] (Appendix A, 23). The partnership exemplified the craft approach of a small firm to the art of organ building, the very opposite to that of the factory production style so castigated by Schweitzer. Ahrend and Brunzema were perhaps the first to rival the lead established by Marcussen and Frobenius in case design, and, as is shown by the Scheveningen organ, with its en-chamade Trompete, or Bremen Farge, with its Quintatön 2', they were by no means unaware of the work of Marcussen.

The work of the German post-War builders can perhaps best be summarized in the words of one of them, Karl Schuke:

> "The organs are provided with mechanical key action - essential components of a valved instrument. In the modern day these are taken for granted. However, as points for discussion there remain the details of technical perfection of register design and the many possible types of cases, along with the achievement of true organ tones in enclosed areas with varying acoustical characteristics." 101

The immediate post-War years saw the setting up of Rieger Organs in Schwarzach, Vorarlberg, under Josef von Glatter-Götz. (The firm had originally been founded in Jägendorf, Silesia, by Franz Rieger, in 1845, and acquired by Josef von Glatter-Götz (senior), in 1922. Prior to the War Rieger was a mammoth factory concern. After the War their workshops in Jägendorf and Budapest were taken over by the states of Czechoslovakia and Hungary, and their workshop in Möcker had been destroyed. Josef von Glatter-Götz was expelled as a result of the Potsdam

agreement, became Managing Director of Kemper for a short time, and then set up his own firm, Rieger, in Schwarzach).[102] Josef von Glatter-Götz, in Phelps' words, "deserves special mention for unique and artistic achievement. Glatter-Götz is a designer and engineer of rare talent and his work is perhaps the most venturesome in Europe."[103] Whilst the early post-War years saw the development of mechanical action by Rieger, it was not until the late 1950's that a clearly defined 'house style' came into being. The exuberance and inventiveness of the early work of von Glatter-Götz is demonstrated in the daring, if less than entirely successful, organ in the Bärfusserkirche, Augsburg of 1958[104] (Appendix A, 24). More influential, though equally exuberant, whilst at the same time more 'classical', were the 1965 nave and choir organs by Rieger in Freiburg Cathedral, despite the compromise over their being playable from a central electric console[105] (Appendix A, 25). As in other countries the effect of one firm adopting 'reformed' principles had its influence. In Austria the firm of Hradetzky had been in existence in Krems since the early part of the twentieth century. In the post-War years it was run by Gregor Hradetzky on fairly conservative lines. In the early 1960's Gregor's son, Gerhard, went to train with von Beckerath. On his return he brought with him to Krems, Manfred Knauss, who had been an important member of the von Beckerath workshop and, from the mid 1960's a 'reformed' style was adopted by Hradetzky.[106] This style is exemplified in the forty-stop organ for Wilten Stiffskirche, with both Gospel and Epistle Rückpositiven, after the von Beckerath Petrikirche Organ, and with a Marcussen-style en-chamade Trumpet (Appendix A, 26).

In Switzerland, the pre-War lead in mechanical-action organ building by Metzler was retained. A significant development at Metzler in the 1950's was an association between Hansueli Metzler and Poul-Gerhard Andersen, then with Marcussen, which led to the adoption of the 'reformed' Scandinavian style, though with slightly lighter and warmer, or southern, voicing. This association resulted in the remarkable organs for Schaffhausen Cathedral in 1958, the Grossmünster, Zurich of 1959/60 (Appendix A, 27) and Geneva, 1965 (Appendix A, 28). As Kinsela commented; "these organs possess strong personality and are immaculately finished; tonally there is great diversity without loss of unity, and dazzling excitement is offset by refinement and subtlety."[107] The influence of these organs, particularly the Weingarten-

inspired Grossmünster[108] was considerable. This was especially so in England in the 1960's through the recordings of Bach made by Lionel Rogg.[109] A trend away from the 'Scandinavian' style towards a more 'historic' style of building on the part of Metzler, discernible in organs such as at Netstal[110] and Baden,[111] was seen in the 1960's, the early years of which saw significant restorations by Metzler at Arlesheim, Sitzberg and Muri. This trend, encouraged by Bernard Edskes (whose brother Cornelius had been responsible for guiding Ahrend and Brunzema in their early historic-style organ at Scheveningen,[112] and who joined the firm in 1963[113]), was brought to a remarkable fulfilment in the influential organ for Frauenfeld Cathedral (Appendix A, 29), described by Williams as having "few compromises" and being "thoroughly classical."[114] It was noteworthy for its winding; its resonant solid oak case; and voicing; which resulted in the organ having tonal qualities akin to the "breathing of a choir," reminding the player and listener that "an organ is a large wind instrument."[115] Just as the work of Marcussen forced the pace in Denmark in the 1940's and 1950's, so Metzler did likewise in Switzerland, and builders such as Kuhn, Ziegler, Mathis, Neidhardt and others followed suit during the 1960's.

France in the post-War years saw a steady revival of interest in the old classical French literature, alongside the romantic tradition of Franck, Widor, Vierne and Messiaen, together with interest in Bach and the German repertoire. These three aspects dominated the attempt to produce a 'neo-classic' organ by the player Marchal, the musicologist Dufourcq and the builder Gonzales. This neo-classic style reached, as Coignet[116] has suggested, its apotheosis in the organ of Soissons Cathedral of 1956 (Appendix A, 30). This organ is, in one sense, the inevitable and logical outcome of one aspect of Schweitzer's thinking: the demand for 'a perfected organ type', one which attempts to meet the needs of several schools of organ literature. The synthesis implicit in the intent and realization of such a scheme has, however, the seeds of failure within itself. Such an organ as Soissons, in focussing attention on style in relation to the various parts of the repertory, and, in turn, upon historic organs still extant, brings in train a dissatisfaction with the various compromises adopted, e.g.,

> "The French Plein Jeu does not suit Buxtehude and Bach well. German mixtures are not suitable to Couperin and Clérambault. A satisfying synthesis between Schnitger, Clicquot, Silbermann and Cavaillé-Coll, who are so fundamentally different, is nearly impossible." 117

As such, the neo-classical style is far from the integrated organ style discussed in Chapter I.

It was not, however, until the mid-1950's, and mainly in the Strasbourg area, that reform in a sense other than the neo-classical eclectic organ began to emerge. A significant turning point was the restoration, by Muhleisen in the mid-1950's, of the Andreas Silbermann organs of Marmoutier, and nearby Ebersmünster. By the 1960's a compromise Franco-Germanic reformed style had been adopted by Roethinger (e.g., Marienthal, 1962), and Schwenkedel (e.g., Solesmes, 1967),[118] and, as the decade progressed, a more markedly French classical style began to emerge in the work of Kern and Koenig; as at Thionville and Sarre-Union.[119]

In Italy, classical reform was even slower but, as Williams remarks, "the late 1960's saw a movement towards a version of the Werkprinzip organ"[120] by Formantelli (Merano, 1968), and Tamburini (Bologna, 1968), principally under the influence of Tagliavini.[121]

In America the impetus to 'reformed' or 'classical' organ building, beyond that of the 'American classic' organ of G. D. Harrison and Walter Holtkamp, was due to the importation of a number of European instruments. Initially, these were in places of learning, the first being by Rieger in 1952 in the University of Michigan. This was followed by organs by Flentrop for San Antonio University Presbyterian Church (1954), Oberlin Conservatory (1956 and 1958), and Salem College (1957).[122] The next year, 1958, also saw the installation of the twenty-seven-stop Flentrop organ in the Busch-Reisinger (Germanic) Museum, Harvard[123] (Appendix A, 31). This replaced the 1936 Aeolian-Skinner organ by G. D. Harrison which had been destroyed by fire. Influential in the installation was Power Biggs who, in the mid-1950's, had experienced both the historic and reformed organs of Europe. The long-playing records[124] of his were significant in bringing not only

the Flentrop organ to a wide public, but also in bringing the classical concept of the organ into prominence.

The first large classical church organ in America was by von Beckerath for Trinity Lutheran Church, Cleveland, in 1957 (Appendix A, 15). This installation was brought about by the organist-builder Robert Noehren and his pupil (Organist of the church), Ralph C. Schantz. Noehren, as consultant to the church, strongly recommended von Beckerath, in preference to himself or Aeolian-Skinner, suggesting:

> "If the responsibility of making the decision were placed on my shoulders, I should consider an organ built by... von Beckerath, the most beautiful instrument I could find anywhere in the world today. Such an organ would undoubtedly soon become famous throughout the United States for its unusual quality of tone and possibly set a new standard of quality in this country." 125

Inevitably, as documented by **Pape and** Fesperman,[126] many other European imported organs followed. At the same time a small amount of native building was developing. In 1956 Hoffman, the first American builder to adopt 'classical principles', constructed an organ for Matthews Memorial Church, Albany, with a case designed by Blanton.[127] Not only was it based on the Flentrop organ in Groenlo, but it also had pipes supplied by Flentrop.[128] The first sizeable American-built mechanical-action organ was by Charles Fisk for Mount Calvary Church, Baltimore[129] (Appendix A, 32). The aim of Fisk was simple: "That old music be played right."[130] The musical and historical importance of this organ was considerable; for America, it marked "the beginning of a surer and more artistic approach to organ building."[131]

In Canada, reform had begun to be brought about in the 1950's by the dissatisfaction of a number of players with an organ aesthetic "which was stagnating."[132] This dissatisfaction, accelerated by developments in the United States, was such that, pressure by two young organists, Kenneth Gilbert and Raymond Daveluy, resulted in the installation of no less than three organs in Montreal by von Beckerath: one of twenty-seven stops for Hampstead in 1959; an immense sixty-five-stop, five-manual organ in St. Joseph's Oratory in 1960 and, some years later,

in 1969, the Église de l'Immaculée-Conception acquired a thirty-five-stop instrument. The impact on the musical life of Montreal, and, through radio, on that of the whole country, was immense. A "standard" had been set for Canada.[133] As Bouchard commented, the shock to Casavant was so severe that it caused Phelps, who had been with Casavant since 1951, to develop a mechanical-action section.[134] His first act was to bring in Karl Wilhelm, a Rumanian who had worked with Laukhuff, Renkewitz and Metzler.[135] This resulted in the building of 'reformed' German-style organs (despite the French stop names) in the Seminaries of St. Jean and St. Joliette in Québec, and in Arcadia University.[136]

Inevitably, in French-speaking parts of Canada, as also elsewhere, interest in the classical French repertoire was re-awakened and, in 1963, Hellmuth Wolff, a Swiss who had worked with Metzler in the late 1950's, was brought in to Casavant as a designer.[137] The result was the three-manual organ for the Église St. Pascal, Kamouraska, Quebec, designed for the performance of Couperin and Bach, in a compromise style akin to that of Silbermann.[138] Following the Kamouraska organ, a string of fine instruments came from the Casavant team of Phelps, Wilhelm and Wolff, including the distinguished organ in the Church of Our Lady of Sorrows, Toronto, in 1965 (Appendix A, 33). Thus classical instruments, with a variety of accents, German, Swiss and French, were established in Canada by the mid-1960's, a process that accelerated as the Casavant team broke up to establish their own firms.[139]

The period, leaving England aside for the present, shows a clear line of development in organ building: a line which commences effectively with the call for reform in organ building by Schweitzer, a call taken up by the Organ Reform Movement in Germany in the 1920's and by Zachariassen in Denmark. Whilst Zachariassen received impetus for his development from the work in Germany in the 1920's, it was his own work that was of paramount importance in classical developments in the post-Second-World-War period. As discussed above, Zachariassen dominated the scene, influencing the work of Frobenius, Flentrop, von Beckerath, Schuke, Ahrend and Brunzema, Metzler and many others.

The pattern of development may be summarised as:

1. Dissatisfaction with existing contemporary organs for the performance of organ music, especially that of Bach.
2. The search for appropriate sonorities.
3. The re-introduction of mixtures and mutations.
4. The re-introduction of the slider chest.
5. The re-introduction of mechanical action.
6. A growing awareness of the significance of the organ case and Werkprinzip.
7. The synthesis and demonstration of these ideas by Zachariassen in Denmark.
8. The adoption of Zachariassen's principles first in Denmark and Holland, then in Germany, Switzerland, Austria, the United States, Canada, France and Italy.

This Chapter would not be complete without a final comment regarding the influence of Schweitzer. Though his thinking did not lead to one path being followed, it is difficult to avoid the conclusion that his influence was paramount. The relegation of Schweitzer merely to that of a 'father-figure' by Phelps[140] and Williams[141] does him less than justice. Quite apart from his influence in the Franco- Germanic area in the inter-War years, his personal friendship with, and influence upon, builders such as Zachariassen, Frobenius, and Flentrop (who effectively brought the classical organ to a total reality in the years of the Second World War, and after) cannot be swept aside so simply. For these builders the way forward was, in Flentrop's words, "as advised by Professor Schweitzer."[142]

PART TWO

Chapter IV

Movements towards organ reform in England in the first half of the twentieth century

The opening of the twentieth century in England saw the ending of the Hill tradition, one with its roots in such classical past as the nineteenth-century English organ had, and the beginning of the twentieth-century English 'cathedral tradition', with its basis in over-refined soft colour and contrasted loud noise. The ending of the Hill tradition may be seen as typified by their conservative specification for the 1908 rebuilding of the organ in Lichfield Cathedral (Appendix A, 33b). 1908 was also the year in which Arthur Harrison undertook the rebuilding of the Hill organ in Ely Cathedral (Appendix A, 33c), the scheme for which was heavily influenced by George Dixon.[1] The needs of the cathedral choral establishments were seen as requiring a palette of soft colours to waft around the cooing choristers, or for rolling diapasons and reeds to provide for the thunderings of Leviathan or the concluding voluntary. Apart from a few dutifully-played works of Bach, the 'polyphonic' repertoire of the organ was a matter of little concern. Such Bach as was performed was, as like as not, played from the debased editions of Frederick Bridge. The older English organ tradition with its mild choruses and limited tone colours appeared as of little significance. It was thus hardly surprising that the "meticulously regular and refined voicing"[2] of Harrison found favour in the early years of the century. Though their finish was immaculate, and they had a chorus structure, Harrison's organs suffered severely from overmuch contrast between manuals, and from any semblance of inter-manual balance. This, coupled with the powerful, but bland, Trombas on the Great, and heavy Open Wood basis for the Pedal, produced an organ which had no relationship to the repertoire of the instrument, or indeed to much of the choral music performed in the Cathedrals.

It is also not without interest to note that the year 1908 also saw the publication of the German Edition of Schweitzer's two volumes on Bach (from which the English edition was made) and to recall that Schweitzer's Deutsche und Französische Orgelbaukunst und Orgelkunst had already been published for two years.

The first quarter of the century in England, however, saw the steady consolidation of the Harrison-Dixon concept and the rebuilding of many organs on these lines.[3] Other firms, such as Walker, and in general, Willis, also followed the trend for ponderous loud organs, powerful but bland reeds, and smooth voicing lacking in any attack.

There was, however, one organist in the 1920's with thoughts of other than the continuation of the pre-First-World-War Harrison tradition. This was Guy Weitz, a pupil of d'Indy and Guilmant[4] (whose editions of old French organ music were issued from 1901 onwards),[5] and a player to whom the classical organ repertoire of France, Germany and Holland was by no means unknown. Indeed, Weitz, Organist of the Jesuit Church in Farm Street, London, was responsible for "introducing to this country many of the works of Buxtehude, Bruhns, Clérambault and other, now familiar, pre-Bach composers,"[6] and he was "probably the first player in this country to play Bach in the now accepted classical manner."[7] At Farm Street, in 1925, with Henry Willis III as organ builder, and under Weitz's guidance, was built an organ which had not only complete choruses but also some solo mutations, Nazard and Tierce on the Choir, as well as a Piccolo 1' on the Swell (Appendix A, 34). The organ was a rebuild of an earlier Bishop organ which had, in turn, contained some pipework from the original organ by Annessen. The 'classical', indeed 'continental', leanings of the organ did not pass unnoticed, even in 1925. As a review by Beaumont commented:

> "Above all things, then, this is a classical organ. By this adjective I mean that, while offering a large and unusual choice of registers for solo work, it is emphatically not a collection of individual stops but an ensemble instrument, it speaks as one, each part of the build-up being designed and voiced in relation to the whole large utterance; that every part speaks its

> natural voice without magniloquence, strain or over-emphasis; that, while having a firm foundation, the free utterance and the necessary development of the harmonic series is there as well; that, in general, its tone is distinguished by clarity, lucidity and precision....
>
> "As a truly classical organ, it should stand as another and important signpost marking the way back to the high road of organ tradition....
>
> "The 1' Piccolo.... is another feature that draws attention to the quasi-continental character of this organ." 8

The review by Beaumont was not only a distinguished essay, but also a prophetic one.

Weitz's three opening recitals also showed the classical leanings of the organ. The first, of Bach and his predecessors, included works by Gabrieli, Byrd, Titelouze, Scheidt, Buxtehude, Pachelbel, Dandrieu and, Clérambault.[9] In terms of the organ establishment of the 1920's in England, such a programme must indeed have seemed revolutionary. The second recital was of music from Bach to Franck, and the third, of music from Franck to Vierne.

Whilst the effect of the organ on the Edwardian musical establishment was seemingly slight, the effect on one person, Cecil Clutton, whose influence on English organ building over the past fifty years or so has been inescapable, was dramatic. As he wrote: "The impact on me at any rate was immense and coloured all my subsequent ideas on organ tone and design and musical performance"[10] and:

> "Here, for the first time in 1927, I heard solo mutations used in a classical style and here for the first time I heard a Bach fugue played from beginning to end on full to mixtures without any change of registration. At once the accumulation of the part-writing leading up to a climax inherent in the music could be appreciated in a way that had been impossible when the music was cluttered up with irrelevant stop changes and an equally irrelevant climax of intolerable noise." 11

Willis also built another organ, in similar style, but on a smaller scale, in the Roman Catholic church of St. Thomas-à-Becket, Wandsworth, in 1929[12] (Appendix A, 35). Unlike Farm Street, this organ was completely new. Again, the use of Choir mutations of 2 2/3' and 1 3/5' as also the use of a 16' Quintatön, are noteworthy. Similar mutations by Willis were also to be found in the 1928 Choir Organ, added to the ever-growing Westminster Cathedral organ, and the trend was continued in the 1931 rebuild of the 1855/97 Willis organ in St. George's Hall, Liverpool, again by Willis III. Here, not only the Nazard and Tierce were included, but also the Larigot.[13] That Willis was aware of organ reform in Europe is clear from the firm's house journal, The Rotunda. To this, Steinmeyer contributed a lengthy article on "The Revival of the Praetorius and Bach Organ in Germany."[14] There had also been an earlier editorial, ringing with political over-tones, describing developments in Germany and asking: "shall we really take the future by the scruff of the neck and go boldly out for a new vision of the organ?.... In our opinion the time is ripe for the new vision."[15] The contribution of Henry Willis III to the classical revival in England thus cannot be ignored, thought it must be commented that the organs, Farm Street included, remained essentially romantic instruments in overall ethos.

Another influence in the late 1920's, in terms of the classical revival, was that of John Compton. His work was essentially in the field of extension organs but he had, as Clutton suggested,[16] a sense of both chorus structure and of the building of tone colours from mutation ranks. Possibly his major contribution was the large, 142-stop organ in Downside Abbey, built in 1929 (Appendix A, 36). Its placement in concrete and stone chambers, and the use of extension, are far removed from the classical organ, either historic or contemporary. Nevertheless, the presence of developed chorus structures and mixtures on all manuals, together with registers at 2 2/3', 1 3/5', 1 1/3' and 1', as well as solo Cornet and Sesquialtera, did not pass unnoticed. As Huskisson Stubington wrote:

> "The mixture work of the whole organ is phenomenal: probably no other organ in the world, with the possible exception of the ancient one at Weingarten, has such an amply and variously developed chorus." 17

Though the extension organ proved a chimera in serious artistic and mechanical terms, the effect of Downside, and other Compton organs, was considerable, in tonal terms.

It was not, however, until the mid 1930's that the development of classical ideals moved further, with the building of the first new mechanical-action organ with a classical chorus structure on both manuals and pedal. Built in 1935, for Lady Susi Jeans' music room in Cleveland Lodge, Dorking, this was quickly to become known as "Lady Jeans' Baroque Chamber Organ."

Cleveland Lodge, Dorking: Eule/Hill, Norman and Beard, 1935[18]

Hauptwerk		Oberwerk	
Gedackt	8	Quintadena	8
Principal	4	Rohrflöte	4
Spillpfeife	4	Principal	2
Quint	2 2/3	Quint	1 1/3
Octave	2	Octave	1
Mixture III	1 1/3		

Pedal	
Subbass	16
Holzflöte	8
Gemshorn	4
Nachthorn	2

The organ was a present from Sir James Jeans to his wife, Susi. During a visit to play Silbermann organs, near Leipzig, Lady Jeans and her husband had encountered restoration work by Hermann Eule, of Bautzen, the firm being in fact run by Fritz Abend. As English builders in the 1930's were "not doing baroque organs," it was decided to have the organ designed, made and voiced by Abend. The then German mechanical actions were thought "not good" and it was agreed that Hill, Norman and Beard would build the tracker action. The specification was drawn up by Johann Nepomuk David, the Austrian

composer, then teaching in the Kirchenmusikinstitut, Leipzig. During the Second World War, Cleveland Lodge was requisitioned, but nevertheless, Lady Jeans made a number of broadcasts from there.[19]

The organ was placed in a shallow recess with a pipe prospect. Here, for the first time in England in the twentieth century, was a new mechanical-action organ with a chorus structure based on the octave separation of principals, i.e., Hauptwerk 4', Oberwerk 2', and Holzflöte 8' performing the role of a Principal 8' in the Pedal, and with a quint Mixture.[20] The pipework was lightly blown on 2 1/2" wind pressure, the metal pipework was of 75% tin, and the voicing employed some nicking and foot regulation.[21] Without doubt, this was the most significant instrument to follow Farm Street.

Not only were the clear tonal qualities commented on by Clutton in 1939, but most important perhaps were his comments on the different playing style demanded by the organ. In describing Lady Jeans' playing he wrote:

> "She relies upon accent, phrasing and clean fingering, where others are **smudging about with** rolling diapasons, wildly flapping swell shutters, and the creeping technique that appeals so strongly to those faded spinsters that have become the mainstay of most cathedral congregations." 22

Clutton, however, whilst noting that:

> "To play Bach and his antecedents properly it is as necessary to understand the baroque organ, as it is to know something of the harpsichord, clavichord and virginal before one can perform Scarlatti, the "48" and the Elizabethans with competence," 23

went on to suggest that he saw "little reason to think or wish that we shall ever see a baroque revival in this country."[24] This statement was a strange reversal of thinking from the same author when in 1935, he wrote:

> "In Germany the renaissance of classical ideals is achieved. America is rapidly following the inspired lead of Donald Harrison, Emerson Richards and a few other leaders. France is gradually stifling the more passé pedagogues. In England only....hinc illae lacrymae." 25

As in the case of the Farm Street organ, the building of this residence organ for Lady Jeans had but little effect on the mainstream establishment; though its effect by virtue of broadcast performances by her should not, as Whitlock noted, be overlooked;[26] the advent of the Second World War doubtless minimized the effect of the organ.

Another influence on classical development which occurred just at the outset of the Second World War was the rebuilding, on conservative lines, under the guidance of Clutton, of the Harris/Gray and Davidson organ from All Hallows, Lombard Street, in the new church of All Hallows, Twickenham (All Hallows, Twickenham, was built to house the Grinling Gibbons furnishings from Lombard Street) (Appendix A, 37). Despite a variety of infelicities, including the use of pneumatic unit chests; the provision of a Great flue double; Swell double reed; and the octave transposition of the Stopped Diapason on the Great to produce a Nason 4'; the organ demonstrated the advantages of tracker action, which was shown to be demonstrably more responsive than the pneumatic additions, and it had the advantage of long life. By virtue of the provision of the Mixture on the Great, and Sesquialtera and Mixture on the Swell, it also showed the value of adequate chorus work on a moderately low wind pressure.[27]

The Second World War effectively delayed any further major development of classicism in organ design, but not before Ralph Downes had begun to take his part in the English organ renaissance. This began at Brompton Oratory where, in 1936, he was appointed Organist. From 1938, under Downes' guidance, a general 'overhaul' of the much-altered and enlarged Bishop and Starr organ of 1858/84 had been in progress, including the lowering of wind pressures, re-balancing of registers, opening up pipe feet, transposition of 'redundant' registers, re-arrangement of the Swell and Choir organs,[28] and, after his experiences in Paris, changes to the reeds.[29]

Brompton Oratory Choir Organ by Bishop as re-arranged in 1941 by Downes in association with J. W. Walker

Double Dulciana	16	
Open Diapason	8	(TC)
Stopped Diapason	8	
Vox Angelica	8	
Dulciana	8	
Principal	4	
Flute	4	
Quint Flute	2	2/3
Piccolo	2	
Tierce	1	3/5
Cymbel III-II	1	
Bassoon	8	

Source: Downes, R. 1942, O, 86, p.78

The re-arrangement of the Choir clearly shows the direction in which Downes was moving, as well as reflecting his experiences in the United States, and is obviously derivative from the 1933 Holtkamp additions to the 1922 Aeolian Skinner organ in Cleveland (see Chapter II). The Choir Organ was again revised in 1944, this time with R. W. Davidson, of Kingsgate and Davidson, to become:

Brompton Oratory as revised in 1944 by Downes and Davidson

Bourdon	16	
Stopped Diapason	8	
Flauto Traverso	8	
Bell Gamba	8	
Principal	4	
Flute	4	
Quint Flute	2	2/3
Octave	2	
Tierce	1	3/5
Larigot	1	1/3
Plein Jeu III	1	
Zimbel III		2/3

Source: Downes, R. 1952, O, 123, p.103

The development is plain: adequate principal chorus work at 4', 2', III, III together with three mutations at 2 2/3', 1 3/5' and 1 1/3'. Other changes made to the mixtures and reeds by Davidson[30] are

described by Downes in Baroque Tricks.[31] This organ (which had seen so many changes but whose original Bishop character was, as Downes wrote, "never quite extinguished")[32] was, however, destroyed by a "mysterious fire"[33] in March 1950.

Perhaps the clearest indication of Downes' future thinking with regard to tonal design was the scheme for Buckfast Abbey. This was drawn up in consultation with Donald Harrison, who was to have designed and supervised the building of a new organ for the Abbey. The builder was to have been J. W. Walker.[34] The Abbey Organist, a monk who had studied in Germany, was of "very much the same mind"[35] as Downes, a matter which assisted in the adoption of this rather unusual approach to the design and building of the organ. In splendid English style, a new four-manual console was ordered from Walker as the first stage, and on the stop keys was engraved the stoplist (Appendix A, 38). However, as Downes described, "by mid-1939 the clouds of impending world war were gathering, and by the time the console was ready, the American project had been postponed sine die."[36] The scheme did, however, show a richness of tonal material, planned with specific division relationships in the 'classical' manner, and on a scale never before seen in England. It can only be speculation now as to what might have happened to organ design in England had this scheme been carried out.

Though the tangible results, in terms of classical trends in organ building in England were small prior to the Second World War, a contributory element to 'reform' was the discussion, in the musical press, and especially in The Organ (which in the 1930's published numerous articles, on matters such as compound stops, mixture work, synthetic tone building and blend in organ tone, mainly by writers such as Noel Bonavia-Hunt).[37] Also influential were the more musically and historically orientated articles by William Sumner on builders such as Müller,[38] Schnitger[39] and Silbermann.[40] Additionally, the perennial travels of Andrew Freeman also drew attention in the pre-War years to historic instruments.[41] The War years themselves inevitably saw little organ building, but in the pages of The Organ (which managed to continue publishing throughout the duration of the War) a fair amount of discussion continued to take place.

The first article of any significance was published in 1940 by Clutton. Entitled "Artistic Development of the Small Organ,"[42] it gave a useful summary of historic past practice in organ building and of organ reform movement developments in the United States, but produced, however, little discussion. A far less well constructed, or informed - and in part inaccurate - article which did provoke heated discussion was Percy Whitlock's "The Baroque Revival."[43] This produced a steady flow of correspondence in the pages of The Organ from 1943 to 1945 between Whitlock, Clutton, Dixon, Thompson-Allen, Willis III, Downes and others.

Whitlock's article was clearly prompted by organ reform in the United States and the work of Donald Harrison. It dealt mainly in imaginary neo-baroque specifications, but, nevertheless, Whitlock, in suggesting that:

> "What the Baroque designer does, however, is to put first things first; and even in the smallest of these organs the building of choruses is the main objective, coupled with the very difficult matter of achieving individuality in the various voices," 44

showed some grasp of essentials. In commenting upon the work of Donald Harrison, Whitlock believed that:

> "this clear thinking has come first at the right time, when something was evidently necessary to lift the commercial idea of the instrument from the slough of despond in which it has been wallowing for far too long." 45

Whitlock's final remark that:

> "with builders and players of sufficient courage one feels that sooner or later a reflection of this new light (i.e., the neo-Baroque organ) thrown on organ building will shine upon these shores to illuminate another milestone in our progress," 46

might almost have been written with Ralph Downes in mind. The fact that Whitlock had but little idea of real classical specifications

and registers does not, however, detract from his clear call for reform in organ building, and for sincerity and artistry on the part of organ builders.

Henry Willis III (who had made numerous trips abroad, some in the company of Emerson Richards, visiting old organs) [47] was not slow to draw attention to the misconceptions in Whitlock's article and, even more importantly, to point out that many of the German Organ Reform Movement organs bore but small resemblance to the original early organs of the Baroque period. At the same time, he did come out firmly in favour of the 'Baroque' influence, "for it would mean a reversion to the basically correct principles of organ design,"[48] and went on to suggest that "all first study (on the organ) should be on the Baroque type of instrument: low pressure, no enclosure, tracker action, no combination system or help and last, but not least, no extension."[49] As to builders, Willis also suggested that the 'Baroque' revival could also mean that organ builders would "be required to become acquainted with the underlying principles of their craft."[50] Read today, the comments of Henry Willis III show a quite remarkable perception. Perhaps, however, the most prophetic comment of all, in the correspondence of this period, came from Ralph Downes who, in The Organ of April 1944, wrote: "If ever there is to be a tonal renaissance in our organ building, I venture to suggest that it will be at the hands of the 'small man' - the 'artist-craftsman' - if he still exists."[51]

The immediate post-War years saw little by way of organ building, but one scheme from pre-War days was revived: Ralph Downes' scheme for Buckfast Abbey. Economic and material considerations prevented the original plan being implemented, but a scheme was undertaken which involved a total re-fashioning of the tonal structure of the existing Hele organ, including a complete new Positive division and reeds by Rochesson (Appendix A, 39). The process by which this scheme was completed, and the difficulties encountered, have now been recorded in Baroque Tricks.[52] The organ had, however, provided numerous experiences which were to come to fruition at the Festival Hall.

Prior to 1954, the only organ to show any classical leanings (other than Buckfast), was that in St. Gabriel's, Cricklewood. Here in 1949, Walkers (with Geraint Jones as consultant), rebuilt their original organ of 1897. Under Jones' influence, the organ acquired a plentiful supply of mixtures and mutations, together with a 'floating' Positive organ of Prinzipal 8', Rohrflöte 8', Spitzflöte 4', Octav 2', Scharff III and Trompette 8'. This division was a part of the Great Organ, but playable from the Swell and Choir keyboards. Whilst the makers commented that "a certain amount of continental influence is apparent in the fully developed Mixture work and the provision of a Positive department,"[53] it is equally possible, as Niland suggested,[54] that the real roots of this Positive lay as much in the idea of the "divided Great Organ," proposed vigorously in the pages of The Organ by George Dixon,[55] as in the ideas of Downes at Buckfast.

During the pre-War years there would seem to have been no single occurence of prime importance in relation to the development of classical ideals in organ building in England: rather was there a steady trickle of ideas gaining ground between the mid-1920's and the late 1940's. Perhaps the most interesting feature of such classical development as did occur in England prior to 1950 is that it took place virtually outside the Church and organ 'establishment'. The influence of the Royal College of Organists, the London Colleges, and the musicians in the established Church was non-existent. First was the organ by Willis III at Farm Street, under Weitz; this was followed by the mammoth extended choruses, with their vast array of mixture-work, by Compton at Downside Abbey. Then came the first 'classical', 'imported', organ, that for Lady Jeans at Cleveland Lodge. The return of Ralph Downes to England, his work at Brompton Oratory, his pre-War proposals for, and post-War rebuilding of, the organ at Buckfast. This latter organ was to set the pattern of reform for the opening years of the second half of the twentieth century, a pattern in which the design of organs able to "give a faithful and authentic rendering of the entire organ repertory.... without any need to resort to certain well known subterfuges,"[56] became the fundamental philosophy.

Chapter V

The 'neo-classical' electric-action organ and the era of specifications

March 24, 1954 saw the opening of the organ in the Royal Festival Hall, London. National pride at the time of the Festival of Britain saw to it that the organ was monumental in scale, and that the builder was British. In Autumn 1948, Ralph Downes, as Organist of the London Philharmonic Orchestra, was invited by the London County Council to design an organ for the new Festival Hall. It was to be a comprehensive instrument which would:

> "Realise an ideal conception in which as many as possible of the musically worthy features of all schools and periods of organ building practice are combined in one instrument, and the unmusical excesses of all periods and schools are as far as possible avoided." 1

Downes' initial consultations were wide ranging, including Robert Noehren and Donald Harrison in the United States, Fritz Abend in Germany, André Marchal and Louis Eugene-Rochesson in France, Dirk Flentrop and Marten Vente in Holland and, in England, C. H. Trevor, Felix Aprahamian, Cecil Clutton, George Miles, Frank Howes, William Sumner, Anthony Lewis, Jack Westrup, Susi Jeans, George Dyson and George Thalben Ball.[2] Research for the organ was also extensive, including study of the writings of Klotz, Smets, Quoika and Huré, and especially Die Orgelregister of Mahrenholz, with which Downes had been acquainted by Susi Jeans.[3] A copy of Mahrenholz' book, in the possession of Thomas Stevens of London, and annotated in Downes' hand, seems to have been heavily drawn upon. (It is interesting to note that Die Orgelregister had been reviewed in 1937 in Volume 73 of The Organ, by Sumner, shortly after Downes had returned to England from the United States).

As described in Chapter Four of Baroque Tricks, an initial scheme was drawn up by Downes: this was greeted with an "enthusiastic desire to co-operate, courteously amused incredulity and severely admonitory

correction"[4] by three builders under consideration for the project. Downes' desire to have the participation of Rochesson over the design and voicing of the reeds was met in similar manner by the three builders: "wholly favourable, mildly affirmative (presumably for a few special Solo stops), or frankly hostile and sceptical."[5] After further thought, and also consultation with Donald Harrison, a final tender specification was drawn up and sent to Harrisons and the other two builders.[6] In terms of builder, Downes regarded Harrisons as "a must, regardless of cost,"[7] and wrote:

> "In May 1949 the firm of Harrison and Harrison (the most expensive) was chosen expressly on my recommendation: not that I liked their recently built organs - I did not; neither did I foresee that they would easily adapt to my tonal conception - I knew they would not.... But I had managed to get inside one of their larger organs, and observed their execution of trivial details.... in a manner which spelt perfectionism." 8

Cuthbert Harrison trained under his uncle, Arthur, and his father, Harry, but subsequently joined the Army. He returned to Harrisons as a partner on the death of his uncle in 1937, and took charge of the firm in 1945. Although the Harrison firm's reaction to Downes' draft specification had been that of "courteously amused incredulity," and they had, according to Downes, made a final attempt to "obtain acceptance of one of their normal schemes,"[9] the challenge of building the organ was accepted. Cuthbert Harrison recalls feeling at the time that organ building was a rather dull affair, and that he found in Downes a "kindred spirit" not afraid of blowing some fresh air through English organ-building."[10] In company with Downes, who was on a recital tour, he visited numerous organs including Alkmaar, Haarlem, Gouda and Zwolle.[11] Harrison also visited instruments in central and northern Germany, and saw work by Marcussen and Frobenius in Denmark. In addition, Fred Howe of Harrisons (who was to undertake most of the voicing in the Festival Hall), visited the continent both with Cuthbert Harrison, and in company with Downes, Walter Goodey, Dennis Thurlow and others.[12]

The initial tonal scheme, published in 1949 in a builder's brochure, and in slightly modified form in a London County Council memorandum in 1950,[13] provoked a furore in the press. Vaughan Williams wrote to the Daily Telegraph on 14 January, 1951 in the following terms:

> "Sir,
>
> I have read with apprehension an article in praise of the proposed new organ at the Royal Festival Hall.
>
> Judging from the specification, this new organ will to my mind, accentuate the objectionable 'Bubble and Squeak' tone of the organs on the Continent.
>
> Is it really proposed that we should abandon in favour of this unpleasant sound the double diapasons and rich soft 'mixtures' of our best church organs?
>
> I admit that we have some bad organs in England, but at their worst they cannot surely make so nasty a noise as most of those on the Continent. As to the so-called 'Baroque' organ, which, I presume, I have heard at its best at the hands of the most distinguished performers, I can only compare it to a barrel organ in the street. This type of instrument is said to be right for playing Bach. For myself I want nothing better than Bach as played by Dr. Harold Darke on his typically English organ at St. Michael's, Cornhill."

Vaughan Williams' letter was promptly answered by Jack Westrup, Heather Professor of Music at Oxford:

> "Sir,
>
> Dr. Vaughan Williams refers to the objectionable tone of Continental organs. I find this puzzling. Does he mean, for example, that French and German organs make the same kind of noise, or are they merely alike in being objectionable? And if we admit, for the sake of argument, that they are objectionable, what evidence is there that the new organ in the Royal Festival Hall will be equally, if not more, objectionable? It has been planned by a practising organist of wide experience and is being built by some of the finest craftsmen in this country. It will be time enough to discuss whether the diapasons are noble or not when they have been heard in the building for which they have been designed.

> So far as I can discover, the principal objection to the specification of the new organ is that it provides resources adequate not only for the performance of modern organ music, but also for the works of earlier composers. I cannot see that this is a defect. There is hardly a single organ in this country on which Bach's music can be played without some sort of compromise. Clarity of texture is essential to music of this kind. In England we appear to prefer a sonorous rumble, and the adding of one noble diapason to another is regarded as sound registration. Like Nebuchadnezzar's unaccustomed food, 'it may be wholesome, but it is not good'.
>
> Dr. Vaughan Williams' reference to 'the so-called "Baroque" organ' is magnificently ambiguous. If he means a particular instrument, it might be possible to arrange a joint recital with a barrel organ and let the public judge the justice of his comparison. A further recital to demonstrate the 'rich soft mixtures' of our best church organs would make an agreeable sequel."

Harold Darke wrote to The Musical Times in similar vein to Vaughan Williams: "My own strong conviction is that this 'Baroque school' is doing more harm to the love of the organ and organ music than any other cause."[14] Bi-annual Presidential addresses at the Royal College of Organists in the early 1950's also inveighed against 'Baroque' intrusion. In his address of July, 1953, Sir George Dyson stated:

> "To put it crudely, we are to play Bach's music as he played it, and we must therefore revive or reproduce his instruments....
>
> "Now there are one or two reservations about this cult of the past which must be frankly stated. That men played on instruments now obsolete is true, and that they derived supreme imaginative and aesthetic satisfaction is also true. But to suggest that they did, or would prefer them to a more modern substitute is quite meaningless. It is like saying that Bach preferred a stage coach to a motor car. He had no choice..." 15

Sir George went on to discuss matters of style and performance and indicated how unbearable it would be to revive old performance practices, and to make a plea for a multi-purpose concert organ, suggesting that:

> "it would be delightful to have available an organ which would reproduce, as near as we can guess, the timbres, wind pressures and balance of, say, the Bach period, raised to our modern standards of tuning and mechanism. It would have, like other revivals, a genuine, as well as rarity value. But as a practical instrument for use in a church or chapel, or even a large hall, it is an exotic and uneconomic instrument." 16

Perhaps Sir George's thinking is best summed up in his own illuminating comment in the same speech that "even the harpsichord at its best cannot bear the weight of the modern pianist's repertory."[17] English organ builders clearly saw the organ as some strange new creature. The main point was succinctly expressed by Noel Mander: "The Festival Hall organ.... is a new conception (because it is new to many of us) of organ building."[18] Whilst there were supporters, such as Sir Thomas Beecham, Geraint Jones, Felix Aprahamian and others, establishment opposition to Downes' concept of the organ was indeed considerable, as the pages of The Musical Times, Musical Opinion and The Organ all show. To carry the scheme through, one costing some £60,000,[19] was a considerable act of faith on the part of the County Council, and a tribute to Downes' strength of character and purpose.

The organ and Downes not only had to contend with vociferous opposition, but also a totally unfavourable, 'acetic', acoustic, which was "positively cruel to certain instruments in general and especially to an organ."[20] In the matter of acoustics the "open hostility to organs"[21] on the part of the LCC acoustics team was also persistently unhelpful. The final result was that the Hall when empty, had a measured reverberation period of, at most, 2 1/4 seconds. Downes recalls the first trial concert at which "the experience was dire: timpani, played fortissimo, were almost reminiscent of those large, square Jacobs' biscuit tins."[22] Though some improvement was made after this, the Hall has remained unsatisfying to performers and audience alike, whether in choral, orchestral or organ music. As Geraint Jones said in a BBC programme, the Festival Hall "has the worst acoustics for organ tone I have heard anywhere in the world."[23] To add to the acoustic problems the organ had to be disposed across the width of the hall in a concrete chamber sixty-five feet wide, sixteen feet deep and only twenty-five to twenty-eight feet high.

The organ itself was:

> "To embody excellence in quality of materials, workmanship, artistry on a number of levels, and comprehensiveness in the sense of a blending of different ideals and concepts, all deeply rooted in the long tradition of organ-building practice but presented in a new perspective." 24

Its tonal concept was expressed by Downes as being one in which:

> "The tonal divisions of great, swell, positive, etc., are not differentiated on a colouristic basis, nor on the basis of power, but as complete and independent organs, each with a characteristic accent, but all mutually complementary. Each contains a complete diapason - or principal - chorus, a wide chorus (however rudimentary), and a reed chorus. The most important stop of the principal family is in every case put at the front of the division, and these principals stand in an octave relationship, pedal 32 ft, great 16 ft, positive and solo 8 ft, swell 4 ft and choir 2 ft. To a great extent the presence of these stops and their location have the effect of determining the particular character of the division they inhabit. All stops are kept within a fairly narrow dynamic range: the principle of <u>equality</u> is fundamental - between the notes of the gamut in a single stop, between individual stops, between separate divisions, and especially between their differing 'plenum' effects. Such power as the organ can produce is due to the additive effect of coupling, not to individual loud stops. A corresponding registration on any of the divisions, including the pedal, gives a corresponding intensity of sound. In theory, any of the stops are meant to sound well together, but it is obvious that in practice this could produce extremely bizarre combinations which would need to be tested for their appropriateness in any given musical context. Actually, the principal-chorus, perhaps supplemented by other stops <u>sounding unisons and octaves</u>, is intended for playing a polyphonic texture on one and the same manual: the 'off-pitch' flute mutations are intended mainly for use in solo, duo or trio combinations using more than one manual. They will not necessarily succeed in a polyphonic or even a thick harmonic texture on one manual. At least one stop of the principal family is regarded as a necessary stiffening agent in most combinations of more than about three stops." 25

Downes went on to draw attention also to the various "sesquialtera" or "cornet" combinations: at least one on each manual and pedal, and of both wide and narrow scale.

The final stoplist is given below, and laid out in width-scale groupings in Appendix A, 40. Some influences on the stoplist and scales (Table V/6) have been described by Downes in brief:

> "In 1949 occurred a major event in my musical life - as significant for me as my first acquaintance, 12 years earlier, (1937), with French Baroque reeds - it was my first contact with the wonderful late baroque organs in the Netherlands and the sudden comprehension of their tonal organisation. Shortly after this the 'scales fell from my eyes' and the frustrations of a year's attempts to reconcile organ building themes and practice suddenly dissolved in a major breakthrough whose repercussions on the RFH design were immediate." 26

Royal Festival Hall, London: Harrison and Harrison, 1954

Great Organ

Principal	16
Gedacktpommer	16
Principal	8
Diapason	8
Harmonic Flute	8
Rohrgedackt	8
Quintflute	5 1/3
Octave I-II	4
Gemshorn	4
Quintadena	4
Quint	2 2/3
Superoctave	2
Blockflute	2
Tierce	1 3/5
Mixture V	2
Sharp Mixture	2/3
Cornet V	8 (from c)
Bombarde	16
Trumpet	8
Clarion	4

Swell Organ

Quintadena	16
Diapason	8
Gemshorn	8
Quintadena	8
Viola	8
Celeste	8
Principal	4
Koppelflute	4
Nazard	2 2/3
Openflute	2
Tierce	1 3/5 (from f)
Flageolet	1
Mixture IV-VI	1
Cymbel III	1/5
Bombarde	16
Trumpet	8
Hautboy	8
Vox humana	8
Clarion	4

Positive (lowest keyboard, also playable from Great)

Principal	8
Gedackt	8
Quintadena	8
Octave	4
Rohrflute	4
Rohrnazard	2 2/3
Spitzflute	2
Tierce	1 3/5
Larigot	1 1/3
Sharp Mixture V	1
Carillon II-III	1/2
Trumpet	8
Dulzian	8

Choir (lowest keyboard, also playable from Solo)

Salicional	16
Open Wood	8
Stopped Wood	8
Salicional	8
Unda maris	8
Spitzoctave	4
Openflute	4
Quint	1 1/3
Octave	1
Sesquialtera II	2/3
Mixture IV	1/2
Cromorne	8
Schalmei	4

Solo Organ		Pedal Organ	
Diapason	8	Principal	32 (GT, EXT)
Rohrflute	8	Majorbass	16
Octave	4	Principal	16
Waldflute	2	Subbass	16
Rauschquint II	2 2/3	Quintadena	16 (SW)
Tertian II	1 1/3	Salicional	16 (CH)
Mixture VI	1 1/3	Quintflute	10 2/3
Basset Horn	16	Octavebass	8
Harmonic trumpet	8	Gedackt	8
Harmonic clarion	4	Quintadena	8 (SW)
		Nazard	5 1/3
		Superoctave	4
		Spitzflute	4
		Openflute	2
		Rauschquint II	5 1/3
		Septerz II	3 1/5
		Mixture V	2 2/3
		Bombarde	32
		Bombarde	16 (EXT)
		Dulzian	16 (POS)
		Trumpet	8
		Cromorne	8 (CH)
		Clarion	4
		Schalmei	4 (CH)
		Cornet	2

More recently, in Baroque Tricks, Downes has given a comprehensive description of the design and construction of the organ. Nevertheless there remain some aspects of the design which merit consideration in rather more detail than Downes gives in his book. A study of the tonal scheme of the Festival Hall organ shows the clear indebtedness of Downes to Donald Harrison and the 'American classic' organ, with its well-developed flue choruses and pedal organs, together with the use of 'French'-style reeds, as exemplified by the Groton School organ[27] (Appendix A, 41); to Victor Gonzalez (who pursued a consistently well developed eclectic approach to organ design) [28] and his organ at the Palais de Chaillot, Paris;[29] and to the Marcussen organ of 1946 in the Broadcasting House, Copenhagen[30] (Appendix A, 42a). For example, the similarity between the Great and Pedal Organs of Groton School, Buckfast and the Festival Hall is very obvious (Tables V/1, V/2).

Table V/1

Comparison of Great Organs:

Groton School (1935)		Buckfast (1937)		Festival Hall (1954)	
Great Organ		Great Organ		Great Organ	
Sub Principal	16	Bordun	16	Principal	16
Principal	8	Principal	8	Gedacktpommer	16
Diapason	8	Spitzflute	8	Principal	8
Flûte Harmonique	8	Bordun	8	Diapason	8
Gemshorn	8	Prestant	4	Harmonic Flute	8
Grosse Quint	5 1/3	Flûte Ouverte	4	Rohrgedackt	8
Octave	4	Nazard	2 2/3	Quintflute	5 1/3
Principal	4	Doublette	2	Octave I-II	4
Grosse Tierce	3 1/5	Tierce	1 3/5	Gemshorn	4
Quint	2 2/3	Cornet III		Quintadena	4
Super Octave	2	Fourniture IV		Quint	2 2/3
Tierce	1 3/5	Cymbel IV		Superoctave	2
Full Mixture IV		Bombarde	16	Blockflute	2
Fourniture IV		Trompette	8	Cornet V	
Cymbel III		Clairon	4	Mixture V	
				Sharp Mixture IV	
				Bombarde	16
				Trompette	8
				Clarion	4

Table V/2

Comparison of Pedal Organs:

Groton School (1935)	
Contre Basse	32
Principal	16
Contrebasse	16
Bourdon	16
Flûte Conique	16(SW)
Gross Quint	10 2/3
Octave	8
Contre Basse	8
Flûte Ovverte	8
Gedeckt	8(SW)
Quint	5 1/3
Super Octave	4
Flûte Harmonique	4
Gedeckt	4(SW)
Mixture III	3 1/5
Fourniture III	2
Bombarde	16
English Horn	16(Ch)
Trompette	8
Clarion	4

Royal Festival Hall (1954)	
Principal	32
Principal	16
Majorbass	16
Subbass	16
Quintadena	16(SW)
Salicional	16(Ch)
Quintflute	10 2/3
Octavebass	8
Gedackt	8
Quintadena	8(SW)
Nazard	5 1/3
Super Octave	4
Spitzflute	4
Rauschquint II	5 1/3
Septerz II	3 1/5
Mixture V	2 2/3
Bombarde	32
Bombarde	16
Dulzian	16(POS)
Trumpet	8
Cromorne	8(Ch)
Clarion	4
Schalmei	4(Ch)
Cornett	2

Table V/3

A comparison of the Festival Hall organ stoplist with those of the Palais de Chaillot, Danish State Radio Concert Hall and Groton School

RFH (103)			Palais de Chaillot			Danish State Radio			Groton School		
Great (20)			Grande Orgue (16)			Manual I (15)			Great (15)		
Pr.	Fl.	R/S	Pr	Fl	R/S	Pr	Fl	R/S	Pr	Fl	R/S
Pr 16	Ged P. 16	Bom 16	Mon 16	Bd'n 16	Bom 16	Pr 16	G. Bom 16	Tr 16	Pr 16	Gems 8	
Pr 8	H. Fl 16	Tr 8	Mon 8	Fl. H. 8	Tr 8	Pr 8	Bd'n 8	Tr 8	Pr 8	H. Fl 8	
Diap 8	R Ged 8	Clar 4	Vc 8	B 8	Cl 4	O 4	SF 8		Diap 8	Gr. Q 5 1/3	
Oct I-II 4	Q Fl 5 1/3		Pr 4	F 4		Q 2 2/3	RF 8	SG 8	Pr 4	Gr T. 3 1/5	
Q 2 2/3	G 4		Q 2 2/3	Cor c V		O 2	VF 4		Oct 4		
So 2	Q 4		D 2			Rq III			Q 2 2/3		
T 1 3/5	BF 2		T 1 3/5			M V-VII			So 2		
M V	Cor c V								T 1 3/5		
M IV									M IV		
									M IV		
									Cym III		
Positive (14)			Positif (15) enclosed			Manual II (13)			Positive (8)		
Pr 8	G 8	Tr 8	Pr 8	B 16	Bas 16	Tr Pr 8	G 8	Ran 16	Pr 4	RF 8	
O 4	Q 8	Dul 8	Pr 4	Ffu 8	Tr 8	O 4	Q 8	Kn 8	Sch IV	KF 4	
M V	RF 4		PIJ VI	Fl 4	Cro 8	O 2	DF 4	Reg 4		N 2 2/3	
SM V	RN 2 2/3			Q 2 2/3	Chal 4	O 1	SpG 2			BF 2	
Car II-III	SF 2			QdeN 2		Sesq II				T 1 3/5	
	T 1 3/5			T 1 3/5	Sal 8	Sch IV				S 1	
	L 1 1/3				UM 8						
Swell (20)			Recit (19)			Manual IV (16)			Swell (18)		
Diap 8	Q 16	Bom 16	O 2	Q 16	Bass 16	Pr 4	B 16	Fag 16	Geig 8	FCon 16	Bom 16
Pr 4	Gems 8	Tr 8	PIJ V	Ffu 8	Tr 8	M VII	Fl H 8	Trhar 8	Geig 4	G 8	Tr I 8
O 2	Q 8	Hby 8	Cym III	CdeN 8	Bas Hby 8		RF 8	Ob 8	F 2	Fug 4	Tr II 8
M IV-VI	KF 4	VH 8		F 4	VH 8		Q 5 1/3	C 4	PIJ VI	F 4	VH 8
Cym III	N 2 2/3	C 4		N 2 2/3	C 4		F 4			N 2 2/3	C 4
	OF 2			T 1 3/5			P 2	Ga 8		T 1 3/5	
	T 1 3/5	Vla 8		P 1	Ga 8		Cor IV	VC 8			Vd G 8
	F 1	Cel 8		Cor V	Cel 8			Ga 4			VC 8
					Vla 4						Gr Vi 8

Table V/3 contd.

RFH

Choir (14) enclosed

Pr	Fl	R/s
Sp. 04	qtr 8	Cro 8
Pr 2	stW 8	Sch 4
Q 1 1/3	qpF 4	
O 1		Sal 16
Jesq II		Sal 8
M IV		U.M 8

Solo (10) enclosed

Diap 8	RF 8	Bas.H 16
O 4	WF 2	HarTr 8
Rq II		HarCl 4
Ter II		
M IV		

Pedal (17/25)

Pr 32[e]	SB 16	Bom 32[e]
MB 16	QF 10 2/3	Bom 16
Pr 16	G 8	Tr 8
OB 8	N 5 1/3	Cl 4
SO 4	SF 4	Cor 2
Rq IV	OF 2	
M V	ST II	Dulz 16 [Ps]
		Cro 8 [ch]
	Q 16 [SW]	Sch 4 [ch]
	Q 8 [SW]	
		Sal 16 [ch]

Palais de Chaillot

Solo (11)

Diap 8	B 16	Tuba 16
Pr 4	F.H. 8	Tr 8
O 2		Cl Har 4
PIJ V		Clar 8
		Vl[c] 8

Pedal (19)

M 32	F 16	C. Bom 32
Pr 32	SB 16	Bom 16
CB 16	F 8	Bass 16
O 4	B 8	Tr 8
M IV	F 4	Bass 8
		Cl 4
		B 4
		Vl B 16
		Vc 8

Danish State Radio

Manual III (18) enclosed

Pr	Fl	R/s
Pr 8	NH 8	Dulc 16
O 4	G 8	Tr 8
M V	Gems 4	VH 8
Cym II	Sp.Q 2 2/3	Sk 4
	B.F 2	
	T 1 3/5	Sal 8
	S 1 1/7	UM 8
	Si.F 1	

Pedal (18/19)

U 32	spG 16	Bas 32
Pr 16	SB 16	Bas 16
O 8	G 16	Fag 16
O 4	Q 10 2/3	Tr 8
M VI	Q 8	Zk 4
	Q 4	Cor 2
	NH 2	
	FO 1	
	Cor IV	

Groton School

Choir (10)

Pr	Fl	R/s
	Q 16	EH 16
	opF 8	Tr 8
	L.F 4	Cl 8
	ZF 2	
		Dulc 8
		UM 8
		Vl[a] 8

Processional (2)

	G 8	Vl[e] 8

Pedal (20)

CB 32	B 16	Bom 16
Pr 16	Q 10 2/3	Tr 8
CB 16	FO 8	Cl 4
O 8	Q 5 1/3	
So 4	FH 4	
M III		
F III	Fl 16 [SW]	EH 16 [ch]
	G 8 [SW]	
	G 4 [SW]	

Table V/4

A comparison of the combined Choir and Solo divisions of the Festival Hall organ with Manul III of the Danish State Radio organ

RFH			DSR		
Choir and Solo (combined) (24)			Manual III (18)		
Pr	Fl	R/S	Pr	Fl	R/S
Diap 8	RF 8	BH^{n} 16	Pr 8	NH 8	Duk 16
O 4	OpW 8	HarTr 8	O 4	G 8	Tr 8
SpO 4	StW 8	Cro 8	M IV	Gems 4	VH 8
Pr 2	OpF 4	HarCl 4	Cy II	SpQ 2 2/3	Sk 4
Q 1 1/3	WF 2	Sch 4		BF 2	
O 1				T 1 3/5	Sal 8
Sesq II		Sal 16		S 1 1/7	UM 8
Rq II		Sal 8		SF 1	
Tev II		UM 8			
M IV					
M IV					

Whilst Downes has commented *en passant* with regard to the influence of the Palais de Chaillot and Danish State Radio organs on the Festival Hall scheme,[31] nowhere has he indicated the relationship between the tonal schemes of the three organs. A comparative analysis of the three organs into principal, flute, reed and other registers, as in Tables V/3 and V/4, leaves little doubt as to the origins of the Festival Hall scheme.

The Festival Hall Great Organ is almost identical to that in the Palais de Chaillot, with the addition of a Mixture IV, Quint Flute 5 1/3', Quintatön 4', and Blockflute 2'. In the provision of two 2' registers, the Downes' Great resembles that of the Danish State Radio organ, and the 5 1/3' Flute may be seen as 'gained' from Manual IV of the Danish organ. The Positive shows similar characteristics, there being, however, further development of the mixture work. The Festival Hall Swell is almost one with that of the Palais de Chaillot organ, with the mixture work further developed. The Choir appears as a 'sharp', narrow-scale, division, with some reeds and some strings, resembling the Danish organ in overall pitch and tonal balance. The Solo organs of the Festival Hall and Palais de Chaillot are the same in their main emphasis, this being to provide a broad, loud, principal and reed battery. On the Festival Hall Pedal organ, whilst the French reeds dominate the total tonal spectrum, the tonal disposition is virtually identical with the Marcussen organ. The provision of more than one swell division is also common to all three organs, and in each case one of the swell divisions is French-influenced.

An analysis of the total proportions of registers - principal, flute, reed and other - shows, however, a clear dominance, in the case of the Festival Hall organ, of principal registers and a greater use of mixture work. This accounts for the organ being characterized overall as an ensemble organ.

Table V/5

Comparison of proportions of register types

Organ	Proportion of Total Stops %			
	Principal	Flute	Reed	Other
Royal Festival Hall (103)	36	34	22	8
Palais de Chaillot (80)	29	32	29	10
Danish State Radio (81)	28	40*	23	9

*A number of these registers are clearly flute/principal hybrids. The preponderance of flutes in the Danish State Radio organ is therefore not as total as this table would imply.

The tonal scheme of the Festival Hall organ is thus not a matter of Downes' intuition or quirkiness - as a reading of the musical press of the period might suggest. It is, on the contrary, despite Downes' comments[32] one based firmly in eclecticism, as seen in the United States and France. It also has specific relationships with two other major concert hall organs of the period; one a French romantic instrument, neo-classicised by the addition of mutations and mixtures, and by the development of the Pedal Organ; the other, a Danish neo-classical organ whose purpose "was to obtain a historically accurate performance."[33] This latter was not seen by its designer as a second-hand store of historical organ types, but as an organ in which every detail was incorporated into the whole.[34] Whilst Downes derived from the Chaillot organ his basic ethos of classical flue choruses coupled with French reeds and cornets, his welding into one whole this enormous organ far more resembles the disciplined thinking of the Danish organ, but with a clear dominance of principal chorus work over the whole organ. In this Downes showed a tremendous grasp of the tonal aspect of the various schools of organ music and organ building concentrated into one huge instrument.

At this point some brief consideration should perhaps be given to the concept of eclecticism in organ design - that of gathering together from varying periods and areas such aspects of organ design, especially tonal aspects, as an individual considers pleasing. It is a concept which rejects exclusivity of taste in tonal design. Is however eclecticism a worthwhile concept? Can an organ be built to perform satisfactorily the music of Buxtehude, Bach, Couperin, Franck, Messiaen and Howells, any more than can the orchestra for Monteverdi's "Orfeo" perform Wagner's "Ring"?

Without doubt certain limits are inherent. A simple appreciation of historical styles indicates that to place on any one division, or soundboard, the differing choruses, mutations and reeds required by, for example, the early north-German, French, Italian and Spanish schools, quite apart from the later French symphonic school, would make the chests so large as to negate the relationships between the various registers, as well as posing problems for the playing action. Placing the various choruses on different windchests poses similar spatial, acoustic and mechanical problems. To unite in one organ the tightly packed divisions of Schnitger with those of Cavaillé-Coll, where each pipe is deliberately spaced apart from its neighbours, is an impossibility. On a smaller scale the placing of various register types together presents problems: an Italian flute cannot be placed on the same chest or pressure as a north-German principal or flute, any more than a Compenius regal can be placed on a chest alongside a Cavaillé-Coll Bombarde. Voicing characteristics, which are related to action, windchest and case volume, present other areas of incompatability: for example, stops with a rapid build-up of fundamental, usually on a relatively low pressure, suitable for the highly articulated preludes, fugues or concerto arrangements of Bach, cannot blend with, or substitute for, stops by Cavaillé-Coll, with their slower build-up of fundamental, suitable for Franck. An organ which attempts to compromise over both such styles in the interests of versatility is likely also to compromise the music of both Buxtehude and Franck to an extent which our well-developed historical awareness no longer finds acceptable. It may also be suggested that the light, crisp actions required for the articulation of seventeenth- or eighteenth-

century French or German music are nearly as far removed from the Barker-lever action which Franck knew, as is the touch of the harpsichord from that of a piano. Among the many other areas of incompatibility between period styles may be mentioned winding, pitch, temperament, compass and key size.

Yet, of course, compromise is not a phenomenon peculiar to our time. Given a builder with a strong artistic personality and breadth of stylistic understanding, a composite approach has sometimes been successful, as shown in the work of Gottfried Silbermann in Freiberg Cathedral or Riepp at Ottobeuren. But it must be recalled that in these instances the builders amalgamated ideas from two schools of organ building (the French and German) that were fundamentally related in voicing, tonal structure, mechanism and layout. Such a process is not the same as attempting to marry styles of organ building separated by a considerable period of time and corresponding to the most radical differences in musical style. The approach of Silbermann and Riepp, as builders within traditions which co-existed, is quite different from the assembly at the Festival Hall of Anglo-German choruses, German flutes and French reeds drawn from differing historical periods by a strong minded designer, and voiced under his direction from within the radically different Harrison tradition.

Eclecticism in this latter sense clearly militates against the totally satisfactory performance of the works of any particular composer, or school of composers. Such an approach is lacking in respect for the body of evidence provided by surviving instruments and our knowledge of the performing practice of earlier periods. Eclecticism must tend to militate against the building of organs which are coherent entities, conceived with a profound sympathy for musical style.

Tonal aspects apart, however, the Festival Hall organ - disposed horizontally across a chamber, largely unencased and played by electro-pneumatic action - lacks the essential preconditions for sympathetic performance of significant areas of the organ repertoire.

Turning to the 'architecture' of the organ, the initial proposal of the acoustics team was for the organ to be placed in the roof-space over the orchestra, a position Downes "categorically refused to countenance."[35]

The development of the 'architecture' of the organ is described in Baroque Tricks. It is interesting to note that Harrisons considered that the idea of placing the principals in front so as to "form an interesting display" produced too much crowding,[36] and that the architects considered that grouping the longer pipes in towers was "too gothic."[37] However, the final result was one derived (as was the tonal scheme) from the Chaillot and Danish organs,[38] but without the encasement of the Danish instrument, and with "a kind of fantasy-frontispiece designed by Sir Leslie Martin, utilising organpipe forms of exaggerated dimensions and pleasantly varied materials, wood and metal,"[39] in front of the organ.

As is shown by the organs of Coventry and Liverpool (Roman Catholic) Cathedrals, and, as has become obvious from discussions with architects from 1970 onwards (e.g., Ronald Weekes, Clifton Cathedral; Francis Pollen, Worth Abbey; and Michael Blee, Orpington Roman Catholic Church), the influence of the semi-chambered, almost totally-exposed 'functional' layout (brought about by the LCC architects), has remained an unhelpful element in organ design in England through to the present.

The effect of the organ, with its widthways disposition, was 'stereosonic', horizontal rather than vertical, and notably lacking in blend.[40] Attempts have been made by Downes to compensate for the lack of blend by the (somewhat tentative) installation of reflector boards above the Great and Positive chests. This process (of adding reflector boards), continued until 1975, when 'sides' were also added to the Great and Positive divisions.[41]

The key action was electro-pneumatic; the chests, other than those for offset basses and borrowed registers, were traditional bar and slider chests. The winding was by reservoirs placed beneath each chest level. Mechanical action was seemingly considered by Downes

but not with any great seriousness.[42] The stop action was a mixture of electro-pneumatic and direct electric. The swell shutter mechanisms were mechanical, perhaps reflecting unconsciously that the 'real' expressiveness of the organ lay in the dynamic control of enclosed divisions - for such sensitivity mechanical action was clearly necessary![43]

The scales are given in Table V/6 and the scaling characteristics of the various divisions were summarised by Downes as:

Great Organ	16' Principal, rather broad: medium to wide pipe-scales
Positive Organ	8' Principal, more brilliant: medium and narrow scales
Swell Organ	8' Principal, more penetrating: wide and narrow scales
Choir Organ	4' Principal, most brilliant: narrow scales
Solo Organ	8' Principal, very broad: very wide scales to compensate low reverberation period of the auditorium
Pedal Organ	32' Principal, the counterpart of all manuals: wide scales throughout[44]

a somewhat 'Silbermann-esque' description. During the design period Downes appears to have been somewhat reticent about the origins of his scales. Cuthbert Harrison has said that they appeared "to emanate from Downes' head," and it seems he did not discuss their origins with Harrisons.[45] He has now, however, described the process leading to the final scales in some detail in Baroque Tricks. In this process, the transition of thinking from a French-biassed scheme, (deriving from the traditions of Bédos[46] and Cavaillé-Mutin, via Donald Harrison), towards the Dutch/North German schools (with their fresh 'un-nicked' choruses), is clear. Whilst retaining French-style reeds in quantity, the flue-work scales, by contrast, finally followed the 'variable', or 'compensatory', pattern[47] found in historic Dutch and German organs, as also in the then recent Flentrop organs such as Driebergen. In

Table V/6

RFH	Great – Principals	C – c''''	WP 1–4 95mm 5–9 79mm

		C		c		c'		c''		c'''				
1.	Principal 16' ϕ	248		143		83		49		29				Harrison scale in par
2.	Diapason 8' ϕ	143		95		59		35		21				
3	Principal 8'' ϕ	130		83		56		29		17				tin
4	Octave I 4' ϕ	87		56		30		17		13				
	Octave II 4' ϕ	–		–		33		21		14				
5	Quint 2 2/3' ϕ	65		45		24		14		9				
6	Super Octave 2' ϕ	49		35		17		11		8				
7	Tierce 1 3/5' ϕ	41		24		14		11		8				
8	Mixture 2' ϕ	46		29		16		11		6				
9	Sharp Mixture	2/3'	1/2'	1/3'	1/4'	1/6'	1/8'							
	ϕ	20	16	12	10	7	7							

Table V/6

RFH	Great – Flutes		WP 10-15 95mm 16-17 79mm

		C	B	c		c′		c″		c‴				
10	Gedackt- pommer 16′ ø	181		106		68		43		29				
11	Harmonic Flute 8′ ø	146x 115	100x 75	84		64		47		34				Cavaillé-Coll scale.
	mw	1/4												
	cu	1/5												
12	Rohrgedackt 8′ ø	130		95		56		35		24				
13	Quintflute 5 1/3′ ø	92		67		41		29		19				
14	Gemshorn 4′ ø	44/92		25/65		14/41		10/29		6/19				
15	Quintadena 4′ ø	70		45		27		19		13				
16	Blockflute 2′ ø	65		45		24		17		10				
17	Cornet 8′ ø					45		29		21				
	4′ ø					37		22		16				
	2 2/3 ø					30		21		16				
	2′ ø					27		17		13				
	1 3/5′ ø					21		14		10				

Table V/6

RFH	Positive – Principals		WP 40 mm

		C		c		c′		c″		c‴			
41	Principal 8′ ϕ	130		80		46		30		19			
42	Octave 4′ ϕ	84		44		28		16		11			
43	Mixture V, 2′ ϕ	46		28		14		11		6			
44	Sharp Mixture V, 1′	28		16		9		6		–			
52	Carillon II–III	2/3′	1/2′	1/3′	1/4′	1/5′	1/6′	1/8′	1/10′				tin
	ϕ	23	18	12	9	8	7	6	6				
	mw	1/4.5	1/4.25	1/4	1/4	1/4	1/4	1/4	1/4				

Table V/6

RFH	Positive – Flutes		WP 70 mm

		C		c		c'		c''		c'''			
45	Gedackt 8' ϕ	135		86		49		33		22			lead
46	Quintadena 8' ϕ	90		57		38		27		17			
47	Rohrflute 4' ϕ	86		57		38		24		16			
48	Rohrnazard 2 2/3' ϕ	70		46		31		19		11			
49	Spitzflute 2' ϕ	22/62		16/36		11/22		6/13		5/9			
50	Tierce 1 3/5' ϕ	49		29		17		11		8			
51	Larigot 1 1/3' ϕ	46		32		17		13		6			

Table V/6

RFH	Swell — Principals		WP 95mm

		C		c		c′		c″		c‴			
21	Diapason 8′ ϕ	143		83		48		33		21			
22	Principal 4′ ϕ	92		56		33		19		11			
23	Octave 2′ ϕ	56		31		17		11		6			
24	Mixture 1′ ϕ	29		16		10		6					
35	Cymbel ϕ	1/5′ 8	1/6′ 7	1/8′ 6	1/10′ 6	Unisons and Quints have Tierces have 2/9 mw.						1/4	mw,
			Swell — Strings										
33	Viola 8′ ϕ mw	96 1/4.25		57 1/4		34 1/4		21 1/4		14 1/4			Harrison scale
34	Celeste 8′ ϕ mw	109 1/4		62		36		23		15			Harrison scale

Table V/6

RFH	Swell–Flutes		WP 95

		C		c		c′		c″		c‴				
25	Quintadena 16′ ϕ	157		102		57		37		29				
26	Gemshorn 8′ ϕ	135		98		64		40		25				2:3 taper
27	Quintadena 8′ ϕ	95		62		46		27		17				
28	Koppelflute 4′ ϕ	86		60		38		25		17				
29	Nazard 2⅔′ ϕ	73		54		32		21		14				2:3 taper
30	Openflute 2′ ϕ	79		48		29		17		13				
31	Tierce 1⅗′ ϕ					24		14		10				From F__.
32	Flageolet 1′ ϕ	54		32		17		11		8				

Table V/6

R.F.H.	Choir – Principals		WP 83 mm

		C		c		c¹		c²		c³				
55	Open Wood 8¹ ϕ	146 x 121		83 x 70		52 x 41		32 x 25		19 x 16				oak 1:2 taper
56	Spitzoctave 4¹ ϕ	75		48.		32		21		13				
57	Principal 2¹ ϕ	52		30		17		10		6				
58	Quinte 1⅓¹ ϕ	46		22		13		8		6				
59	Octave 1¹ ϕ	29		19		11		6		5				
60	Sesquialtera II, 2⅔¹ ϕ	20		20		20		11		8				
	mw	1/3.75		1/3.75		1/3.75		1/3.5		1/4				
	Sesquialtera II, 1⅗¹ ϕ	13		13		13		9		8				
	mw	1/3.5		1/3.5		1/3.5		1/4		1/4				
61	Mixture IV	1/2¹	1/4¹	1/8¹	1/16¹									
	ϕ	16	9	6	5									
	mw	1/3.75	1/3.5	1/3.75	1/4									

Table V/6

RFH	Choir—Flutes		WP 83mm

		C		c		c'		c''		c'''				
62	Stopped Wood 8' ϕ	114 x 65		73x60		48x41		29		19				Oak Harrison scale
63	Open Flute 8' ϕ	81		64		41		29		16				Lead Harrison scale
				Choir—Strings										
64	Salicional 16' ϕ	184		117		76		44		27				Harrison scale
65	Salicional 8' ϕ mw	62/124 1/3.75		35/71 decreasing		21/42		12/24		6/15				Harrison scale
66	Unda maris 8' ϕ mw	68/135 1/4.5	to	37/77 1/5		23/46		13/26		8/17				Harrison scale

Table V/6

RFH	Solo – Principals		WP 114 mm

		C		c		c′		c″		c‴			
69	Diapason 8′ ϕ	148		95		65		37		21			
70	Octave 4′ ϕ	92		64		36		21		13			
71	Rauschquint II 2′ϕ	56		30		19		13		6			
72	Tertian II 4/5-3/5′ϕ	25		25		14		8		6			
	mw:	1/4		1/3.75		1/3.5		1/3.25		1/3.5			
	Tertian II 1⅓′ ϕ	38		21		13		8		5			
	mw	1/4.25		1/3.75		1/4		1/4.5		1/3.75			
73	Mixture VI 1⅓′ ϕ	29		16		11		8		5			
				Solo — Flutes									
74	Rohrflute 8′ ϕ	64×32		38×22		25×16		16×11		11×8			
75	Waldflute 8′ ϕ	32/64		22/38		16/25		11/16		8/11			

Table V/6

RFH	Pedal – Principals	C–g′	WP 79, 83 : 95 mm 80–82 : 102 mm 84, 85 : 79 mm

		C		c		c′		c″		c‴				
79	Principal 32′ ϕ	470		remainder from No.1.										Lowest four haskelled. Zinc. From 16′ C – Harrison scale
80	Majorbass 16′ ϕ	286 × 229		168 × 133.		106 × 83								
81	Principal 16′ ϕ	243		153		100								
82	Octavebass 8′ ϕ	156		98		57								
83	Superoctave 4′ ϕ	95		54		32								Tin
84	Mixture 4′ ϕ	89		52		32.								
	Mixture 2′ ϕ	48		30		19								
85	Sharp Mixture 1′ ϕ	29		17		13								

Table V/6

R.FH	Pedal—Flutes		WP 86,87 : 102 mm 88–92 : 95mm

		C		c		c'		c''		c'''				
86	Sub Bass 16' ϕ	216 x 168		139 x 108		89 x 70								
87	Quintflute 10⅔' ϕ	195		114.		73								Lead
88	Gedackt 8' ϕ	148		89		57								lead
89	Nazard 5⅓' ϕ	133		76		51								Lead 1:2 taper
90	Spitzflute 4' ϕ	69/92		22/68		16/44								Lead
91	Septerz II 3⅕' ϕ	105		62		40								Lead
	Septerz II 2⅔' ϕ	83		49		32								
92	Openflute 2' ϕ	70		49		30								Lead

Table V/6

	RFH	Great – Reeds		

		C		c		c′		c″		c‴			
18	Bombarde 16′ ø	194		125		94		73					WP 79mm
19	Trumpet 8′ ø	129		87		70		55					WP 79mm
20	Clarion 4′ ø	87		70		55		44					WP 79mm
				Swell – Reeds									
36	Bombarde 16′ ø	175		133		100		76					WP 95mm
37	Trumpet 8′ ø	110		92		76		64					WP 95mm
38	Hautboy 8′ ø	npt a											
39	Vox Humana 8′ ø	npt a											
40	Clarion 4′ ø	87		73		61		51					WP 95mm

Note: ø at top of resonator unless otherwise stated.

Table V/6

	RFH		Positive – Reeds										
		C		c		c′		c″		c‴			
53	Trumpet 8′ ϕ	119		95		75		57					WP 70mm
54	Dulzian 8′ ϕ length: cone/cyl.	43 260/530		35 210/400		28		22		18			W.P 70mm Flentrop scale
				Choir – Reeds									
67	Cromorne 8′ ϕ	npta											Scale copied from St. Gervais, Paris, Cliquot. WP 83mm
68	Schalmei 4′ ϕ length cone/tube	89/19 155/559		66/16·5 95/273		53/14 69/112							Scale copied from Dutch Church, Austin Friars, Pels and van Leeuwen WP 83mm
				Solo – Reeds									
76	Basset Horn 16′ ϕ												WP 114 mm Harrison scale Cornetto di Bassetto.
77	Harmonic Trumpet 8′ ϕ	119		98		76		70					WP 114 mm
78	Harmonic Clarion 4′ ϕ	110		92		76		65					WP 114 mm

Table V/6

RFH	Pedal-Reeds		

		C		c		c'		c''		c'''				
100	Bombarde 16' ϕ	214		130		97								32' extensim scale npta WP 92mm
101	Trumpet 8' ϕ	149		113		87								WP 80 mm
102	Clarion 4' ϕ	105		79		62								WP 80 mm
103	Cornett 2' ϕ	78												WP 80 mm
	Dulzian 16' ϕ length cone/cyl.	52 430/840		remainder as No. 54.										WP 70 mm

Source: Downes, R. 1952 (2), 0 132 and communications from R. Downes, 25:2:82, 11:3:82, 24:3:82.

Table V/6

R, FH	Mixture Compositions		

Solo													
Rauschquint II	C	2 2/3	2	throughout									
Tertian II	C	1 1/3	4/5										
	c	1 3/5	1 1/3										
Mixture VI	C	1 1/3	1	1	2/3	1/2	1/3						
	c	2	1 1/3	1	1	2/3	1/2						
	g	2 2/3	2	1 1/3	1	1	2/3						
	c′	4	2 2/3	2	2	1 1/3	1						
	g′	4	2 2/3	2 2/3	2	2	1 1/3						
	g″	4	4	2 2/3	2 2/3	2	2						
	c‴	5 1/3	4	4	2 2/3	2 2/3	2						
Pedal													
Rauschquint V	C	5 1/3	4	throughout									
Septerz II	C	3 1/5	2 2/7	throughout									
Mixture V	C	2 2/3	2	1 1/3	1	2/3							
	gs	2 2/3	2	1 1/3	1	1							

Table V/6

RFH	Mixture Compositions		

Positive												
Sharp Mixture V C	1	2/3	1/2	1/3	1/4							
A	1 1/3	1	2/3	1/2	1/3							
fs	2	1 1/3	1	2/3	1/2							
ds'	2 2/3	2	1 1/3	1	2/3							
c''	2 2/3	2	1 1/3	1 1/3	1							
a''	4	2 2/3	2	1 1/3	1 1/3							
fs'''	4	2 2/3	2 2/3	2	2							
Carillon II-III C	1/2	1/5										
G	1	1/2	2/5									
g	2	1	4/5									
g'	4	2	1 3/5									
g''	8	4	1 3/5									
c'''	8	4	3 1/5									
Choir												
Mixture IV C	1/2	1/3	1/4	1/6								
G	2/3	1/2	1/3	1/4								
c	1	2/3	1/2	1/3								
g	1 1/3	1	2/3	1/2								
c'	2	1 1/3	1	2/3								
c''	2 2/3	2	1 1/3	1								
c'''	4	2 2/3	2	1 1/3								
Sesquialtera II C	2/3	2/5										
c	1 1/3	4/5										
c'	2 2/3	1 3/5										

Table V/6

R.F.H.	Mixture Compositions		

Swell													
Cymbel III	C	1/5	1/6	1/8									
	F	1/4	1/5	1/6									
	A_3	1/3	1/4	1/5									
	ds	2/5	1/3	1/4									
	g	1/2	2/5	1/3									
	b	2/3	1/2	2/5									
	ds'	4/5	2/3	1/2									
	g'	1	4/5	2/3									
	b'	1 1/3	1	4/5									
	ds''	1 3/5	1 1/3	1									
	gs''	2	1 3/5	1 1/3									
	cs'''	2 2/3	2	1 3/5									
	f'''	3 1/5	2 2/3	2									
	a'''	4	3 1/5	2 2/3									
Positive													
Mixture V	C	2	1 1/3	1	2/3	1/2							
	fs	2 2/3	2	1 1/3	1	2/3							
	c'	4	2 2/3	2	1 1/3	1							
	c''	4	2 2/3	2	2	1 1/3							
	c'''	4	2 2/3	2 2/3	2	2							

Table V/6

R FH	Mixture Compositions		

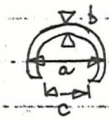
Great												
Mixture V c	2	1 1/3	1	2/3	1/2							
c	2 2/3	2	1 1/3	1	2/3							
g	2 2/3	2	1 1/3	1	1							
c'	4	2 2/3	2	1 1/3	1							
f'	4	2 2/3	2	2	1 1/3							
c''	4	2 2/3	2 2/3	2	2							
cs'''	4	4	2 2/3	2 2/3	2							
Sharp Mixture IV c	2/3	1/2	1/3	1/4								
Cs	1	2/3	1/2	1/3								
ds	1 1/3	1	2/3	1/2								
as	2	1 1/3	1	2/3								
f'	2 2/3	2	1 1/3	1								
c''	4	2 2/3	2	1 1/3								
c'''	4	4	2 2/3	2								
Swell												
Mixture IV-VI c	1	2/3	1/2	1/3								
c	1 1/3	1	1	2/3	1/2							
g	2	1 1/3	1	1	2/3							
c'	2 2/3	2	2	1 1/3	1 1/3	1						
g'	4	2 2/3	2 2/3	2	2	1 1/3						
g''	4	4	2 2/3	2 2/3	2	2						

Scales of Shallots for Manual Reeds

Table V/6

RFH

	16' CC	8' C	4' C	2' C'	1' C''	½' C'''						
External ⌀ (a)	18	12.7	B 10	7.2	5.8		a'' to c''' in large principal measure			scale		
Metal thickness (b)	1.5	1.2	1.0	0.5	0.5							
Width of opening (c)	9	5	3.6	3	2.5	Parallel opening						



Scales of Shallots for Pedal Reeds

	32' CCC	16' CC	8' C	4' C	2' C'							
External ⌀	33	19										
Metal thickness	2	1.8										
Width of opening	not a	10.4				Parallel opening						

Source: Harrison and Harrison Papers 115d and 118

imposing so alien an approach on Harrisons, and on their voicer, Fred Howe, Downes indeed set himself "a difficult course."[48] As is seen from Table V/6 and Downes' charts,[49] finally almost all the flues had variable scales; and only nine stops employed normal Harrison scales:

Pedal:	Principal 32' from 16'C
Great:	Principal 16', as on the Pedal
Swell:	Viola and Celeste
Choir:	Open Wood 8', Stopped Wood 8' Salicional 8', Unda Maris 8'
Solo:	Basset Horn 8'

The mouth widths are variable throughout the course of each stop and are between 1/3.5 and 1/6, and vary, for the most part, inversely with the scale variations. Downes, in a paper to Harrisons entitled "Voicing Tips" (Appendix F, 1) described the procedure:

> "The mouth widths must be drawn out on a separate scale-curve for each stop, and measurements transferred from this curve to each pipe separately while in the flat sheet, i.e., scribed on the back. Flatting is then done afterwards, according to the width of the mouth." 51

The cut-up also varies, usually in inverse proportion to the mouth width, between 1/3 and 1/4.5 of the mouth width. Downes gave Harrisons 'safe limits' for cut-up, but stressed that "every pipe must be treated individually."[52] His limits, given in "Voicing Tips", were:

Mouth width	Maximum Cut-up (of the individual pipe)
5 (i.e., 1:5)	1/3 of mouth width
4 1/2	3/10
4 1/4	2/7
4	1/4 bare up to 1/4 maximum for 3 1/2" wind
3 3/4	2/9
3 1/2	1/4

Downes' voicing procedures, open-foot, flue-regulated, are also shown in his instructions to Harrisons:

> "Flue voicing:....observation has led me to the firm conclusion that the method of maximum footholes and minimum flues (un-nicked) is the only good recipe. All regulation is then made on the mouths, and a little hammer is the best means of ensuring that the lower lips do not spring out again after the first or second pressing in. Full wind in the pipe-foot is very important." 53

The only exceptions to this were the Swell Viola and Celeste which were foot-regulated.[54] In the event, however, most of the fluework was lightly nicked, with around four nicks in the medium frequency range.[55]

The main registers were initially mounted in the workshop and a certain amount of pre-voicing done - Downes making many visits to Durham.[56] The final cut-up and flue regulation, on 'Gottfried' lines,[57] was done on site under Downes' supervision. The flue voicing, other than the Great Harmonic Flute, was by Fred Howe, assisted by Leslie Rowland. The reeds originated from a variety of sources: Downes describes the Great and Choir reeds, the Positive Trumpet and the Pedal Trumpets at 8' and 4' as "derived from classical French practice."[58] The reed shallots for Bombardes, Trumpets, Clarions, Hautboy, Cromorne, Schalmei and Vox Humana were all parallel and open, and with 'French' style 'round' or 'dome-headed' ends. Downes was insistent upon this to get a "true" or "full round tone."[59] The shallots were made by Harrisons. The reeds had French blocks, boots in heavy metal, and long, soft brass, unweighted tongues (Appendix F, 2-5). The Hautboy had tear-shaped shallots and a cylindrical bassoon bass, bells being employed from c upwards. The Basset Horn, a cylindrical, half-length, half-capped register, was of Harrison scale and unlike the French reeds, voiced by Rochesson,was voiced by Howe. The Dulzian scale was from Flentrop, capped, with the tops about one quarter open, and having beak-shaped shallots and felt-loaded tongues in the bass. The Choir Cromorne was a copy of the Cliquot stop in St. Gervais, Paris.[60] The pipes were made, in the main, of spotted metal, except the Great Principal 8', Pedal Octave 4' and Swell Cymbel, which were all of 90% tin; the Positive Gedackt, Choir Openflute, Solo Wald Flute, Pedal Quintflute, Gedackt, Nazard,

Spitzflute, Openflute, Septerz, were all of 30% tin; the Pedal Majorbass and Sub Bass, and Choir Open and Stopped 8' registers were of wood; and the lowest octave of the 32' registers were of zinc.

Since 1954, the organ has been affected by two major changes. In 1964 the Hall was cleaned. During this time the organ was dismantled and several amendments made:

> " 1) the Principal 32' (which had never spoken properly) was increased in scale from EEE by one semitone
>
> 2) the Majorbass 16' (which had been barely adequate) was increased in scale by one semitone from CCC
>
> 3) new French shallots for the lowest 12 notes of the 32' Bombarde were obtained from Bertounèche of Héry, Yonne, France, together with tongues cut in the flat
>
> 4) with Fred Howe, Harrison's voicer, all the mixtures and most of the reeds were re-regulated to give a better blend." 61

The second major change was the installing of electronic "assisted resonance" in the Hall, which resulted to some extent in improved organ sound. The Positive and Great mixture work had to be softened a little, owing to the microphones employed being close to the upper soundboards.[62] Also, whilst the wind pressures of Great, Swell, Choir and Pedal upperwork were lowered by 1/8" (3 mm), the Pedal Bombardes were put on 3 5/8" (92 mm). The Positive remains, as originally, on 3 3/4" (95 mm), and the Pedal Major Bass, Quint, Sub Bass and Principals 16' and 8', on 4" (102 mm).[63]

The effect of the Festival Hall organ on English organ building was dramatic, though mainly in terms of tonal design. As Felix Aprahamian wrote, in 1952, when looking forward to the building of the organ:

> "One swallow does not make a summer, but it may well be the harbinger of other swallows, and eventually, of a change of climate.... [The organ] crystallizes a tendency which has been in the air for some time, although organists and organ builders here have been the last to sense this." 64

The opening of the organ met with a mixed reaction. Marr described it as: "a dreadful mess.... a hideously shrill, screaming, blaring monstrosity... an ugly and undesirable monument to the designer, whose misconceived ideas and freakish notions have wasted a lot of money and disfigured an important Concert Hall."[65] Clark similarly called it "large, nasty and wearisome."[66] There were those, such as Inkster, who called for a dual purpose organ, such as at Southampton Guildhall,[67] and the organ critic of the Musical Times, Archibald Farmer, indicated his views by referring to it as a "William IV" organ.[68]

On the other side, William King Covell[69] came to Downes' support, stressing his depth of study and breadth of knowledge, and a perceptive letter by Thomas Stevens[70] commented not only on the stylistic revolution, but also the "aristocratic beauty and majesty" of the organ.

The organ was also the subject of criticism by symposium.[71] In this, views were also divided. Swinyard found "the French reeds too blatant and shallow," that there was "no full Swell" but that the organ was adequate for its purpose.[72] Sumner commented that it "came triumphantly through the test of the demands of Sweelinck, Bach, Reubke, Vierne and Vaughan Williams,"[73] and gave due credit to Downes. Clutton found the organ deficient in "quiet noises" but that it "plays baroque OK", and, whilst describing the voicing as a triumph for Harrisons and Downes, commented, "despite the French reeds an immensely satisfactory and satisfying instrument."[74] Susi Jeans similarly described Downes' and Harrisons' work as "singularly successful."[75] Walter Emery wrote that "The LCC, Mr. Downes and Messrs. Harrison are to be congratulated on having achieved, at a stroke, results that are so largely successful."[76] Others, such as Benham[77] and Edmonds,[78] merely displayed varying degrees of ignorance and insularity. All, however, commented on the 'revolutionary' nature of the organ.

There was even a BBC broadcast by Geraint Jones, in which music played on the Festival Hall organ was contrasted with recordings by Heinrich Funk on the organ in the Fraumunster, Zurich, (Appendix A, 43), and in which Jones stated:

> "I think I'm on pretty safe ground in saying that no single musical instrument has ever been the cause of so much controversy as the new organ in the Royal Festival Hall. It was abused at its conception....and....angry cries have now accompanied its birth." 79

Discussion in the musical press rumbled on not just for months, but for years. Overall, the debate over the Festival Hall organ, and the 'Baroque', was carried on at an appallingly low level, as evinced by the pages of the Musical Opinion, The Organ and The Musical Times; though there were occasional articles of more thoughtfulness by writers such as Susi Jeans[80] and Walter Emery.[81] Possibly the most thoughtful comment of all, despite the pardonable chauvinism, came from the journal Music, edited by Miles Henslow, where the organ was described as:

> "not in the English tradition, if the heritage of the past seventy-five years can be so called. Nor is it a baroque organ as some critics alleged before they actually heard it. It is simply an eclectic design, embracing what is valuable in all schools of organ building, all subservient to the main musical purpose. Transparency, colour and balance between choruses - inherent features of the organs of Bach's day, and so necessary for the performance of his music - these have been combined with the perfection of voicing and regulation for which English organ builders are famous." 82

The eclectic nature of the organ was also noted by Sumner, in the symposium on the organ, though any suggestion that the organ is eclectic is strongly denied by Downes: "Don't call it 'eclectic': it isn't!"[83] In Baroque Tricks he suggests that, in the design process, through "a subtle change near the end of the road"[84] (seemingly the abandonment of a romantic Solo organ replete with Tubas, in favour of a fifth Pleno of principal character together with a Basset Horn 16', Harmonic Trumpet 8' and Clarion 4' - for the accompaniment of

massed singing),[85] "the eclecticism vanished."[86] Downes' argument lacks cogency however in the face of an organ designed, as quoted earlier, as "an ideal conception in which as many as possible of the musically worthy features of all schools and periods of organ building practice are combined in one instrument."[87]

Despite all the discussion, the effect of the organ was, as in the case of the Palais de Chaillot instrument[88] to introduce a new and eager audience to the organ repertoire; to the music of Sweelinck, Buxtehude, Bruhns, Couperin, Bach, Franck and others, as well as bringing players such as Walcha, Langlais, Marchal and Peeters to public notice. As Clutton and Niland comment, "the organ has had remarkable success as a concert instrument performing organ music."[89] It was influential in bringing a previously almost unknown organ repertoire to the notice of English organists. The educative process was aided by the well-written programme notes of Felix Aprahamian, which accompanied many recitals, and by lecture-recitals by Downes and Aprahamian.[90] For example in one of these, in 1957, Downes performed music from the Buxheim Organ Book, and by Illeborgh, Landini, Paumann, Isaac, Buxtehude, Bach, Handel, Mozart, Merkel, Karg-Elert and Reger. Downes' registrations for this programme provide interesting evidence of his registrational thought in terms of the Festival Hall organ.[91] The aim of Downes, to bring about "an ideal conception in which as many as possible of the musically worthy features of all schools and periods of organ building practice are combined"[92] had, in his terms, been realised. Downes' conviction as to the concept remained consistent and clear, despite attendant criticism from the musical profession and the organ builders. With the opening of the Festival Hall instrument, organ reform in England had been given much impetus, though conviction, or conversion, was by no means total: as Cuthbert Harrison wrote: "even if Mr. Downes has not set us a star to follow absolutely he has certainly shone a great light."[93] Though Cuthbert Harrison, perhaps with hindsight, welcomed Downes' fresh approach, the lack of conviction in 1954 on the part of Harrisons was all too clear in their apparant disclaimer, fastened in that year inside the Festival Hall organ, in which they took no responsibility for the sound of the organ:

> "The organ has been finished under the personal supervision of Mr. Ralph Downes on a different system to what has been usual with this firm. Care must be taken at all times that the present voicing and regulation is not interfered with in any way, which might be done with the best intentions to correct apparent unevenness. It must be noted that the actual position of each pipe must not be altered." 94

That this was a disclaimer has, however, since been hotly denied by both Downes and Harrison.[95]

Although it is now almost thirty years since the installation of the Festival Hall organ, and we now have Downes' 'autobiography', in which much is written about the instrument, it is clear from this, and from discussion with individuals and institutions concerned, that the various sensitivities are such that a full 'definitive' history of the Festival organ has yet to be written.

The Royal Festival Hall organ, discussed above, and Brompton Oratory considered below, hold the key to developments in ensuing years. As suggested, the real contribution of the Festival Hall organ was in drawing the attention of organists and organ builders to matters of tonal structure and organ repertoire - tonal aspects of design thus became predominant. Matters of spatial and architectural design were not considered to the same degree, and the matter of playing action only slowly began to be considered. The growth, therefore, of the neo-classical electric-action organ will, therefore, be considered principally in terms of tonal design. Here, specifications, whilst often being misleading with regard to actual sound, do provide evidence with regard to the 'philosophy' of design style. It might also be commented that this neo-classical revival occurred against a background of routine 'traditional' rebuilding and building of organs, and conservative organists. It is therefore possible to overestimate the popularity of the neo-classical organ during this period. That it steadily gained ground is however undeniable.

Contemporaneous with the Royal Festival Hall organ by Harrisons was the building, by J. W. Walker, of the new organ at Brompton Oratory,[96] where Ralph Downes was organist. A fire, "some said Arson",[97] in March 1950, destroyed the old organ, and caused a new classically conceived organ to be built in conjunction with Downes. The collaboration of Walkers and Downes at Buckfast was to reap its harvest at the Oratory. At the Festival Hall the aim had been to provide a vast concert organ, and this in a totally unsympathetic acoustic. In contrast the Oratory had a rich acoustic, and quite a different organ requirement.

Its function was:

> "a) to accompany Gregorian chant and harmonised choral music ranging from seventeenth century to the present day;
>
> "b) to accompany large and small congregations for hymn-singing, without a choir;
>
> "c) to provide interludes and voluntaries, sometimes necessarily on a grand scale and embracing all genuinely musical categories of organ composition." 98

The size of the organ was severely restricted by the budget, by rising costs,[99] and by an artistic limitation, imposed by Downes' wish "to make one organ, not a collection of disparate organ-units."[100]

In order to achieve these objectives Downes proposed that it was necessary to have:

> "a) a number of mild 8 ft and 4 ft stops, at least 50% under swell control;"
>
> "b) cohesive synthesis of all the divisions on an "equality" basis, to give a genuine additive effect; and
>
> "c) well developed wide and narrow choruses on all divisions, with bold, but not loud, voicing of individual pipes; and "characterisation" of each division in accordance with its particular function, both by specification, scaling and voicing." 101

Table V/7

Brompton Oratory	Great	C–a‴	WP 78mm

	C		c		c′		c″		c‴			
Quintadena 16′ ϕ	160·5		104		58		38·5		27			
mw	1/4											
Principal 8′ ϕ (prospect)	144		86		50		31		18			
mw	1/4											
Rohrflöte 8′ ϕ	130		91		56		35		24			
mw	1/4		1/4·5		1/4·5		1/4		1/4			
Chimney ϕ	19		12		8		7		6			
ℓ	229		119		66		33		20			
Octave 4′ ϕ	83		50		30		17		10			
mw	1/4		1/4		1/4		1/3·5		1/3·5			
Gemshorn 8′ ϕ	44/91		24/65		14/42		10/28		6/18			
mw	1/5		1/5		1/5		1/4·5		1/4·5			
Quint 2⅔′ ϕ	62		39		22		14		8			
mw	1/4											
Superoctave 2′ ϕ	53		31		19		11		6			
mw	1/4											
Tertian II 4/5′-1⅗′ ϕ	23		24		14		8		6			
mw	1/4		1/4		1/4		1/3·5		1/3·5			
Tertian III 1⅗′ ϕ	34		20		13		7		5			
mw	1/4											
Mixture IV–V 1⅗′ ϕ	33											
mw	mostly 1/4		moving towards 1/3·5									
Trumpet 8′	(old Walker stop)											

Table V/7

Brompton Oratory	Swell	C–a‴	WP 70 mm

	C		c		c′		c″		c‴				
Barpijp 8′ ϕ	104/141		59/87		34/64		25/40		17/26				
mw	1/4	to	1/4·5										
Quintadena 8′ ϕ	90		65		45		27		18				
mw	1/4		1/4		1/4		1/4		1/4·5				
Viola 8′ ϕ	100		58		34		21		12				No beard
mw	1/4·5		1/4		1/4		1/4		1/4				
Celeste 8′ ϕ	–	A 77	68		39		24		16				From A,
mw	–	1/4·5	1/4·5		1/4·5		1/4		1/4				No beard
Principal 4′ ϕ	88		54		32		18		10				
mw	1/4		1/4		1/4		1/3·5		1/3·5				
Gedackt/flöte 4′ ϕ	72		50		29		19		14				
mw	1/4		1/4·5		1/4		1/4		1/5				
Nazard 2 2/3′ ϕ	36/77		28/58		17/33		11/19		11/16				
mw	1/5		1/5		1/5		1/4·5		1/6				
Gemshorn 2′ ϕ	70		45		28		15		9				
mw	1/5		1/5		1/5		1/4		1/4·5				
Tierce 1 3/5′ ϕ	45		29		17		12		7				
mw	1/4·5		1/4		1/4		1/5		1/4·5				
Mixture IV 1′	1′	2/3′	1/2′	1/3′	1/4′	1/6′	1/8′						
ϕ	25	18	15	11	10	8	7						
mw	1/4	mouths but doubled (wider) ranks							1/4·5				
Cymbel III 1/5′	1/5′	1/6′	1/8′	1/10′									
ϕ	8	7	6	5									
mw	unisons and Quints				1/4 mouth,		tierces 1/4·5 mouth.						
Echo Trumpet 8′ ϕ	mp	to											Rochesson
Vox Humana 8′ ϕ	mp	to											From old organ.

Table V/7

Brompton Oratory	Choir	C-a'''	WP 68 mm

	C		c		c'		c''		c'''			
Gedackt 8' ϕ	118		73		46		28		17			
mw	1/4											
Principal 4' ϕ	83		48		25		16		9			
mw	1/3.5	to	1/4									
Rohrflöte 4' ϕ	83		56		37		24		8/17			
mw	1/4		1/4.5		1/5		1/5		1/5			
Chimney ϕ	15		9		7		6		--			
L	108		55		29		19		-			
Octave 2' ϕ	48		27		15		10		7			
mw	1/4		1/4		1/3.5		1/3.5		1/4			
Waldflöte 2' ϕ	28/56		14/38		15/27		10/17		8/10			
mw	1/4.5		1/5		1/5		1/5		1/4.5			
Larigot 1 1/3' ϕ	44		31		17		13		7			
mw	1/4.5		1/5		1/4		1/5		1/4.5			
Sesquialtera II 1 1/3'-2 2/3'	36		36		20		10		7			
mw	1/4		1/4		1/4		1/3.5		1/3.5			
Sesquialtera II 4/5' 1 3/5' ϕ	21		21		12		8		5			
mw	1/4		1/4		1/3.5		1/4		1/4			
Scharff IV 2/3'	2/3'	1/2'	1/3'	1/4'	1/6'	1/8'	1/12'					
ϕ	20	16	11	9	7	6	5					
mw	1/4	1/4	1/4	1/4	1/4	1/4	1/4					
Cromorne 8' ϕ	npt a											

Rochesson

Table V/7

Brompton Oratory	Pedal	C–g′	WP 92 mm

	C		c		c′		c″		c‴			
Principal 16′ ϕ mw	242 1/4		150		100							
Subbass 16′ ϕ	216 x 178		135 x 108		88 x 70							
Quintflöte 10⅔′ ϕ mw	182 1/4·5		111		71							
Octave 8′ ϕ mw	151 1/4		96		56							
Gedackt 8′ ϕ mw	141 1/4		84		52							
Rohrquint 5⅓′ ϕ mw	114 1/4·5		77 1/4·5		48 1/5							
Chimney ϕ C	1/7 1/4	of of	pipe pipe	ϕ	in bass to length		1/4	in	treble			
Octave 4′ ϕ mw	96 1/4·5		52 1/3·5		32 1/4							
Nachthoorn 2′ ϕ	66 1/5		45 1/6		29 1/6							
Mixture IV 2⅔′ ϕ mw	2⅔′ 65 1/4	2′ 50	1⅓′ 36	1′ 29	⅔′ 22	½′ 18	⅓′ 14	¼′ 12				
Trombone 16′ ϕ Trumpet 8′ ϕ Trumpet 2′ ϕ	npt a npt a npt a											

old pipes
extension of 16′
old pipes
old pipes

Table V/7

Brompton Oratory	Mixture Compositions		

Great													
Mixture IV-V	c	1 1/3	1	2/3	1/2								
	c	2	1 1/3	1	1	2/3							
	c'	2 2/3	2	2	1 1/3	1							
	c''	4	2 2/3	2	2	1 1/3							
	c'''	4	2 2/3	2 2/3	2	2							
Tertian II	c	1 1/3	4/5										
	c	1 3/5	1 1/3										
	f''	2 2/3	1 3/5										
Choir													
Scharff IV	C	2/3	1/2	1/3	1/4								
	Gs	1	2/3	1/2	1/3								
	e	1 1/3	1	2/3	1/2								
	c	2	1 1/3	1	2/3								
	gs'	2 2/3	2	1 1/3	1								
	e''	4	2 2/3	2	1 1/3								
	cs'''	4	2 2/3	2 2/3	2								
Sesquialtera II	C	1 1/3	4/5										
	c	2 2/3	1 3/5										

Table V/7

Brompton Oratory	Mixture Compositions		

Swell													
Mixture IV	C	1	2/3	1/2	1/3								
	C	1 1/3	1	2/3	1/2								
	gs	2	1 1/3	1	2/3								
	e'	2 2/3	2	1 1/3	1								
	c''	4	2 2/3	2	1 1/3								
	c'''	4	4	2 2/3	2								
Cymbel III	C	1/5	1/6	1/8									
	F	1/4	1/5	1/6									
	A	1/3	1/4	1/5									
	cs	2/5	1/3	1/4									
	fs	1/2	2/5	1/3									
	as	2/3	1/2	2/5									
	d'	4/5	2/3	1/2									
	g'	1	4/5	2/3									
	b'	1 1/3	1	4/5									
	ds''	1 3/5	1 1/3	1									
	gs''	2	1 3/5	1 1/3									
	c'''	2 2/3	2	1 3/5									
	f'''	3 1/5	2 2/3	2									
Pedal													
Mixture IV	C	2 2/3	2	1 1/3	1								

Sources: Communication from R. Downes, 11·3·82,
Downes, R, 1954(3), O 131,
Downes, R, 1983.

The initial specification[102] shows a good deal of "Dutch fever"[103] and also, as evinced by the reedless Great, a touch of the 'American classic' of 'Don' Harrison. The final specification was:

Brompton Oratory, London: J. W. Walker, 1954

Great		Choir	
Quintadena	16	Gedackt	8
Principal	8	Principal	4
Rohrflöte	8	Rohrflöte	4
Octave	4	Octave	2
Gemshorn	4	Waldflöte	2
Quint	2 2/3	Larigot	1 1/3
Superoctave	2	Sesquialtera II	1 1/3
Tertian II	4/5	Scharff IV	2/3
Mixture IV-V	1 1/3	Cromorne	8
Trumpet	8		
Swell		**Pedal**	
Baarpijp	8	Principal	16
Quintadena	8	Subbass	16
Viola	8	Quintflöte	10 2/3
Celeste	8 (from A)	Octave	8
Principal	4	Gedackt	8
Gedacktflöte	4	Rohrquint	5 1/3
Nazard	2 2/3	Octave	4
Octave	2	Nachthorn	2
Gemshorn	2	Mixture IV	2 2/3
Tierce	1 3/5	Bombarde	16
Mixture IV	1	Trumpet	8 (ext)
Cymbel III	1/5	Trumpet	2
Echo Trumpet	8		
Vox Humana	8		

As the specification shows, Downes' solution was to provide a normal 8' Great, and 4' Positive, chorus, together with flutes and reeds, plus the addition of a large Swell organ (also based on a 4' Principal), in Oberwerk position, "which would dominate the whole building when the louvres were fully open, but could be reduced to an absolute pianissimo when they were closed."[104]

The drawings, given by Downes in Baroque Tricks,[105] show the placement of the organ at the rear of the transept gallery. The front of the organ has the basses of the Great and Pedal Principals in prospect, surrounded by a plywood 'case', in 'pseudo-classical' style, faintly

reminiscent of cases in Southern or Eastern Europe[106] (but not, as Downes writes, of "Schnitger School").[107] Behind the front were placed Great and Choir, left and right respectively, with the chests end to end. As voicing proceeded both these divisions were walled and roofed in timber, "giving a surprising increase in clarity.... especially in the effect of the mixtures inasmuch as the very high ranks of the bass range no longer went flying around the building and confusing the soprano lines."[108] This early example of specific tonal casework seems to have passed un-noticed. Behind the Choir was placed the main Pedal chest and, high above the Pedal, the Swell, standing on two chests, end to end. The Pedal basses were in the sides behind the towers, and most of the other 16' and 8' basses were 'stood off' on small chests near their parent chests.

The main chests of Great, Choir and Swell were old Lewis slider chests, originally in Harrow School Speech Room and a church in Ealing,[109] the bass chests were new and sliderless. These latter proved far less satisfactory for the pipe speech and tone than the slider chests.[110] The electropneumatic action was new. It seems that Downes gave consideration to the use of mechanical action, but did not pursue the matter.[111]

All the pipework was new, of spotted metal, other than the Great Trumpet (which was an old Walker stop), the Vox Humana and the Pedal reeds 16', (8'), and 2', which had survived from the old organ. The half-length bass of the 16' reed was, in the event, given a full length bass of old Bevington pipes from Ealing Town Hall.[112]

The scales, given in Table V/7,[113] show the influence of Flentrop, with whom Downes discussed the specification. The help of Rochesson over scaling has also been acknowledged by Downes.[114] As he describes, the principals "conform closely to the traditional progression, the diameters halving somewhere near the seventeenth note. Those on the Swell diminish a little faster, those on the Choir are narrower altogether.... The other scales.... begin narrow in the bass but widen considerably in the treble."[115] The variable scale forms adopted, and the base diameter for the Principal 8', of 144 mm, were typical of Flentrop (see Chapter III). The reed scales, shallot, and other details, were by Rochesson.

The voicing was by Walter Goodey and Dennis Thurlow, and, in deference to Downes' full description,[116] no other comment will be made here other than to note his statement on the importance of the voicer: "the effect of an organ depends completely on the aural sense of the voicer;"[117] and to note the enthusiasm and pride taken by Goodey and Thurlow in the organ, who voiced the fluework without nicking a single pipe,[118] and who tackled reed voicing "in the French style" with considerable success.[119] The combination of a rich acoustic, good scales and much patience produced an organ of fine musical effect.

The combined influence of the Festival Hall and Oratory organs was to prove decisive for the next decade in British organ building and beyond, ie., the provision of classical tonal specifications in company with electropneumatic actions. An early effect of this neo-classicism was the rebuilding of many organs with 'classical' additions, especially the addition of 'Positive' divisions. Noel Mander added one such division, made up of partly new and partly old material, and with some extension, to the rebuilt Willis organ in St. Michael's, Croydon in 1955.[120]

Choir

Bourdon	16
Claribel	8
Stopped Diapason	8
Flute	4
Gemshorn	4
Nazard	2 2/3
Block Flute	2
Tierce	1 3/5
Larigot	1 1/3
Mixture III	

Hill, Norman and Beard were not slow to follow suit in their rebuilding of the Hill organ in St. John's College, Cambridge, in 1956, where the Choir was re-made into a 'Positive'.[121]

Choir

Prinzipal	8
Quintade	8
Glockengamba	8
Oktav	4
Gemshorn	4
Nasat	2 2/3
Blockflöte	2
Sifflöte	2
Zimbel III	

The Choir organ was, in the builders' words, "of unenclosed antique voices,"[122] a statement with a grain of truth in it since the Prinzipal 8', Oktav 4' and Quintade 8' were in fact old stops, probably by Dallam. (It is not without interest to see that the old Bell Gamba became a Glockengamba!).[123] The St. John's organ acquired, in addition, a new Solo division with a Twelfth and Tierce and also an early, possibly the first, example in recent times in England an en-chamade reed, in this case a mis-named Trompete-Real 8' - an indication of growing Scandinavian influence.

The changes, brought about in the rebuilding of the St. John's College organ, influenced many Cambridge students such as David Lumsden. It was thus not long before similar 'classical' positives appeared on Hill, Norman and Beard organs at Llandaff Cathedral,[124] Southwell Minster[125] (where Lumsden was Organist) and Bradford Cathedral,[126] where the Chancel Organ was "voiced on 2 1/2" wind using the antique flue regulation system."[127] This classicising process occurred on the occasion of many rebuilds in ensuing years, a process culminating, though not ceasing, with the rebuilding of the York Minster organ, by Walkers, in 1960: "the first instance during this century of the application upon any significant scale of classical principles of tonal design and treatment to an English cathedral organ."[128] Although the developments on the part of Mander and Hill, Norman and Beard were indicative of change within organ building, the years following were dominated by the builders of the Festival Hall and Oratory organs.

In 1957, Harrisons built the organ in All Hallow's, Barking-by-the-Tower. A scheme had been drawn up by Sir William McKie, Organist of Westminster Abbey, in 1951.[129] This scheme was not proceeded with and, in 1956, Downes was invited by the organist, Gordon Phillips, to draw up a new stop list (Appendix A, 44). Downes was also engaged by Harrisons to specify the scales and undertake the tonal finishing with the voicers, Frederick Howe and R. L. Roland.[130] At this time Harrisons still regarded their experience in the classical field as somewhat limited.[131] The scaling (Appendix B, 1), as might be expected, followed the pattern set at Brompton Oratory and the Festival Hall. The voicing was open-foot with little nicking, and the reeds all had French shallots, except the Pedal Schalmei 4', which was a copy of the stop by van Leeuwen in the Dutch Church, Austin Friars[132] (Appendix F, 6). The pressures were all on the high side. A noticeable feature is Downes' treatment of mouth widths; no less than ten different mouth widths, from 1:3.5 to 1:7, were used (Appendix B, 1) compared with six at the Oratory. The organ was placed in an indifferent 'style' case,[133] similar to that of Harris, which previously stood in the church.

The following year, 1958, Harrisons, again working with Downes as consultant, built the organ in the rebuilt church of St. Clement Danes. The cost was £20,000, of which the case, designed by the architect W. A. S. Lloyd, cost £3,000.[134] The case design (Appendix D, 5) was loosely based on that of the original Bernard Smith organ, of 1689, destroyed in the blitz.[135] Its specification was:

St. Clement Danes, London: Harrison and Harrison, 1958

Great		Swell	
Quintadena	16	Rohrflute	8
Open Diapason	8	Salicional	8
Spitzflute	8	Celeste	8
Octave	4	Principal	4
Rohrflute	4	Open Flute	4
Flageolet	2	Spitzflute	2
Rauschquint II	2	Larigot	1 1/3
Sesquialtera II		Echo Sesquialtera II	
Mixture IV-V		Mixture IV	
Cornet V from C		Fagotto	16
		Trumpet	8
Choir		**Pedal**	
Stopped Diapason	8	Open Diapason	16 (Part GT)
Principal	4	Sub Bass	16
Spitzflute	4	Octave	8
Nazard	2 2/3	Bass Recorder	4
Octave	2	Open Flute	2
Tertian II		Trombone	16
Cimbel III		Trumpet	8
Cremona	8	Shawm	4

Whilst there appears a conscious 'anglicising' on the stop names, the organ, with its reed-less Great, is very reminiscent of the 'American classic' organs of G. D. Harrison, such as at Westminster Choir College Chapel, Princeton, built in 1934.[136] The Clement Danes organ is also noteworthy for its clear attempt at Werkprinzip layout and encasement, with principals in prospect (Appendix D, 5, 6, 7).

The scales (Appendix B, 2) were drawn up by Downes. A noticeable feature of the scaling, as at All Hallows, was the use of markedly varying mouth widths within individual registers. Originally the wind pressures were set at:

Great	80 mm
Choir	60 mm
Swell	78 mm
Pedal	80 mm

After the opening of the organ these were reduced, by Downes, to:

Great	73 mm
Choir	57 mm
Swell	76 mm
Pedal	73 mm

except for the Pedal Sub Bass 16', the pressure of which was increased to 89 mm, for "musical reasons."[137] The overall effect, according to Downes was "much improved and sweeter."[138] The voicing was again open-foot and flue-regulated, with few nicks. The reeds had French style open shallots, as at the Festival Hall. Downes has since commented that "alterations were made in the organ in subsequent years, of which I did not approve fully; in fact I was left out of the proceedings: from the very harsh and coarse sound afterwards, which shocked me considerably, I could only conclude that the voicer (not Fred Howe, who voiced it with me) had raised the pressures again and possibly altered the tonal balances. I have thus rescinded any connection with this organ."[139] Also, in 1963, the console was removed to the north gallery and an 8 ft Gedackt added to the Pedal Organ.[140]

Of much interest is the Table of Stop Combinations (Appendix F, 7), drawn up by Downes, the numbers of which refer to the numbers in the stop list. The 'eclectic' nature of the organ design can be seen in the attempt to produce both 18th century French and German, as well as 'modern' plenum registrations.

Just as America had seen the building of a "Baroque-organ experimental" by Donald Harrison (and relatively early on in England Henry Willis III had also built an experimental Baroque organ),[141] so too, in turn, Cuthbert Harrison built a two-manual experimental organ (Appendix A, 45) of some thirteen stops, in consultation with Downes. The organ was used between 1959 and 1962 in St. Alban's Abbey during the rebuilding of the main organ, and similarly later at Westminster Abbey. The main impact of the organ was however, due to a recital on the organ by Susi Jeans broadcast in 1959.[142] Another small neo-classic organ, (Appendix A, 46) designed this time by Peter Hurford, was also built by Harrisons at St. Lawrence's Church, Foleshill, Coventry in 1960.

An organ deriving directly from the Royal Festival Hall organ was that built in 1961 in St. Thomas' Church, Newcastle. Harrisons were the builders, and the scheme was drawn up by Donald Wright, of Newcastle University. A 'conventional' scheme had been prepared but, after a visit by Donald Wright to the Festival Hall, Brompton Oratory and All Hallows, and discussion with Downes, the scheme was totally re-thought out.[143]

The organ was a rebuild of earlier material by Gray (1832), Vincent (1901) and Binns (1931), and the relationship between the rebuilt stoplist (Appendix A, 47) and that of the Festival Hall is clear, though the St. Thomas' Solo Organ has a flute chorus and a powerful reed, and the Swell is essentially a traditional 'English Swell'.

St. Thomas', Newcastle, was followed at Harrisons by the organ for Coventry Cathedral. As in the case of All Hallows' and St. Thomas', a provisional scheme had been drawn up of 'traditional' Harrison style; three diapasons on the Great together with a family of Trombas; Swell Organ of Gamba 16', Diapasons 8',4',2', Mixture 17.19.22 and 16',8',4' reeds; an Orchestral Solo organ; and a Choir with a Dulciana Mixture. The effect of the Festival Hall organ was to cause a complete re-appraisal of the scheme.[144] The circumstances surrounding the re-appraisal remain unclear, though conversations with Cuthbert Harrison in 1978 indicated the presence of Downes, though not his role.

The philosophy of the new design (Appendix A, 48) was described by the organist, David Lepine, in words used to describe the Festival Hall organ, as:

> "an eclectic design, embracing what is valuable in all schools of organ building, all subservient to the main musical purpose. Transparency, colour and balance between choruses.... these have been combined with the perfection of voicing and regulation for which English organ builders are famous." 145

This eclecticism was exemplified further by Lepine:

> "This is an instrument that allows for the performance of the German, French and English masters of earlier centuries, the romantic organ music of the 19th century, and the church music of a Gibbons, Wesley or Britten.
>
> It would be true to say that the design takes full notice of the work of the great German builders of the baroque era, but it does not disregard the achievements of great English and French builders of more recent times. Such traditional baroque voices appear as the Spitzflöte, Schalmei, Kornett, Cromorne and Cornet, together with a wealth of mixture and mutation ranks, alongside those facets of organ design which are peculiarly English: the full Swell of Father Willis with its family of reeds and mixtures, the imitative stops of the Solo organ, the diapasons of varying scales and timbres, and the 'rolling' pedal Open Wood." 146

The effect of the Festival Hall organ on architects, as well as on organists, was clear by the time of the building of Coventry Cathedral. At Coventry "it was the intention of the architect that the natural beauty of the organ pipes was of such a high order as to be allowed to speak for themselves with no further adornment,"[147] and the pipes were placed on two 'shelves' either side of the high altar.

The similarities between the Festival Hall, St. Thomas', Newcastle and the Coventry organs are very clear both in the nomenclature of the specification and in the manner in which the four divisions are treated. It is interesting to note, though, that Cuthbert Harrison regarded the Coventry organ as very much an organ in which the firm went their own way, untrammelled in scaling and voicing by a specific consultant.[148]

The association between Downes and Harrison continued in the following year, 1962, with the rebuilding of the Smith (1670), Hill (1861) and Abbot and Smith (1908) organ in St. Alban's Abbey (Appendix A, 49). Here the sympathies of consultant and organist, Peter Hurford, were evident. Hurford's interest in early French music, together with Downes' liking for French reeds, resulted in French style reeds being

employed. The manuals show clearly the 16',8',4' 'classical' principal relationships, and the organ is in many ways an enlargement of the Clement Danes organ, though without a Tertian, which finds no place in this more French scheme.[149]

1964 saw the last organ in the Downes-Cuthbert Harrison mould - that in the Fairfield Halls, Croydon (Appendix A, 50). As in the case of the Festival Hall, the design and layout were by Downes, who "accepted the challenge with some enthusiasm in as much as the solution of the problem seemed to provide an ideal opportunity of employing the centuries-old Werkprinzip."[150] Downes was also responsible for the voicing and tonal finishing in collaboration with Harrison's men. Though the organ employed electro-pneumatic action the divisions were all encased. The organ was placed on the side of the stage, and the cases were angled to focus the sound into the centre of the Hall. Great and Pedal have 8' and 16' fronts respectively, and two divisions, Swell and Choir are enclosed. Again the French reed influence is clear,[151] and the overall specification is a tautly integrated affair. As Ramsey commented "the character of Croydon's organ lies in the independence of the divisions and in the wide gradations of sound that the frontal louvres make possible."[152]

The period immediately following the building of the Brompton Oratory organ saw surprisingly little development on the part of J. W. Walker. Some small moves towards classicism occurred in the part rebuilt, part extension, organ in University College, Oxford in 1958, but, in 1959, Walkers re-entered the lists with the rebuilding, on classical lines, of the 1886 Annessen organ in St. Peter's (Italian) Church, Hatton Garden, (Appendix A, 51). In this instance there was no consultant, but the experience Walkers had gained with Downes is clearly in evidence; the presence of Tertian and Sesquialtera, both commencing with high pitched ranks in the bass, French style shallots in the Trumpet, and a well-developed Positive, with both principal and flute registers at 2' pitch, show this very clearly.[153]

A smaller organ, Holy Trinity, Dockhead, London (Appendix A, 52), was built by Walkers in 1960 where James Long advised. The Great Organ was, however, truncated and mixture-less, and the Swell, whilst having Spitz Flute 4', Nazard 2 2/3', and a Krumhorn unit at 16'-8', showed a certain lack of orientation, (or an attempt to provide a 'full Swell' for those who only read the stop list!) A rather more convincing organ, in similar vein in 1962, was in Corpus Christi, Osmondthorpe, Leeds[154] (Appendix A, 53). It was designed in conjunction with the church architect, Gordon Thorne, who was also an organist. At Leeds the tendency to place the Mixture on the Swell, as in the case of Dockhead, remained, as also the use of extension and electro-pneumatic action. The organ was, however, graced by a fine divided 'case' or 'facade' (Appendix E, 17), with ornamentation resembling that of the 16th century organ in Oosthuizen (Appendix E, 17). Also in 1962 was built the organ in the Whitworth Hall, Manchester University (Appendix A, 54), an organ showing the tendency towards the large eclectic organ on the part of Walkers.

1963 was a significant year for Walkers, in which were built neo-classical, electro-pneumatic organs for St. John's, Islington, Chigwell and Ampleforth, as well as a part-mechanical organ for Kingsland Roman Catholic Church (discussion of this latter will be reserved until the next Chapter).

The Islington organ was designed in consultation with Edward de Rivera, Director of Music at St. Johns, and Shaun McCarthy, the Organist. The builders described the organ as "conceived in the North European classical tradition..." and "planned as an instrument on which all schools of organ music can be played":[155] eclecticism still reigned. Nevertheless the specification was well balanced and the organ was noteworthy for having a freestanding case[156] (Appendix E, 17). It employed some pipework from the previous Bishop organ. The most noteworthy feature of the organ however was its spatial disposition of Great (HW), Swell (BW), and the provision of an encased Rückpositiv on the gallery rail, the first in recent times in England. The voicing was by Walter Goodey, of Walkers, and arguably, alongside the Oratory, remains some of the most distinguished of the period.

St. John the Evangelist, Islington: J. W. Walker, 1963

Great		Swell	
Quintaton	16	Open Diapason	8
Principal	8	Chimney Flute	8
Spitzflute	8	Viola da Gamba	8
Octave	4	Principal	4
Nason Flute	4	Wald Flute	4
Twelfth	2 2/3	Nazard	2 2/3
Fifteenth	2	Octave	2
Tertian II	1 1/3	Mixture IV	1
Furniture IV	1 1/3	Bassoon	16
Trumpet	8	Trumpet	8
		Schalmei	4
Rückpositiv		**Pedal**	
Stopped Diapason	8	Open Wood	16
Principal	4	Sub Bass	16
Koppel Flute	4	Quintaton	16 (Gt)
Quint	2 2/3	Octave	8
Blockflute	2	Bass Flute	8 (ext)
Tierce	1 3/5	Fifteenth	4 (ext)
Scharff III	1/2	Nachthorn	4
Crumhorn	8	Mixture III	2
		Bombarde	16
		Bassoon	16 (Sw)
		Posaune	8 (ext)
		Zink	4

At Chigwell Parish Church (Appendix A, 55), Downes was again consultant. Here the organ suffered severely from its position, in a typical Anglican organ chamber, and was, as Downes described, "something like a fatal essay in eclecticism."[157] Ralph Downes' last organ in association with Walkers was at the Carmelite Priory, Kensington in 1965 (Appendix A, 56). The tonal design was very similar to that at Chigwell but the organ was much better situated in a west gallery (though divided into two cases, one each side of a window), giving a more satisfying tonal result.

Walkers also worked with another tonal designer in the Catholic Church, Dom Richard Wright, of Ampleforth. Dom Wright had been responsible for a small neo-classical organ in St. Ambrose Church, Speke, Liverpool in 1961, built by Rushworth and Dreaper (Appendix A, 57), an organ described by Francis Cameron, Organist of Westminster Cathedral, as "voiced on classic lines.... the pipes speaking on low wind pressure."[158]

The instruments by which Dom Wright will most be remembered are, however, the large organs in Ampleforth Abbey (Appendix A, 58) and Liverpool Metropolitan Cathedral (Appendix A, 59), both by Walkers. These organs were vast eclectic collections of stops. Their basis was a standard neo-classical Great Organ, but with additional 8' registers; a Swell Organ including soft strings and a chorus of reeds; a Positive Organ in post-Brompton Oratory style; an Accompanimental Organ of quiet extended stops; and a Solo Organ, whose main function was to provide for a reed battery; together with a few other stops for which no obvious home could be found. The impoverished nature of these organs is seen in their widespread use of extension and borrowing, e.g., the Pedal Organ at Ampleforth has twenty stops, from 32' to 2', but only five ranks, 32',16',16', Mixture, 4' - a curious balance. The majority of the Ampleforth organ is stuffed in a transept, surrounded by a panelled facade; at Liverpool the organ is placed in a chamber, fronted by an almost random display of pipework, drawn up by the Cathedral Architect after "long sessions with coloured chalks."[159] His view was that "all the architect is concerned with is the appearance of the pipes and console and their relationship to the other elements."[160] The layout was derivative from the Festival Hall and Coventry Cathedral organs, the expression of which at Liverpool, in Gibberd's opinion "showed that if the grouping of the pipes is taken as the basis for the design, the maximum expressions of the organ as a musical instrument can be obtained."[161] Such organs as Ampleforth and Liverpool were an inevitable outcome of a philosophy which wished to produce one organ for the playing of music "of all periods and schools."[162] Equally inevitably they were doomed to demise. Walkers did build other smaller instruments in similar vein, such as those in the City of London School, Cardiff University and Blackburn Cathedral but, by 1970, their day was over, a matter hastened by their 'commercialism' and demonstrated most by their vast production of extension organs in the 1950's and 1960's.

Tonal design on this scale died not only because of the lack of proportion and artistic economy, but also because of changes in thinking with regard to the organ. At Liverpool, as at the Festival Hall, the only mechanical playing device was the action from the Swell pedal to the Swell shutters. Interest was, however, arising in the use of

mechanical key action and, as mentioned, in the year in which Ampleforth was built, Walkers also built the small new mechanical-action organ for Kingsland Roman Catholic Church, London. One beneficial result, however, of these large organs was that a wider range of tonal colours was brought to the attention of musicians and contributed to the development of more serious classicism. The extension organ also contributed in a similar way in that, on paper at least, some attempt was made to produce chorus structures.

A new figure to emerge in the 1960's as an organ builder, was Maurice Forsyth-Grant, a wealthy organ enthusiast who underwent a remarkable change of heart after the building of the Festival Hall and Brompton Oratory organs. Immediately subsequent to the building of these organs Forsyth-Grant inveighed against this continental influence and in 1957 wrote to the Musical Opinion enquiring, "how one should play Norman Cocker's Tuba Tune on the RFH job?"[163] going on to express the hope that "present craze amongst a minority to perform nothing but the squeals, squeaks and trills of pre-Bach days will soon pass."[164] In 1957, he complained of the Festival Hall organ that "In an organ of that size and price (£50,000 to £75,000 of ratepayers' money) we expect to have a set of stops to suit most purposes and tastes, not just those to suit a 'designer' of the depraved Baroque School."[165] After extolling the virtues of organs of the "traditional British type" of Willis I, Forsyth-Grant went on to castigate the Anglican Organs Advisory Committee, suggesting that one of the Committee members was a "Baroque maniac", and finally to propose the setting up of a committee to prevent the spread of this Baroque and continental influence! It was, however, not many years before Forsyth-Grant had become an equally strong protagonist of the classical organ!

By 1962, he was involved with the small, little known firm of Degens and Rippin,[166] which firm was responsible for the neo-classical rebuilding of the organs in Hurstpierpoint College and St. Simon's, Southsea (Appendix A, 60). The Southsea organ incorporated part of an old Hunter organ, but its Positiv pipework was, in part, voiced with open-foot, flue-regulated, and nick-free voicing, and had a very considerable amount of 'spit' and 'chiff'. In 1964 the firm became Grant,

Degens and Rippin, and completed another neo-classical rebuild at St. Mary of Eton, Hackney (Appendix A, 61). This had a large, eleven-stop, Great Organ on an imported windchest.[167] These large organs were followed by several small ones, including St. George's, Letchworth (Appendix A, 62), where Peter Hurford advised and St. John the Evangelist, Fareham (Appendix A, 63). 1966 saw the completion of organs in St. Martin's, Hull; Holy Family Roman Catholic Church, Southampton; Sussex University; (Appendix A, 64) and Ardingly School (Appendix A, 65).

St. Martin's, Hull: Grant, Degens and Rippin, 1966

Great		Positive	
Rohrflöte	8	Gedeckt	8
Principal	4	Spitzflöte	4
Blockflöte	2	Principal	2
Mixture IV	1 1/3	Cymbale III	1/2
Krummhorn	8	Trompete	8

Pedal	
Quintatön	16
Spitzprincipal	8
Hohlflöte	4
Fagott	16

The Hull organ was noteworthy for its case (Appendix D, 8) an asymmetric 'Scandinavian' style case designed by Frank Bradbeer, an architect who became a Director of the firm in 1967, and who played a prominent role in its development. The specification was drawn up by the Vicar, Geoffrey Hunter, in consultation with Francis Jackson and Peter Hurford.[168] The scales (Table V/8) are on the narrow side, and the voicing, the work of an Austrian, from Rieger (brought in because of illness on the part of John Degens), was uncompromisingly open-foot, with considerable emphasis on initial transients. The overall 'acid' sound was in no way enhanced by the unhelpful acoustic of the church. At Ardingly and Sussex University, where John Birch advised, the sound was equally uncompromising and aggressive.[169]

The last organ to be built in 1966 under the Grant, Degens and Rippin name was that in Holy Family Roman Catholic Church, Millbrook; an organ which summarizes the development of the small two-manual 'classic'

Table V/8

St. Martin's, Hull	Great	C-g'''	WP 57mm

	C		c		c'		c''		c'''				
Rohrflöte 8' ϕ	96		63		42		28		18·5				External ϕ
mw	63		41·5		28		18		11·5				
cu	38		22		13		7		4				
Chimney ϕ			11		7		5		3·5				
C			124		75		5·1		3·3				
Principal 4' ϕ	75		45		27		17		9				
mw	58		36		21·5		13		7·5				
cu	16·5		9·5		5		3		2				
Blockflöte 2' ϕ	44		28·5		18·5		12		9				
mw	26·5		17		11·5		7·5		5				
cu	12		7·5		4		2·5		1·75				
Mixture IV 1⅓' ϕ	33		21		12·5								Stinkens
mw	25		13·5		9								
cu	6·25		3·5		2·5								
1' ϕ	28		17		10								
mw	19		12		8								
cu	5		3		2								
2⅔' ϕ	21·5		12		7								
mw	15		7·5		5·5								
cu	3·5		2·5		1·5								
½' ϕ	17		10										
mw	12		7										
cu	3		2										
2' ϕ					17								
mw					12								
cu					3								
Krummhorn 8' ϕ	27		22		18·5		15		14				C, c ext. ϕ

Table V/8

St. Martin's, Hull	Positive	C-g‴	WP 50 mm

	C		c		c′		c″		c‴				
Gedackt 8′ ϕ	89		59		38·5		26		17·5				ext ϕ
mw	62		39		27		18		11				
cu	36		20		11·5		6·5		4				
Spitzflöte 4′ ϕ	39/82		26/51·5		16/33		10·5/21		6·5/13·5				ϕ at mouth ext.
mw	53		32·5		21		13		8·5				
cu	24		14		8·75		5·5		3·25				
Principal 2′ ϕ	53		27		17		9		5·5				c″, c‴ ext ϕ
mw	31		19		12		7		4				
cu	7·5		4·5		3		2		1				
Cymbale III 1/2′	1/2′	1/3′	1/4′		2/3′	1/2′	1/3′		1′	2/3′	1/2′		
ϕ	13	9·5	7		10	8	6·5		8·5	6	5		
mw	10·5	7·5	6·5		8	5·5	4·5		5·5	5	4		
cu	3	2	1·5		1·5	1·5	1·25		1·5	1·25	1·25		
	2′	1 1/3′	1′										
ϕ	8	6	5										
mw	6	4·5	4										
cu	1·5	1·5	1·25										
Trompette 8′ ϕ	102		75		59		45		43				Stinkens/GDR

Table V/8

St. Martin's, Hull	Pedal		Wp 76 mm

	C		c		c'		c''		c'''				
Quintatön 16' ϕ	140		remainder		npta								
Octave 8' ϕ	97/125		remainder		npta								Ext ϕ
mw	95												
cu	31												
Hohlflöte 4' ϕ	79		remainder		npta								
mw	56.5												
cu	25												
Fagot 16' ϕ	100		remainder		npta								1/2 C
		Mixture Compositions											
Mixture IV C	1 1/3	1	2/3	1/2									
fs	2	1 1/3	1	2/3									
fs'	2 2/3	2	1 1/3	1									
fs''	4	2 2/3	2	1 1/3									
fs'''	5 1/3	4	2 2/3	2									
Cymbale III C	1/2	1/3	1/4										
c	2/3	1/2	1/3										
c'	1	2/3	1/2										
g'	1 1/3	1	2/3										
c''	2	1 1/3	1										
g''	2 2/3	2	1 1/3										

Note : 1 The majority of the pipework is in spotted metal with zinc basses, except the Krummhorn which is in spotted metal throughout

Source : John Bailey. 1982.

organ with four or five stops on each manual and pedal.

Holy Family RC Church, Millbrook, Southampton:
Grant, Degens and Rippin, 1966

Great		Positive	
Gedeckt	8	Rohrflöte	8
Prinzipal	4	Koppelflöte	4
Blockflöte	2	Prinzipal	2
Mixture IV	1 1/3	Quint	1 1/3

Pedal	
Quintatön	16
Prinzipal	8
Choralflute	4
Rankett	16

The Millbrook organ was the first Werkprinzip layout by Grant, Degens and Rippin, the manuals having principals at octave distance, though this was not entirely expressed in the case (Appendix E, 17a). The completion of the chorus of each manual and Pedal was seen as of prime importance, as was the provision of a 16' Pedal reed for 'pleno' movements.[170] The principal of equality of divisions was also reflected in the apportionment of stops - four to each division. The case was a simple box-style one, reminiscent of Danish cases in its use of timber, and of the work of Schuke in its form. The Organist, Keith Clarke, wanted tracker action but the firm "did not feel confident enough to offer it to customers"[171] at that time, and electric action was used. The organ was voiced by John Degens and, whilst the quality remained somewhat 'hard' (an aspect to which the use of Schwimmers contributed), the overall sound was somewhat less aggressive and pleasanter than earlier Grant, Degens and Rippin instruments.

Change however was on the way, and not just in tonal terms. In 1965 a small two-manual mechanical action organ was built by Grant, Degens and Rippin for trial purposes and demonstrations in the workshop, - yet another 'Baroque - experimental'.[172] In the end in 1967 this organ became incorporated into an electric action organ for Tooting Methodist Church, in consultation with Cecil Clutton,[173] and, whilst other organs with electric action were built for St. Joseph's College, Ipswich[174]

and Faringdon Parish Church,[175] the era of the Grant, Degens and Rippin "Classic Organ" with electrical action was at an end. By the time the Tooting organ was built the firm had become Grant, Degens and Bradbeer, visits[176] had been made to new tracker organs in Europe, and Forsyth-Grant and Bradbeer's conversion to mechanical action was complete. The contribution of the early Grant, Degens and Rippin (later Bradbeer) organs to English organ building was somewhat mixed. The uncompromising, almost stark, chorus structures, the sharp, open-foot, un-nicked voicing won them both friends and enemies. The actual sound of the organs had the effect of giving players and builders in England a douche of icy water. Possibly their greatest contributions were in forcing a re-evaluation of tonal schemes, especially in terms of small organs (though their dispositions had little historic basis), and in drawing attention to the importance of adequate casework. With regard to tonal design, the pace was clearly forced by Forsyth-Grant and, despite the presence of a variety of consultants, it is clear the organs were all from 'one stable'.

The last ditch of neo-classicism was to be found in the work of Hill, Norman and Beard, an old established firm, under the management of Herbert Norman and his son, Herbert John. As described, Hill, Norman and Beard had adopted the neo-classical tendencies following the Festival Hall organ, adding Positive divisions when rebuilding organs, and building an organ in Hyde Park Chapel in 1961[177] with exposed pipe-work and neo-classical specification (Appendix A, 65). Whilst this organ adopted the external appearance of the Festival Hall organ and utilized a variety of pitches and stop names, it nevertheless remained a collection of registers rather than a thoroughly well integrated organ. The Hill firm had, however, been noted for its fine cases under William and Arthur Hill and this interest in cases was taken up by the Normans, especially Herbert Norman senior. Under them were built a number of instruments with neo-classical specifications, electric action and a certain amount of borrowing, but with cases. One such early instrument (in a somewhat plain box style case) was that built in 1960 for King's Park Roman Catholic Church, Glasgow.[178] A far more interesting case, built in the same year, was that built for the rebuilt organ at St. George's, Dunster, which included a 'Marcussen-style' Trompette-en-chamade in the prospect.[179] Little further of

consequence appeared until the late 1960's when in 1967, was built a new organ, in a chamber and with electrification, for the Royal College of Organists. It had a neo-classical specification drawn up largely by Harold Darke, and Peter Hurford and William McKie, an unlikely 'committee' to reach agreement over a new organ.[180] In the event the scheme (Appendix A, 67) was clearly dominated by the French-classical leanings of Hurford.

Other neo-classical organs with cases by Herbert Norman appeared in the late 1960's and early 1970's, of which Ellesmere, Carrs Lane, Waterlooville and Portsmouth were of greatest interest. The Ellesmere organ had, according to the builders, "clear toned Great Organ choruses, a Swell Organ of traditional English form and a third manual division with Classical tone colours."[181] It also had a reed-less Great, in the style of Donald Harrison. The specification was a derivative of the Royal College of Organists instrument, and the case comprised a series of plain boxes, with the smaller ranks in front, together with an en-chamade Trompette. The organ in Carrs Lane Church Centre, Birmingham, had very clearly defined cases for each of the divisions,[182] each related to the main principal length of each division. By contrast the organ in St. George's, Waterlooville, had a straightforward single case for the two divisions, Great and Swell. Here, for economic reasons, the manuals employed borrowing in that, although the stops were 'straight' from middle c upwards, the bass octaves of 4' and 2' stops were derived from unison stops on the same division. St. Mark's Church, Portsmouth had a case which clearly delineated each division. The main architectural feature of the case being three asymmetric hexagonal towers, and was based on the 1965 Rieger nave organ of Freiburg Cathedral. Despite the divisions being shown in the layout, the organ is lacking in any architectural cohesiveness. Tonally the organ is of little distinction, polite and self-effacing. The last work of any significance in the neo-classical field by Hill, Norman and Beard, other than two small organs, one in Mansfield Baptist Church in 1973, and one in Stafford Parish Church in 1974, was the rebuilding of the organ in Gloucester Cathedral.

In 1969 plans were made, in conjunction with Downes, for the rebuilding of this organ, an instrument comprising two mutilated sixteenth and seventeenth century cases, with their prospect pipes, surrounding the largely Willis organ from 1847,[183] which had been revised by Willis in 1889 and 1899. An initial suggestion by Downes for the provision of two organs, a large nave organ and smaller choir organ, was rejected.[184] Thus, in Downes' words: "only two practical possibilities lay open" the "retention of the status quo in all respects" or "a completely new design in which the old cases and facade pipes should be given pride of place ... the whole organ to be housed in the cases, excepting only the large 16' pedal pipes," in order to give an organ with "one distinctive voice and musical personality of our time."[185] It was also "a sine qua non condition that the console remained on the south side, and so electro-pneumatic action will have to be used; but the new layout of slider chests will be such as to facilitate a reconversion to tracker action in the long term future, in which case the console would be restored to its original position."[186]

The new layout was "on the Werkprinzip,"[187] the Great in the centre, with choruses speaking both east and west, and the reeds in between. The Pedal was placed in the towers on either side of the Great. Below the Great, as an Unterwerk, was the Swell. The Choir remained in the Chaire case to the east, and a new West Positive was placed in the lower part of the case. The final specification[188] was:

Gloucester Cathedral, Hill and Son, Norman and Beard, 1972

Principals	Wide-chorus	Narrow scale and Reeds
Great		
8 Open Diapason East H	16 Gedecktpommer	
8 Open Diapason West H	8 Spitzflute	
4 Octave H	8 Bourdon h	
4 Prestant h	4 Stopped Flute h	16 Posaune W
2 2/3 Quartane IIh	2 Flageolet	8 Trumpet W
1 1/3 Mixture IV-VI h	4 Cornet IV (middle c)	4 Clarion W
Choir		
	8 Stopped Diapason	
4 Principal H	4 Chimney flute	
2 Fifteenth		
Sesquialtera III	1 1/3 Nazard	8 Cremona
1 1/3, 2 2/3		
1/2 Mixture III		- Tremulant
Swell		
	8 Chimney flute	8 Salicional (conical)
4 Principal	4 Open flute	8 Celeste (conical)
	2 2/3 Nazard (conical)	16 Fagotto H&H
1 Mixture IV	2 Gemshorn	8 Trumpet W
1/5 Cimbel III	1 3/5 Tierce	8 Hautboy part W
		8 Vox humana part W
		- Tremulant
West Positive		
	8 Gedecktpommer	
	4 Spitzflute	
	2 2/3 Nazard (stopped)	
2 Doublette	1 3/5 Tierce	
1/2 Cimbel III	1 1/3 Larigot	- Tremulant
Pedal		
16 Principal (ext) WH	16 Flute	16 Bombarde W
	16 Sub bass W	8 Trumpet W
8 Octave h, W	8 Stopped flute	4 Shawm
4 Choral bass H&H	2 Open flute	
2 2/3 Mixture IV		

Pipes: H=Thomas Harris h=small number of Harris pipes W=Willis
H&H= Harrison, 1920 B=Bishop, 1831, all else is new

It shows the extent of utilisation of old material by Harris and Willis, as also new work by Hill, Norman and Beard. The specification, as laid out by Downes, demonstrates his approach to the relationships between principals, flutes and reeds. The Mixture compositions, whilst having more irregular breaks, were in similar style to those of the Oratory. The wind supply was controlled by inbuilt regulators and the action finally employed was electro-magnetic.

The connection between the rebuilt organ and the cases and old pipework was minimal. Downes clearly felt the retention of the old pipework to be a handicap: "Some allowance may have to be made for the weakening effect of the untreated antique material incorporated."[189] Downes also comments on the problems encountered in the re-use of the old pipework - a re-use which appears far from sympathetic in historic terms, the cut-up of the East Diapason and Principal stops being raised.[190] The extent of compromise is also shown in the treatment of case depth: the organ was originally some 50 inches deep, over the years it grew to over 150 inches, but was merely reduced by Downes to 125 inches in depth. Nevertheless, as Herbert and John Norman point out, Gloucester was the first, in recent years, "English Cathedral organ to make use of the historic principle of separate tone cabinets for each department."[191] Despite all of this, the end result was an inevitably unsatisfactory compromise, within a pair of sumptuous cases, which satisfied few people;[192] an organ in which (despite the logic of the stoplist, encasement of the divisions and sympathetic artistic treatment of the cases and prospect pipes), neither the principles of historic restoration, nor classical organ construction were followed through with conviction. It was, as Williams commented, "a finely encased organ which still awaits enlightened restoration."[193] Establishment compromise may have won the day, but the battle was lost, and the organ proved to be Downes' last essay in neo-classical electric-action eclecticism.

Hill, Norman and Beard had maintained a somewhat tenuous link with building mechanical action organs and this began to develop in the early 1960's and through into the 1970's. However, by the time the Gloucester rebuild was finished the firm were almost a spent force.

Shortly after the Gloucester organ the Norman family left the firm, (which was controlled financially by the Christie family, of Glyndebourne),[194] and the management was taken over by Frank Fowler. Herbert Norman's influence on case design, although it never achieved total conviction, was nevertheless a positive contribution from within a firm who were still building neo-classical electric-action organs far too late in the day.

During the 1960's and early 1970's neo-classical organs were built by a variety of firms other than Harrison, Walker and Hill. Compton, towards the end of their existence, in 1960, built the organ in St. Mary-le-Boltons, London.[195] Though Compton's work had been, and remained, rooted in the use of extension, the Boltons' organ was essentially a straight organ (Appendix A, 68). Noel Mander, whose work was largely in rebuilding, restoration and extension organs attempted a synthesis of neo-classical tonal schemes and extension, with hints of casework, as in the rebuilding of the organs in St. Philip's, Earl's Court, London, in 1964[196] and Portsmouth Roman Catholic Cathedral in 1965.[197] These instruments however lacked any real conviction. In 1968 Mander built a new organ in allegedly 'French' style for Corpus Christi College, Cambridge (Appendix A, 69). Tonally it remained somewhat brittle and neo-classical, and the apparent case was no more than a facade.[198] As well as the organ in St. Ambrose, Speke, Rushworth also built a neo-classical organ in Keele University in 1966 (using some imported pipework from Stinkens in Holland) (Appendix A, 70). The following year an organ in Gordonstoun School was built by Rushworth as also two smaller organs in Heswall, in the Presbyterian Church and Church of the Good Shepherd: these latter followed very much the trends in small organs established in the immediately preceeding years by Grant, Degens and Rippin.

Smaller firms also followed suit, such as Browne's of Canterbury, who built a new organ, with pipes from Stinkens, for Erymsted's School, Skipton, in 1959 and Hall and Broadfield, who built an organ for Portswood Roman Catholic Church, Southampton in 1963 (Appendix A, 71), making an attempt at a 'French' style Great organ allied to a 'German' style Positive. The Pedal organ had a Rohr Schalmei by Giesecke of Göttingen.

Kingsgate and Davidson, who had done so much pioneering work with Downes, built an organ for the German Church, Sydenham (Appendix A, 72). This was not only severely neo-classical in tonal terms, but also had a Rückpositiv division on the Gallery rail, though the pipework remained unencased. The influence of the German pastor/organist, Weingärtner, was very evident.

In summarising the neo-classical revival it is important to recall the nature of the average English organ prior to 1954. In most instances this consisted of a 'Great to Fifteenth' with possibly a Trumpet, or a Tromba; a 'Swell to Cornopean'; perhaps with a Mixture and a 16' reed; a Choir consisting of a few nondescript 8' stops, possibly a Harmonic Flute 4' and, more rarely, a Nazard and Tierce; and following Comptons, it might employ some extension. Such instruments are typified by the 1952 Rushworth and Deaper organ for Our Lady and St. Nicholas Church, Liverpool (Appendix A, 73); or the dismal organ, designed in collaboration with Sir George Dyson, and built by Walkers, for the Parry Room of the Royal College of Music (Appendix A, 74). It is small wonder, in the face of organs such as these, that the Downes/Harrison organ at the Royal Festival Hall appeared revolutionary.

The instruments following the Festival Hall were dominated by the philosophy of eclecticism, by the desire to have one organ on which could be played all the differing schools of organ music: to design, in Downes words: "a well-balanced instrument suitable for the apt performance of organ music of all periods."[199] The organ builders, under pressure from individuals such as Downes, followed the pattern set by the Festival Hall organ; 'traditional' schemes, such as those for All Hallows, London, Coventry Cathedral and St. Thomas', Newcastle, were set aside and replaced by neo-classical schemes. Left to their own devices, builders tended to continue with extensive rebuilding of old organs, usually quite regardless of their quality. In such rebuilding, an organ might acquire a 'new' positive, or new classical voices, or, more often have some old pipework re-scaled, re-pitched, and given a 'Baroque' name.

In terms of the establishment builders, Harrison, Walker, Hill, Rushworth, and to some extent Mander (Willis had ceased to be an effective force by the early 1960's), there was little internal impetus. In this lies the real importance of the arrival of Grant, Degens and Rippin/Bradbeer.

Whereas the establishment builders required pressure to be put on them to build in the neo-classical manner, Grant, Degens and Rippin as builders uncompromisingly propounded the 'classic' style - a philosophy discernible in their aggresively open-foot, flue-regulated voicing. In this Grant, Degens and Rippin/Bradbeer much resembled Holtkamp who, in the 1930's in America, had appeared an "uncompromising, radical exponent of the Baroque style."[200] Indeed Ochsee's further comment that, "Conservative organists who thought G. D. Harrison's organs were bad found Holtkamp's impossible,"[201] might well be rewritten in terms of the post Festival Hall era in England as: "Conservative organists who thought Harrison and Harrison's Festival Hall organ was bad found Grant, Degens and Rippin's organs impossible."

The 'organ establishment' in England was if anything even more lethargic, or opposed to reform, than the builders. The neo-classical developments took practically no root in the London academies, and it was some fourteen years after the opening of the Festival Hall organ before the Royal College of Organists built their new neo-classical organ for examination and concert purposes. In many ways the neo-classical scheme at the Royal College of Organists typifies the confused eclectism and compromise tonal schemes of the period. In the hands of persons less knowledgeable than Downes, or in the hands of committees, tonal schemes lacked conviction and coherence. The stop-list of the Royal College of Organists organ exemplifies this; indeed, as S. J. Webb wrote of the deliberations of the College Council "controversy yielded to compromise."[202] Here Open Diapason rubbed shoulders with Rohrschalmei; Chimney Flute with Flûte a Cheminée; Stopped Diapason with Singendgedackt; Viole de Gambe with Sesquialtera and Scharff; Wald Flute with Quarte de Nazard; and Posaune with Trompette and Hautbois. Aubrey Thompson-Allen's comment that "eclecticism is one of the surest indicators of decadence"[203] might have been written for such an organ.

Nevertheless there were gains in the neo-classical field. Possibly the most important of these was the recognition of the importance of chorus structures on all manuals and pedal. The provision of mutation ranks both wide and narrow scaled, individually and in combination, as also the provision of pedal cantus registers, were very real gains. Also, as exemplified in the uneasy compromises of the Royal College of Organists organ, there was a slowly growing consciousness of differing organ styles. Downes with his chorus roots in Holland, Germany and America, together with his penchant for French reeds was another area of compromise. The liking of Hurford for the classical French repertoire played its part in spreading the rash of Trompettes throughout England in the 1950's and 1960's, that began as a result of the Festival Hall specification - a rash continuing on through the 1970's.[204]

No adviser of comparable stature to Downes emerged, and no designer or builder could match him for elegance of tonal design, whether in terms of large or small organs. Whilst being firmly committed to eclecticism his specifications always maintained a clear chorus structure. Few could equal him in terms of knowledge both of organs and repertoire, a knowledge clearly demonstrated in his review of The Organ by Sumner, in the Musical Times of July, 1952, or his article on "The Interpretation of Classic Organ Music" in The Consort, written as early as April 1948. In his commitment to eclecticism Downes was clearly following in the footsteps of Holtkamp and his friend 'Don' Harrison, both of whom were committed to trying to produce an all-purpose organ.[205] Downes' philosophy, now given in some detail in Baroque Tricks, shows a clear development from his liking for the work of Lewis, his experience of the organs of 'Don' Harrison - the 'American classic', with their Cavaillé - Coll style reeds, followed by his contact with French baroque reeds, a matter which seems to have intensified the French reed dominance in his thinking. Whilst from 'Don' Harrison he acquired a sense of chorus structure, it was not until, encouraged by Susi Jeans and Robert Noehren[206] in 1949, that he met Flentrop and encountered the historic Dutch classical organs when, in Downes' words, "the scales fell from my eyes"[207] and "I became aware of the outstandingly logical organisation of organs in the Schnitger style."[208] Also important was Downes' study of the registrations of Francois Couperin, and the registration of Marcel

Dupré and Louis Vierne.[209] Phelps' criticism of Downes as "a reformer without clear conviction,"[210] serving rather to "confuse his countrymen than to lead them,"[211] whose "efforts have actually produced very little,"[212] is not entirely justified. Downes' convictions may not have been those of Phelps, but convictions he had.

An analysis of his tonal schemes (Table V/9) show a remarkable consistency of thinking, both in the proportion of wide and narrow scale and reed registers and in the disposition of these registers.

Table V/9

Proportions of register types in organs where Downes was adviser.

		%			
		Pr.	Fl.	Rd.	Oth.
Royal Festival Hall	(1954)	36	34	22	8
Brompton Oratory	(1954)	40	40	15.5	4.5
Clement Danes	(1958)	38	40.5	16	5.5
St. Alban's Cathedral	(1962)	32	41	23	4
Chigwell	(1963)	33	41	19	7
Fairfield Hall	(1964)	31	43	18	8
Carmelite Priory	(1966)	36	41	14	9
	Mean	35	40	19	6

From this it can be seen that the proportion of Flute (and string) registers is very consistent leaving a balance (except in the "special" case of the Festival Hall), between principals and reeds. Downes' own preference for the principals, where he had a more free hand, is shown at the Oratory, Clement Danes and Carmelite Priory, as against St. Albans where Hurford's interest in French music led to a greater

provision of reeds at the expense of the principals. Overall he remained within the English-American tradition where Great and Swell organs are of predominant importance, the Great having the main principal chorus, the Swell the secondary chorus and the reeds. Downes placed reeds first in the Swell, being content on occasion with a reedless Great in the 'American-classic' style. Often the Great mixture work split into two mixtures, a two rank, and a four, or more, rank mixture. The provision of mutations, either Sesquialtera or Tertian, or both where possible, often narrow scale and commencing high in the bass are typical; as is the provision in the Swell of two string stops, often Viola and Celeste, one undulating. In terms of reeds, the ponderous and bland reeds of the English "full Swell" tended to be eschewed, in favour of French reeds, and 16' manual reeds appear comparatively infrequently. Short resonator reeds, other than the Vox Humana, are never present. Downes' consistent preference for French reeds, his long standing following of Donald Harrison,[213] and his collaboration with Rochesson, needs little further comment.[214] In his Pedal organs Downes always provided a well developed section with flues and reeds at 16',8' and 4' foot pitches, this being further developed wherever possible. Where three manuals were employed the third division was always a Positive, or Choir, based on a 4' principal, normally completed with a quint mixture, together with flutes, mutations and a Cremona.

The regular provision of two divisions, Swell and Choir, both based on a 4' Principal is however an area where Downes appears to have been unclear as to the real function of either division, though this may perhaps most clearly be explained in relation to the Oratory organ where the Swell was seen as a powerful Dutch 'Bovenwerk' and the Positive as a Rückpositiv,[215] placed, following Bedos, "in sideways opposition to the Great."[216]

Downes' consistent concern for adequate principals throughout the organ, as 'stiffening agents' ("Any department in which this group is unrepresented is comparable to a fish without a backbone,"[217]), and for well developed chorus work was a major contribution to tonal design. Often this was a matter overlooked in the provision of 'Baroque' positives which were often (as at Corpus Christi College,

Cambridge),[218] no more than a weak Cornet Separé, topped with a high pitched Cymbel, and a Krummhorn.

Downes' elegance as a tonal designer is possibly best seen in his 1954 organ at the Oratory and his 1966 organ for the Carmelite Church, Kensington where, within a comparatively small number of stops, schemes were evolved which were balanced within themselves, well suited to their function and demonstrating a considerable knowledge of the tonal requirements of the organ repertoire.

His scaling practice, as discussed in connection with the Festival Hall organ is of North German and Dutch origin in terms of fluework and France in terms of reeds. The influence of Flentrop is always to be found, with at the Festival Hall for example, hints of Silbermann in his use of wide scales for fullness and small scales for penetration. His practice of employing compensatory scaling following Flentrop (and earlier practice), to give an overall envelope to the total tonal character of each manual and organ, is clear. Matching the main principal scales to each building Downes describes as "mostly a product of experience, analytical listening, musical imagination and finally an actual trial with a pipe or two,"[219] remarking further that, "Wide scales were always for fullness, with slightly narrower mouths, thus obviously NOT for power (loudness): narrower scales were usually for penetrating character (NOT softness), and the mouths thus a little wider in proportion to the wider scaled pipes."[220] The tendency, throughout his work, for both mouth and width scale to change together also tends to produce 'bumps' in the tonal pattern, needing to be brought into proportion or line in the 'finishing'.

Both wind pressure (never excessively low) and mouth height were determined empirically by Downes in each building:

> "the height of mouth for each pipe was always a very sensitive matter, determined when in place on the finished surroundings and in spatial relation to its surroundings, distance from the listener, enclosure in a case or a Swell box etc. Thus the 'finishing' of these organs was always the most crucial issue... since the object was not to superimpose 'voicing' on a more or less

> mass-produced set of pipes made to a conventional pattern and scale, but to seek each pipe's optimum tonal output and character. With open feet this is a simple matter, for the margin of tolerance in speech is extremely small: the pipe either speaks decently or not at all." 221

His voicing technique and balancing of registers, following Gottfried, was not a result of study of historic instruments.[222]

Downes' employment of parallel open French shallots produced as great a revolution in reed making and voicing, as did the change to open-foot and flue-regulation and 'nick-free' voicing. From the many forms of closed shallot[223] employed up till the advent of Downes, virtually one shallot form, the French open parallel shallot, became the norm for all reeds, Bombardes, Trumpets, Cromornes, Vox Humanas etc.[224]

Though Downes' strength lay in his knowledge of the organ repertoire, and his grasp of chorus structures and pipe scales, it cannot be denied that he also had his 'weaknesses'. These, it may be suggested, are principally his fundamental eclecticism,[225] his long-standing lack of concern for the use of mechanical action,[226] and his slowly developing awareness of the total relationships within a classical organ.[227] If Phelps' criticism of Downes as "a reformer without clear conviction,"[228] serving only to "confuse his countrymen than to lead them,"[229] is not totally justified, nevertheless the complexity of Downes' character and the dichotomy between his convictions in principle *and* in the actual detail, did leave builders and musicians confused, and Downes remains am ambivalent figure in terms of organ reform in England.

In architectural terms the period saw the building of organs in post-Holtkamp style with exposed pipes such as at Hyde Park Mormon Chapel, by Hill; Coventry Cathedral and Lamesley, by Harrison and Harrison; Glenrothes, Fernhill, Burdie and others by Walker. Other instruments remained in chambers, such as that by Walker at Chigwell. Liverpool Metropolitan Cathedral perhaps had the worst of both worlds with its exposed pipework in an arrangement, drawn in effect at random, by

the Cathedral architect, Frederick Gibberd, and the remainder of the organ in a chamber. The lead given by Downes at the Oratory and later at St. Clement Danes, in terms of tonal casework (though sketchy in reality), was inevitably overshadowed by the dramatic appearance, in both senses of the word, of the exposed pipe displays of the Festival Hall organ, though this at least had the main principals on the front of the unenclosed divisions, and reflectors over them. Nevertheless despite the negative influence of the Festival Hall organ one important aspect of the neo-classical revival was the growth of interest in the organ case in tonal and architectural terms. 'Style' cases appeared, such as the 'Harris' and 'Smith' style cases, by Harrison at All Hallows and Clement Danes; by Mander at the Merchant Taylors Hall, as also the divided 'case' by Walker at Corpus Christi Church, Osmondthorpe. These style cases were, with the possible exception of Clement Danes, more in the nature of clothing than a clear reflection of the internal organisation of the instrument. In this context the Walker organ in St. John's, Islington was a considerable step forward. Although it had overlength pipes it did reflect to a much greater degree the tonal organisation of the organ, and the employment of a Rückpositiv division helped to develop an awareness of the aspect of spatial disposition. It is unfortunate that Walkers, with their experience of the Oratory and Islington, did not develop this aspect of their work further. Herbert Norman did develop the ideas of tonal casework further in the late 1960's and early 1970's in instruments such as Carrs Lane, with its post-War German-style Werkprinzip arrangement, or his rather more cluttered neo-Rieger case at St. Mark's, Portsea, but, whilst remaining in vaguely traditional mould, many of his cases (such as Wheathampstead, Bathford and Waterlooville) lacked any compelling conviction. In this way they perhaps reflected all too truly the lack of artistic conviction in the organ schemes as a whole.

A far stronger, and indeed, somewhat earlier influence was that of Frank Bradbeer. Here the influence was more akin to the collaboration in Denmark, in the pre- and post-War period, between architects and organ builders. Here was an architect working as a member of the organ building firm, with understanding of the organisation of the instrument and aware of trends in Germany and Scandinavia. In 1966 this collabo-

ration produced the by-no-means undistinguished Scandinavian style case design for St. Martin's, Hull, and the Schuke-style glass case for Sussex University, as well as the rather plain box-style case, in Quebec pine, for Holy Family, Millbrook.

These developments in tonal design, and to a lesser extent organ architecture in the 1950's and 1960's were the result of a new way of looking at the organ - of seeing it in relation to its repertoire. This fundamental change can be attributed largely, if not solely, to Downes, and his determination to carry through the Festival Hall scheme. However, while these tonal and architectural developments were taking place another influence was beginning to make itself felt: an increasing interest in the use of mechanical action was developing alongside the electric action organs described in this section.

Chapter VI

Compromise 'classicism' in England in the 1960's

The Festival Hall organ by Harrison had established the neo-classical style in the public eye, but, by the time Harrisons completed their last organ in collaboration with Downes, at the Fairfield Hall, in 1964, a number of organs had already been built with mechanical action (usually only to the manual key action), by Walkers; Mander; Hill, Norman and Beard; and Arnold, Williamson and Hyatt. Interest was moving from the matter of tonal schemes to that of artistic control of the 'new' classical sounds.

The advantages of mechanical action, as against various forms of pneumatic and electric actions, had been raised at various times. As early as 1926 Batigan Verne suggested that tracker action "affords crisp touch,"[1] that "tubular pneumatics convert playing into a type-writing process,"[2] and went on to quote from Hinton's Organ Construction that, "playing on the tubular action is like kissing by deputy!"[3] In 1928, Swinburne commented similarly, "it is much more difficult to play a small tracker organ well ... it shows up every fault,"[4] and that "large organs with relay actions confuse and brutalize fine playing",[5] a comment very similar to that of Rogg, in 1970, when he said, "of course, only a tracker organ can convey all the intentions of the performer; there is nothing more demoralising than playing an electric organ with all the attacks and releases standardized."[6] Prior to the Second World War, Sumner also drew attention to the development of mechanical action organs in Germany, commenting that he had "played with the utmost pleasure a number of organs of fair size - one of four manuals, built during the last four years in North Germany - on the tracker system,"[7] on which "attack seemed to be much cleaner than with the best electric actions."[8] Clutton[9] and Dixon[10] also wrote in favour of 'tracker action', especially for small organs.

After the War, in the 1950's, there was a steady growth of interest in mechanical action. As mentioned above, Downes wrote an article in The Musical Times, entitled "Modern Dutch Organs,"[11] in which he described the work of Flentrop at Driebergen, Bussum and Loenen, commenting that tracker action and slider chests are a sine qua non. The idea of mechanical action did not however pass unchallenged, as is shown by a letter of John Rombaut in the Musical Opinion, where he wrote:

> "What of mechanical action? To the best of my knowledge the sole great advantage claimed for it is a more subtle control over note attack and decay. But let us come down to earth, - how many church or recital organists would be capable of exploiting such subtlety, especially if the action were not kept in perfect condition? How many ears would be sufficiently trained and perceptive to appreciate it anyway, remembering to account for the acoustics of the building and distance of the listener from the instrument? From that standpoint it is as much waste as the fragrance of violets to one suffering from catarrh." 12

Nevertheless, even some of the 'elder statesmen' of the organ community began to stress the virtues of mechanical action. Bonavia Hunt wrote: "tracker action is more suitable than any other kind of action for the prompt response of sound to finger"[13] and, surprisingly enough, none other than Sir George Dyson, in a nostalgic reference to the organs he played in childhood, commented,: "there was something to be said for the old tracker action. You felt that you were in direct touch with the pipes, as a wind instrument player is when he fingers his keys."[14]

A major turning point occurred in 1955. In that year Francis Jackson, Organist of York Minster, undertook a recital tour in Denmark. Here he played on new mechanical action organs by Marcussen, instruments including Jaegersborg, Aabenra, Odense Dom, and Hellerup - the effect on Jackson was dramatic,[15] leading him to make the now historic statement "that an organ which is too big to be controlled by tracker action is too big."[16] The result of Jackson's 'conversion' was an interest in retaining tracker action in old organs, and a desire to build new tracker organs. His first major opportunity came in the rebuilding of the organ in St. Helen's Church, York. The organ was,

in Clutton's words, "an undistinguished instrument,"[17] by Postill of York, dating from around 1850. The organ did, however, have a serviceable mechanical action. Jackson insisted upon the retention of the tracker action to the manuals, and would have liked mechanical action throughout. In the event, however, the Pedal organ and piston action were electric.

St. Helen's Church, York: J. W. Walker, 1959

Great		Swell	
Principal	8	Rohr Flute	8
Open Flute	8	Viola Da Gamba	8
Octave	4	Principal	4
Stopped Flute	4	Octave	2
Twelfth	2 2/3	Larigot	1 1/3
Block Flute	2	Mixture III	1
Tierce	1 3/5	Crumhorn	16
Mixture IV	1 1/3	Cornopean	8

Pedal	
Open Wood	16
Bourdon	16
Quint	10 2/3 (ext)
Violoncello	8
Flute	8 (ext)
Fifteenth	4 (ext)
Octave Flute	4 (ext)

The specification (utilising some of the old pipework), drawn up by Jackson, was both versatile and economic. With only nineteen stops it had two complete manual choruses based on 8' and 4' principals; a 'full Swell' with double reed; solo mutations at 2 2/3', 2', 1 3/5', 1 1/3'; an 8' string stop; and a Pedal Organ which, with extension, had some upward development. Despite a poor position (in a corner near the chancel, and surrounded by a singularly unattractive lattice work fence), the organ had a certain unity and character, one which doubtless influenced many visitors, particularly those who attended the Incorporated Association of Organists Congress of 1961, held at York, in which the St. Helen's organ featured. Clutton, in reviewing the organ, whilst hoping that it might "serve as a model for many others,"[18] nevertheless suggested that, "if anything were to be added to these almost perfect manual departments .... it should

be an electric action chest carrying a dulciana unit available in 16, 8, 4, 2, 1, made playable on either manual, and the 16 ft separately available on the pedals."[19] Such comment underlines the persistent lack of perception of the organ as a unity and the extent to which compromise was firmly in the mind of a major establishment figure.

The organ did, however, serve as a model, and typified the 'compromise classical' organs of the mid 1960's with their use of mechanical action for the manuals; electric action for the pedal (and sometimes for the stop action); a Pedal organ formed from one or two extended ranks; and a small number of mutation ranks, 2 2/3', 2', 1 3/5', 1 1/3', usually lying between principal and flute in tonal quality.

In the early 1960's mechanical action continued to be discussed. Francis Jackson's Presidential Address to the Incorporated Association of Organists Congress at Brighton in 1960 set the pace. In this Jackson publicly described in detail his experiences in playing Marcussen organs in Denmark, with mechanical action, straight jambs, large stop knobs, no pistons, no swell pedal, and hitch down couplers. Here in Jackson's words was: "something new, something lively and clean and vital, something responsive, almost percussive, yet the individual stops all had a characteristic beauty of their own,"[20] and, in terms of the action, "most important of all, it seemed to act as a spur, along with the voicing, as an aid to rhythmical, clean playing."[21] Jackson also returned to this theme in his Presidential Address at the following year's Congress at York, when he referred to his experiences during a visit to North America, where he encountered more mechanical action instruments, including the five-manual one by von Beckerath in St. Joseph's Oratory, Montreal.[22]

The effect of these two addresses, made by a Cathedral Organist who was a member of 'the establishment", to large gatherings of organists on two occasions gave further impetus to the tracker debate and revival, as also did Jackson's letter to the Musical Times of July 1964, in which he again referred to his "conversion to tracker"[23] in Denmark. Other writers, such as Loris,[24] wrote of the return to mechanical action in Germany; and Bozeman wrote an article on the mechanical action organ in the Matthews Memorial Church, Albany (see Chapter III), which was

described as having, "a sensitive mechanical action."[25]

An article of considerable distinction was contributed to the Organ, in 1963, by Power Biggs, on the Flentrop organ in the Busch Reisinger Museum. In this Power Biggs stated succintly and clearly the case for mechanical action:

> "The movement of the valve beneath each key channel must be controlled by tracker action.... Trackers become literally an extension of the player's fingers.... "With tracker action, the articulation, the degree of accent - the consonant before the vowel of tone - may be perceptibly inflected by the player.
>
> "The result is that one comes to want to play only keys that one can 'do something with'." 26

The clearly outlined case, by a musician of international standing, undoubtedly had its effect, as the ensuing debate in the musical press showed.

One of the most immediate results of Jackson's conversion to mechanical action was the building for him, by J. W, Walker, of a small practice organ in 1962.

Francis Jackson's Residence, York: J. W. Walker, 1962

Great		Positive	
Stopped Diapason	8	Rohr Flute	4
Gemshorn	4	Nazard	2 2/3
Block Flute	2	Principal	2
Larigot	1 1/3	Sifflöte	1

Pedal	
Subbass	16
Spitzflute	8
Nachthorn	4

This, in turn, led to the building by Walkers of a number of similar instruments: one for Mr. D. C. Burkinshaw's residence in London, in 1963; a second, in 1965, with an identical specification, for the Royal College of Organists; followed by a larger one, in 1966, for Michael Phipps' music room in his house at Castleford (Appendix A, 75). In the case of both these instruments the influence of Francis Jackson was decisive; as a senior member of the Royal College of Organists in the first instance, and as a teacher of Michael Phipps in the second.

The basic characteristics of these practice organs are clear; slider soundboards, mechanical action to manuals (using metal squares and backfalls and aluminium and steel cord trackers); an attempt (depending on the number of stops), to provide a chorus on each manual; electric pedal action; and unencased pipework on a low pressure (c. 45 mm), with open-foot nick-free voicing.[27] Their lack of casework led, however, to their being very deficient in blend. Whilst the organs had little subtelty of touch or voicing they were nevertheless an advance and gave Walkers valuable experience in mechanical action.

The first opportunity Walkers had of realising a new encased two-manual and pedal organ employing mechanical action came in 1963, in the Catholic Church of Our Lady and St. Joseph, Kingsland, London.

Our Lady and St. Joseph RC Church, Kingsland, London: J. W. Walker, 1963

Great		Positive	
Holzflöte	8	Spitzflöte	8
Prinzipal	4	Salcional	8
Koppelflöte	4	Rohrflöte	4
Quarte II	2 2/3	Prinzipal	2
Nasat	1 1/3	Mixture II	1 1/3
		Dulzian	8

Pedal	
Subbass	16
Quintatön	8
Gemshorn	4
Nachthorn	2
Schalmei	4

The Kingsland organ had three very distinctive features; a case, a good west gallery position, and a second manual (behind the Great), which was not a Swell organ, but an unenclosed Positive. The horizontal disposition of the organ did, however, affect the touch adversely, and the quality of touch was further negated by the use of an all metal action with needle bearings to squares and levers, together with 'trackers' of steel flexible wire, covered with nylon and registered in nylon, or felt, bushes. Whilst manual and stop action was mechanical the pedal action remained electric. Open foot voicing was employed (Denis Thurlow being the voicer), and the pipework was not nicked, giving a brisk attack. Overall tonally the organ was forthright, but had little charm, a matter commented on by Clutton.[28] The specification, in particular the Great upperwork, displayed a certain quirkiness on the part of James Long, the consultant. The case consisted merely of a large box in which the manual stops were all housed on one level, with some of the pedal pipes, while other pedal pipes, including the Schalmei 4', were placed in the lower part of the case. This haphazard disposition of the Pedal Organ highlights the matter of lack of mechanical and artistic discipline where mixed actions were employed. Nevertheless, the organ was a considerable step forward and was the first new post-War, encased, (mainly) mechanical organ.

Just as Francis Jackson's practice organ set a pattern for several similar instruments, so the Kingsland organ set the pattern for two organs in similar style; in Elloughton Church, near Hull, in 1965; and Downing College, Cambridge, in 1966. The influence of Jackson, as diocesan adviser, and as a friend of the then Rector, is clear at Elloughton. The west gallery position, physical arrangement and mechanical detail closely resemble Kingsland, whilst the specification stands midway between the practice organs and that of St. Helen's, with the Swell organ having a Mixture, as well as reed and string stops. The Elloughton with its open foot, nickless voicing, in a good acoustic position, remains an instrument with definite character and charm. The Downing organ (since revised by Grant, Degens and Bradbeer), had exposed Great pipework and was placed in one bay of the Chapel, over the stalls. The scheme again clearly followed the Kingsland pattern, but with the Swell organ, as at Elloughton,

modified into a 'liturgical' division. The mechanism and tonal qualities were as at Kingsland.

Walker's continued in similar vein with three somewhat larger organs; at Harrogate College (1967), again with Francis Jackson as consultant, All Saints Church, Clifton, Bristol (1967), with Edward Fry as consultant, and Merton College, Oxford (1968), where Cecil Clutton was consultant. The Harrogate organ (Appendix A, 76), whilst being almost enchambered against the east end of the side aisle wall, did show some attempt to give the whole organ a rational physical disposition. The Swell was placed in Brustwerk position above the keyboards, with the Great over; the Pedal was placed in a 'tower' to the left. The specification was essentially as Kingsland, with the addition of a 2' flute on the Great; the omission of an 8' flute on the Swell; a Trumpet 8' in place of a Dulzian 8'; and, on the Pedal, the Kingsland Nachthorn 2' and Schalmei 4' were replaced by a Furniture III and a Fagot 16'; giving the organ a much bigger 'feel', despite the still truncated Great Organ.

Walker's largest compromise classical organ was the thirty-nine stop organ for All Saints', Clifton, built in 1967.

All Saints' Church, Clifton, Bristol: J. W. Walker, 1967

Great		Swell	
Quintatön	16	Gedeckt	8
Principal	8	Salicional	8
Stopped Diapason	8	Voix Celeste	8
Octave	4	Venetian Flute	4
Rohrflöte	4	Principal	2
Octave Quint	2 2/3	Twentysecond	1
Fifteenth	2	Scharff IV	1
Tierce	1 3/5	Dulzian	16
Fourniture IV	1 1/3	Trumpet	8
Trumpet	8	Clarion	4
Positive		**Pedal**	
Bourdon	8	Principal	16
Principal	4	Sub Bass	16
Koppelflöte	4	Salicional	16
Nazard	2 2/3	Octave	8
Blockflöte	2	Bass Flute	8 (ext)
Tierce	1 3/5	Choral Bass	4
Larigot	1 1/3	Nachthorn	2
Cymbal III	1/2	Mixture III	2
Regal	8	Bombarde	16
		Schalmei	4

The original church, by Street, had been destroyed by bombs in 1940. In 1950 Harrison's built part of what was to have become a forty-eight stop three-manual-and-pedal electro-pneumatic organ, in the newly built church.[29] The scheme had been drawn up by Edward Fry, organist of the church. By the time the church proper (a new one by Potter), came to be built Fry's views on organ design had changed. His friendship with Felix Aprahamian led to his studying with Marchal, widening his experience of the various schools of organ music.[30] The advent of the Festival Hall organ confirmed these experiences,[31] as did a visit to Alkmaar. Fry's interest in mechanical action was also growing, largely as a result of the Queen's College organ.[32] The original 1950 Harrison scheme was abandoned by Fry, and Harrison's were asked to quote for a new mechanical action organ: Harrison's refused. According to Fry, Walker's were the only firm prepared to consider building a new three-manual mechanical-action organ, and were awarded the contract. During the planning of the organ another visit was made by Fry, in company with Goodey and Collop of Walker's, to

Table VI/.1

All Saints, Clifton, Bristol	Great	C–c''''	WP 63.5 mm

	C		c		c'		c''		c'''		c''''		
Quintaton 16′ ϕ	160·3		104·7		58·7		38·1		26·9		17·4		Spotted metal
Principal 8′ ϕ	152·4		87·3		50·8		30·9		19		11		80% tin from c
Stopped Diapason 8′ ϕ	101·6 x 76·2		53·9 x 44·4		38·1 x 31·7		25·4 x 20·6		19 x 14·2		12·7 x 9·5		Wood
Octave 4′ ϕ	82·5		52·3		30·1		15·8		9·5		6·3		80% tin
Rohrflute 4′ ϕ	76·2		52·3		31·7		19		12·7		6·3		Top 8ve open Sp. metal
Octave Quint 2⅔′ ϕ	53·2		33·3		20·6		11·1		7·1		4·7		"spitzflute type." Sp. m.
Fifteenth 2′ ϕ	46		26·9		15·8		9·5		6·3		4·7		Sp. m.
Tierce 1⅗′ ϕ	–		31·7		19		12·7		7·1		3·1		Plain m.
Fourniture IV 1⅓′ ϕ	npt'd												Sp. m.
Trumpet 8′ ϕ	114·3		95·2			65			57				Sp. m. "Schalmey Shallots"

Table VI/1

All Saints, Clifton. Bristol	Swell	C-c''''	WP 69.8mm

	C	c	c'	c''	c'''	c''''	
Gedeckt 8' ϕ	114·3	76·2	52·3	31·7	19	12·7	
Salicional 8' ϕ	92	58·7	34·9	20·6	12·7	7·9	
Voix Celeste 8' ϕ	–	55·5	33·3	19	11·9	7·5	"Tuned sharp and louder than the Salicional."
Venetian Flute 4' ϕ	78·5	50	33·3	24·6	15	7·9	? 5-6 taper
Principal 2' ϕ	50·8	30·1	15·8	9·5	6·3	3·9	
Twenty second 1' ϕ	26·9	15·8	9·5	6·3	3·9	3·9	
Scharff IV 1' ϕ	npta						
Dulzian 16' ϕ	82·5	50·8	31·7	28·5	22·2	19	½ L as at Kingsland
Trumpet 8' ϕ	107·9	79·3	63·5	53·1	npta		
Clarion 4' ϕ	76·2	61·9	52·3	npta			

Note: All Swell pipework in spotted metal with zinc basses.

Table VI/1

All Saints, Clifton, Bristol	Positive	C–c''''	WP 50.8mm

	C		c		c'		c''		c'''		c''''		
Bourdon 8' ϕ	130·1		92		55·5		34·9		23·8		17·4		Plain m.
Principal 4' ϕ	76·2		46		26·9		15·8		9·5		6·3		80% tin
Koppelflute 4' ϕ	85·7		54·7		34·1		22·2		12·7		9·5		Top 8ve open. Plain m.
Nazard 2⅔' ϕ	66·6		49·2		28·5		14·2		9.5		6.3		?taper
Blockflute 2' ϕ	57·1		38·1		25·4		17·4		11·1		3·1		? taper Plain m.
Tierce 1⅗' ϕ	—		31·7		19		12·7		7·1		3·1		? taper
Larigot 1⅓' ϕ	46		30·9		16·6		12·7		7·1		3·9		Plain m.
Cymbal III ½' ϕ	npt'd												80% tin
Regal 8' ϕ	44·4 × 44·4		31·7 × 31·7		25·4 × 25·4		19 × 19		15·8 × 15·8		12·7 × 12·7		Wood ¼ l

Table VI/1

All Saints Clifton, Bristol	Pedal	C–g′	WP 63.5mm

	C		c		c′	g′							
Principal 16′ ϕ	254		152.4		88.9	73							
Subbass 16′ ϕ	203 x 177.8		101.6 x 82.5		69.8 x 53.9	66.6 x 53.9							Wood
Salicional 16′ ϕ	165.1		95.2		60.3	31.7							
Octave 8′ ϕ	165.1		88.9		50.8	44.4							
Bass flute 8′ ϕ													From Subbass 16
Choral Bass 4′ ϕ	87.3		50.8		28.5	22.2							
Nachthorn 2′ ϕ	60.3		46		27.7	26.9							
Mixture III 2′ ϕ	npt a												
Bombarde 16′ ϕ	152.4 x 152.4		95.2 x 95.2		66.6 x 66.6		63 x 63						Resonators ex- York Minster. Full length 1–14 on WP 76mm
Schalmei 4′ ϕ	npt a												Shape 

Table VI/1

All Saint's Clifton, Bristol	Mixture Compositions		

Fourniture IV	C	1 1/3	1	2/3	1/2							
	c	2	1 1/3	1	2/3							
	c'	2 2/3	2	1 1/3	1							
	c''	4	2 2/3	2	1 1/3							
	c'''	4	4	2 2/3	2							
Scharff IV	C	1	2/3	1/2	1/3							
	Fs	1 1/3	1	2/3	1/2							
	fs	2	1 1/3	1	2/3							
	fs'	2 2/3	2	1 1/3	1							
	fs''	4	2 2/3	2	1 1/3							
	fs'''	4	4	2 2/3	2							
Cymbal III	C	1/2	1/3	1/4								
	gs	2/3	1/2	1/3								
	e'	1	2/3	1/2								
	gs'	1 1/3	1	2/3								
	e''	2	1 1/3	1								
	gs''	2 2/3	2	1 1/3								
	e'''	4	2 2/3	2								
Pedal Mixture		2	1 1/3	1	throughout							

Source: J. W. Walker MS scale sheets n.d.

Holland where the St. Bavo organ in Haarlem, instruments by Flentrop, and Flentrop's workshop were seen.[33]

The final stoplist was arrived at by a 'shopping list' process, registers being selected in relation to the repertoire which Fry wished to play, particularly Bach, Couperin, Langlais and Messiaen, as also for the accompaniment of a High Anglican service, with an emphasis on plainsong - All Saints having a strong Tractarian tradition. The result was a stoplist very akin to that of Brompton Oratory, though lacking the Principal stiffening in Swell and Choir of the Oratory.

The organ was placed on a concrete shelf in a corner of the church, to the left of the altar, facing diagonally across the church, the choir were in a nearby corner, on tiered benches, facing across the opposite diagonal. The acoustic in Potter's new church was rich and favourable. The physical layout of the organ was dictated by the concrete shelf, an irregular hexagon in plan, placed across the corner by Potter. Below the shelf was a concrete shaft in which the console and action-run were placed. The Positive was placed forward on the shelf above the console; the Great behind, and a couple of feet above; the Pedal and the Swell above the Great. The Pedal, (with electro-pneumatic action), was disposed in the irregular space on the shelf, to the right of the console, the whole being covered by a prospect of principal pipes from Great, Positive and Pedal, indicating a Werkprinzip form but in reality being merely a screen, for the unencased organ (Appendix E, 18). The Great, Swell and Positive organs were placed on a mix of Dexion angle framing and square section steel frame, and the action-run in the shaft was hung on Dexion framing. The manual action used aluminium and steel wire trackers, with nylon connections and registers, and metal squares and backfalls with needle bearings. The Swellbox was of hardboard. Whilst the shape of the shelf was not helpful, nevertheless the layout lacked coherence, the materials were poor, and the key touch spongy.

The scales are given in Table VI/1 and follow the lines of those at Brompton Oratory (Table V/7). The pipework appears to have been pre-voiced in the shop by a variety of persons, Michael Broome, Dennis Thurlow, Claude Wood, Michael Butler and Arthur Jones.[34] The

final finishing in the church was by Walter Goodey and Dennis Thurlow. Initially the voicing was flue-regulated without any nicking, the result was however not satisfying to Fry, and finally a fair amount of the pipework was nicked.[35] Despite this the voicing remains somewhat irregular, with varying degrees of hiss and spit, and, above the quietest registers, lacking in blend, a matter not helped by the absence of casework and lack of principals in Swell and Choir. Though the organ lacks significant unity it was nevertheless the first new three-manual organ with mechanical-action to be attempted in England.

The last organ of any substance in mechanical and tonal terms was that built for Merton College, Oxford in 1968 (Appendix A, 77). The consultant was Clutton and the specification betrays his philosophy of attempting to produce a 'multum-in-parvo' organ. The Great chorus suffers from the lack of a 2' principal, and the Swell from the attempt to base a chorus on a Spitz Flute 8' (neither principal nor flute), over which principals at 2' and 1 1/3', and Cymbel III sit very uneasily. The general style and construction of the organ were similar to the All Saints' organ, though the Merton instrument had a case which was a weak late rococo pastiche in late 18th or early 19th century style (Appendix E, 19)(by the architect of All Saints', Potter) with a Hauptwerk/Brustwerk arrangement. Again this is more of a facade than a tonal construction, and part of the Pedal Organ is placed, on electric action, behind the trompe d'oeil placed over the west window of the Chapel. Though Walker's staff had visited the work and workshops of Flentrop, and others, the observable unity of organs such as Groenlo and Doetinchen had escaped them.

Several builders, other than J. W. Walker, made some attempts at compromise classicism, notably Noel Mander, and to a lesser extent, Hill, Norman and Beard; and Arnold, Williamson and Hyatt. Noel Mander's main work was in rebuilding, and immediately after the war he restored the mechanical action of the Father Willis organ in Holy Trinity, Tottenham. At the same time (1947) he replaced the tracker action of the England organ in St. Mary Magdalene, Holloway Road, London by pneumatic action. The pneumatic action was, however, found to be less responsive than the old tracker action, and Mander resolved not to take out tracker actions and replace them with other action forms.

As early as 1947 he installed a new tracker action in an organ by Watt, which was placed in Wivelsfield Parish Church.[36] Mander's work was not only somewhat conservative, but he also had a somewhat antiquarian interest in old English organs, an interest intensified by his restoration, in 1959, of the 17th-century organ in Adlington Hall. In 1962 he completed the organ for St. Vedast, London. This utilised the original soundboard, case and some fifteen registers of an organ originally by Harris.[37] Mander "was most anxious to use traditional tracker action"[38] but in the event, mechanical action was used for the manuals; electropneumatic action for the Pedal and drawstop action; for three unit chests; and the Mounted Cornet chest. Mander also wished to use modern materials, where these offered any apparent advantage.[39] This led to the use of perspex for squares, backfalls, levers and stickers, as a precaution against distortion in contemporary heating conditions. The real interest of this organ lies most, however, in that the existence of an old organ, originally mechanical, was the inspiration for a rebuilding with mechanical action - at least in part - rather than in the use of new materials. The lack of discipline, though, is again evident in this organ with its mixed actions. This association, of historic material and new mechanical action, continued in 1964, when Mander retrackered the Snetzler organ in Peterhouse College, Cambridge.

Mander also made one foray into the house organ field, building a practice organ for Cecil Clutton. The intention was to provide an organ "able to satisfy as many as possible of the requirements of seventeenth-and eighteenth century French and German composers,"[40] and this "within the scope of only ten speaking stops."[41] The organ was unencased and of unprepossessing appearance. The pipework stood on the floor, necessitating a pin action worked by stickers through a backfall. Tonally the organ had little subtlety, and was seemingly somewhat overpowering for a small room. Niland discusses the virtues of the scheme for practice purposes in relation to repertoire, but it is difficult to take seriously his comment that "Mr. Clutton... and Mr. Mander ... have combined to produce what must surely be one of the most interesting and versatile small organs of all time."[42]

The next two organs of any significance by Mander were those in the Merchant Taylors' Hall, London (1966), and St. Botolph's Church, Aldgate (1966), London. That for the Merchant Taylors' Hall was virtually new, but with pipework largely from the last instrument built by Renatus Harris, the 1724 organ of St. Dionis Backchurch, London. Again a mix of actions was employed: mechanical to the manuals, electropneumatic to the Pedal. A strange feature of this organ with its historic pipework, is the presence of a Swell division in a non-liturgical context - a matter never explained by the advisers, Cecil Clutton and Susi Jeans.[43] The case design was by Stephen Dykes Bower and is in an Italianate style. It is also curious that Clutton should describe this "Italian-inspired, architectural, pediment-topped type [of case] as the most effective of all organ-cases."[44] Overall the significance of the organ lay in the use of mechanical action, which, in this case, had aluminium backfalls, rods, and needle bearings.

St. Botolph's, Aldgate, had a much altered Harris organ dating from 1676. Here Mander rebuilt the organ, again using mechanical key action,[45] but the Pedal consisted of three units, Bourdon, Dulciana and Trombone each available at 16', 8', and 4' pitches on electro-pneumatic action. The Dulciana was also made playable from the Choir at 8' pitch. It is difficult to see how the statement by Houghton, could be justified that:

> "The choice was between one stop on tracker action and the present specification with electropneumatic, and from a musician's point of view there could be no doubt as to which was right." 46

A further organ by Mander employing old material and mixed action was in St. Giles', Cripplegate (1971). Here part of the case by Jordan and Bridge from St. Luke, Old Street, together with two flats from the Harris case from St. Andrew's, Holborn, were made into a case - though not roofed in, and a new Rückpositiv division added. The pipework was largely Jordan and Bridge, and Willis.[47] This compromise- a 'classical' specification in the main; a facade rather than a main case; tracker action, again using wire; together with the Willis Great reeds (on high pressure); a new Great Organ Cornet (mounted on electro-pneumatic action); and electropneumatic assistance to the couplers;

though the Pedal organ action was mechanical - typified Mander's approach and the lack of action and mechanical discipline is evident in the disunity of the organ.

Noel Mander's last organ of any substance in compromise classical vein, also built in 1971, was the organ in Jesus College Chapel, Cambridge. Here for the first time was a new mechanical action organ, untrammelled by historic material. (Though in 1974 Mander built a largely 'prepared for' mainly mechanical organ, in the Henry Wood Rehearsal Centre, Southwark. The case was however no more than a facade, much of the material was bought in from Stinkens and Laukhuff;[48] and the organ was lacking in any serious distinction, other than some marginally more refined voicing.) The specification of the Jesus College (Appendix A, 78), organ displays a number of characteristics seen before, a reed-less Great in the Donald Harrison/Downes style; two divisions both with a 4' principal, the Swell taking precedence, the Choir becoming the third manual in chorus terms. The two 4' divisions can also be seen as derivative from Downes. The position chosen for the organ left a great deal to be desired, the organ was placed in a chamber, in effect over a side aisle, and above and behind the choir stalls. This in turn dictated that the divisions had to be laid out one behind the other, Choir behind the prospect pipes, Great behind the Choir, and Swell and Pedal respectively behind the Great. Not only was such a layout deleterious in terms of tonal quality but also in the essential precondition for a fine mechanical action, verticality, resulting in a poor quality of touch. As Thistlewaite commented "the general level of the touches is heavier than one would wish to notice."[49]

Noel Mander's contribution to the classical revival is difficult to assess. On the one hand, the stitching together of various organ remains and employment of mixed actions can be seen as a form of post-War commercial cannibalism, on the other hand, however, his interest in old English organs and experience in rebuilding, and his development from within this 'tradition', can be seen as a positive influence, resulting in the employment of mechanical action first in association with old material, and finally in the new organ in Jesus College.

Hill, Norman and Beard made a briefly foray into compromise classicism. At Cookridge, near Leeds, in 1964, under the influence of Francis Jackson,[50] Hill built an organ with mechanical action to both manuals and pedal. Unlike Walker's similar sized organ at Kingsland, the Cookridge organ (Appendix A, 79), as Clutton has commented, was a much more gentle, less aggressive instrument in tonal terms.[51] It did, however, suffer greatly from the lack of a case, and its position in a chamber above the console did not enhance it tonally. Other unencased mechanical-action organs were built in Dumfries (1966), and Emmanuel Church, West Dulwich (1968). For the St. Alban's Organ Festival of 1967, Hill, Norman and Beard built a smaller two-manual and pedal organ, finally placed in Wednesbury Parish Church in 1972.

Wednesbury Parish Church: Hill, Norman and Beard, 1967

Great		Swell	
Stopped Diapason	8	Gemshorn	8
Principal	4	Chimney Flute	4
Mixture III		Principal	2
		Larigot	1 1/3

Pedal Organ	
Sub Bass	16
Choral Bass	4

This was in several ways a considerable advance on the Cookridge and Dumfries organs. Even with only three stops, the Great had a chorus to Mixture; the organ had a case; but the Pedal had electro-magnetic action. The mechanical action used light aluminium alloys, and the wind supply was regulated by an inbuilt regulator. The attempt to gain maximum 8' contrast in using a Stopped Diapason and Gemshorn, whilst providing a foundation in each instance for a chorus, is an issue constantly appearing in small organ design. The use of the dual function Larigot, as either a solo mutation or chorus stop is also typical of the hybrid mutations of such compromise instruments. Again the employment of an 'expressive' division, even in a nine-stop organ indicates the persistent attachment to the 'Swell'.

Rushworth and Dreaper made one excursion into the compromise classical field, an organ also built for the 1967 St. Alban's Festival (Appendix A, 80). Within the compass of nine stops the organ did have the virtue of two complete manual choruses at octave distance; the pedal organ was however electropneumatic.

A small, and little known firm, who started to build mechanical-action organs, were Williamson and Hyatt (later Arnold, Williamson and Hyatt), of Trunch, in Norfolk. As early as 1959 they built a one-manual organ, (Stopped Diapason, Principal, Fifteenth) with mechanical action and open-foot voicing at Pavenham.[52] In 1961 however they built a major instrument of some twenty-five stops and seventeen registers in St. Mary's Church, Little Walsingham.

St. Mary's Church, Little Walsingham: Arnold, Williamson and Hyatt, 1966

Great		Swell	
Open Diapason	8	Viola	8
Chimney Flute	8	Stopped Metal	8
Principal	4	Gemshorn	4
Conical Flute	4 (Ped)	Fifteenth	2
Nazard	2 2/3	Nineteenth	1 1/3
Block Flute	2	Twentysecond	1
Tierce	1 3/5	Basset Horn	16
Mixture IV	1 1/3		

Pedal	
Open Metal	16
Subbass	16
Principal	8 (ext)
Bass Flute	8 (ext)
Fifteenth	4 (ext)
Conical Flute	2
Mixture II	2 2/3
Basset Horn	16
Basset Horn	8 (ext)
Basset Horn	4 (ext)

The organ was given an excellent position in a west gallery; the Great Organ placed centrally, with the bass of the Open Diapason, in copper, in prospect and the bass of the Pedal Open Metal was placed in the towers flanking the Great.[53] The Swell was placed above (and to some extent behind) the Great. Unlike the Mander organ in Jesus College,

the organ was reasonably disposed to produce a satisfactory mechanical action, with the vertical element predominant. The tracker action was of wood (cedar), with plastic end fittings and needle bearings. The voicing of the organ was with low mouths, minimum nicking, and some open feet, in particular the Great Nazard, Block Flute and Tierce.[54] Hyatt had been impressed with the recordings of Steinkirchen (by Walcha), and he made a number of experimental pipes in an attempt to emulate the sound of Steinkirchen (the Chimney Flute 8', in particular, was based on the Steinkirchen scaling). Overall the scales were "almost straight line, but with fairly generous scaling in the trebles."[55] The basic scales are given in Appendix B, 3. The pipe materials were zinc basses, plain metal to 1' C, and spotted metal trebles, other than the copper used in prospect. The deficiences of the organ are clear; the use of unification on the Pedal Organ; the borrowing of the 4' Flute on the Great from the Pedal, and the Basset Horn at 16', 8' and 4' pitches from the Swell to the Pedal; as also the absence of a Great 2' Principal. Nevertheless, in 1966 it was the largest new mechanical-action organ built in England by an English builder and, though in size it was overtaken in 1967 and 1968 by Walkers at Clifton and Merton, it was an amazing triumph for a small, virtually unknown firm. Whilst it did not perhaps merit the description, given by Clutton, of "an undoubted masterpiece"[56] it was arguably as distinguished as any of the 'compromise classical' instruments built in the 1960's. With such a start it was sad that Arnold Williamson and Hyatt did not survive to develop further.

The early and mid 1960's thus saw a period of development in which the Downes/Harrison collaboration came to an end at the Fairfield Hall; in which Walkers built numerous neo-classical electric organs, including the monumental essays at Liverpool and Ampleforth; in which Hill, Norman and Beard began to develop their neo-classical style; and in which the committed neo-classicism of Grant, Degens and Bradbeer emerged. It is also important to see the growth in the employment of mechanical action as a development arising from the post Festival Hall 'reformed' tonal scheme, but alongside the continued building of electric-action neo-classical organs.

The impetus to the use of mechanical action came from one or two individual musicians rather than from the organ builders. Without doubt the influence of Francis Jackson on Walkers was considerable, as was that of Cecil Clutton on Mander. It is also interesting that both of these individuals had mechanical-action house organs built for them - an indication of commitment that could not pass unnoticed by the builders. Also, the opportunity given to Walkers by James Long at Kingsland was of considerable importance at such an early date. Another influential individual, though not so much as an adviser, was Peter Hurford. His influence was through the St. Alban's Organ Festival, which was held under his direction in alternate years from 1961. The 1967 Festival, with its exhibition of organs, was particularly important, and similar exhibitions in later Festivals gave further impetus to the growth of mechanical organs.

In discussing these early mechanical-action organs certain characteristics appear very evident. The employment of mixed actions (Pedal Organs on electric action; or individual ranks, or units, on electric action) produced ill-disciplined designs, a lack of discipline compounded by the tendency to accept a horizontal disposition, both aspects contributing to actions lacking in subtlety of response. Clearly the Pedal Organ was considered as of less musical significance and sensitivity than the manual divisions, quite apart from the view, expressed by Herbert John Norman in 1966, that pedal trackers were supposedly more noisy and prone to wear.[57] Forsyth-Grant commented forcefully on the matter of mixed action:

> "Nearly all the few modern tracker instruments in this country have got this absurd electric pedal action. Of course, it makes it easier for the organ builder to scatter the pedal pipes all over the place in a 'dog's breakfast' style, but the great thing about a fully mechanical action organ is that it has to be laid out properly from the start." [58]

Sadly, as an examination of the organs of the period shows, there was much truth in Forsyth-Grant's comment.

In terms of tonal design the English emphasis on the 'Swell' organ, as almost of prime importance, led to some truncated and emasculated Great organs. Also, where three manual divisions were used, and where the Great was clearly the main organ, builders had difficulty in resolving the other manual relationships. Traditionally, in England, the Swell was second in importance to the Great, but now players and builders were becoming aware of the 'Positive' as a foil to the Great in classical terms, thus leaving two divisions vying with each other for second place, both often with a 4' principal basis. That this was never clearly resolved is evident from the specifications. In practice, however, as in the early Oratory organ, the Swell remained the second manual, and the Positive, despite the presence of a 4' Principal, persistently became a 'tinkly' third division. The muscle was also taken out of many Positive, and other divisions, by the use of 2' Blockflutes and inadequately designed mixtures, usually too high in pitch. Particularly unhappy was the spread of hybrid mutation series, not just Blockflutes which also did duty as principals, but also Nazards, Tierces, Larigots and Sesquialteras of nondescript variety giving quite inadequate stiffening to the principals in the chorus on the one hand, and lacking in real narrow or wide scale colour on the other. In terms of reeds the Krummhorn or Cromorne appeared with regularity, though sometimes under a variety of labels (e.g., the Basset Horn at Little Walsingham is in fact a narrow Krummhorn). Schalmei in various forms appeared as did Dulzians (very often in organs by Walker), but it was not until 1967 that the first short-resonator Regal, was provided at All Saint's, Clifton, followed by another in 1971 at Jesus College, Cambridge. The variety of reed forms, however, grew and included a number of imported registers, (e.g., the neo-classical Rohr-Schalmei from Giesecke at Portswood, Southampton).

Voicing styles were 'classical', and there was a general tendency to use open-foot, minimum-nicking, flue-regulation, but, on the whole, the sounds lacked finesse. It was a time of experiment and results as convincing as the Oratory were rare. The two most notable individual voicers were without doubt Walter Goodey, and his 'pupil' Denis Thurlow, of Walkers. Both had worked regularly with Downes and both worked together on the Oratory organ. Thurlow had also had experience, as a serviceman, of hearing (and tuning) a number of old organs in north-west

Germany.[59] One benefit to come from the revival of classical tonal forms, and especially as the use of mechanical action grew, was the use of lower wind pressures, generally between 45 and 65 mm. Contributory factors to the often less than beautiful sounds were the use of inbuilt regulators, Schwimmers, which allowed no 'give' in the winding, and also the lack, in all too many instances, of appropriate case work. Nonetheless, as the appearance of the organs of the 1960's make clear, there was a steady increase in interest in the organ case, from the plain box at Kingsland to the 'cases' by Walker at Harrogate and Merton; by Hill for the St. Alban's Festival; and by Arnold, Williamson and Hyatt at Walsingham. In terms of the actions there was a tendency to use newer materials, metal, perspex, aluminium, nylon, rather than the traditional wood. The new materials did not always live up to the hopes placed in them, sometimes being noisy in operation, and often (where wire trackers were used), giving a soggy, spongy touch lacking in responsiveness.

Whilst this group of 'compromise classical' organs had features which, in varying degree, related to the classical organ, the established builders remained somewhat sceptical over classical styles and all too few, if any, of the firms discussed above had any concept of the organ as a unity. None of the older established builders appeared to grasp the fundamental principle of organ design, expressed by Francis Jackson at York in as early as October 1961, that:

> "the organ, like the piano or the harpsichord, is a compact and carefully planned entity on which certain limitations are imposed by its own very nature. It is only when those limits are exceeded - when the layout of the instrument becomes chaotic or arbitrary, when wind pressures become excessive - that the true genius of the organ becomes submerged." 60

It was the search for this unity that was to predominate in succeding years.