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Romantic Tendencies in 19th-century Organ Building in Europe

Michał Szostak

Before considering the more detailed characteristics of trends in organ building in the three main centres of the 19th-century Europe, I begin with a general outline on historical and cultural changes in the wider field of music during this period.

Historical and cultural context: Romanticism

The nineteenth century is extremely diverse in its phenomena and tendencies, often marked by the coexistence of opposing currents. The French Revolution (1789-1799) and the so-called "Coalition Wars" (1799-1815) conducted against France under the rule of Napoleon Bonaparte (1769-1821) ploughed the social order of Europe and affected widely all aspects of life – not only for the inhabitants of the country on the Loire. The Congress of Vienna, convened in 1814-1815 to revise territorial and political changes, was to develop new principles of continental order. After a period of temporary restoration of the old order and the presence of significant conservative forces, subsequent social revolutions in France in 1848 (the 'Spring of Nations') were followed by a general democratisation. In economic and social terms, especially in France and England, it was a period of industrialization (the rise of steam engines, the development of railroads, use of natural gas, the invention and wide application of electricity) and deepening of social differences (more heavily populated cities, a general increase of poverty, isolation and loneliness of individuals in anonymous societies with rising fortunes of industrialists).[1] France was the largest country in Europe in the 19th century, both in terms of area and population.

Organ building in the 19th century

In the 19th century, organ building was subject, in the spirit of Romanticism, to significant sound and construction changes in relation to instruments of the 18th century. The change of the dominant sound aesthetics of the era forced a modification of the organ's sound palette towards the melody of the sound, its intensity and depth. In turn, the idea of dynamism forced new technical solutions in the form of a wide use of an expressive (swell) box and pneumatic facilities, stop action (enabling quick change of sound) and key action (improving the lightness of keyboards regardless of the number of registries and couplers). Although the 19th century was a period of national wars, organ-makers of individual nationalities – French, English and German – travelled around Europe in search of inspiration and new solutions in organ building. Each cultural circle, however, retained its aesthetic distinction despite shared Romantic inclinations.

I will now turn to the characteristics of organ building in three major cultural centres of 19th-century Europe, i.e., France, Germany and England.

France

The French organs suffered greatly during the Great Revolution (1789-1799), and then the time of wars and retreats from the Church resulted in a lack of interest in this instrument among both musicians and audiences.[2] As a result, after about half a century of stagnation in organ building, as well as social and cultural changes, the organs had to be resurrected, especially because musical tastes had already changed considerably: in France, the so-called Classical instruments (Baroque and Rococo eras) created in the period of the Golden Age (1660-1789).[3] Their specific construction (mechanical key and stops actions, the only possible terrace change, reliance on the Grand-Orgue section and the Positif section located on the balustrade, the Récit and Solo side keyboard range, the poorly populated Pédale section as an auxiliary) did not exactly match implementing Romantic music, which at that time "entered the salons" - music full of expression, violently variable in expression and, above all, dynamically. The orchestras, from the so far limited number of classical executive compositions (based on the division into the Concertino and Tutti groups), began to grow to several dozens of executive powers (analogically, the symphony organs also began to grow even to 100 or more stops). The variety of orchestral instruments themselves and the possibility of their variable compilation in previously unheard-of combinations inspired composers and delighted listeners; in the case of the organs, the option of selecting registers and the newly invented, partly free, combination for group sound changes were steps in that direction. Moreover, the expressive power of such large compositions was incomparably greater than the orchestras up to that time; from delicate pianissimo to powerful fortissimo – achieved in an extremely fluid way (here the expression box fulfilled an invaluable role). The concepts of crescendo and diminuendo began to model the expression of each phrase.

These phenomena were not without significance for organ-makers. They wanted their instruments to be modern; to enable this modern (Romantic-symphonic) music to be performed with all its features. They only had to "force" their Classical instruments to be able to realize artistic visions of Romantic composers. This idea was partly driven by the desire to attract people back to the churches.

France is a country of great Catholic Gothic and Neo-Gothic cathedrals. From the Middle Ages (Paris cathedral Notre-Dame, Saint-Denis, or Saint-Ouen in Rouen), after the 19th-century period of Romantic return to Gothic patterns (e.g., the Parisian basilica Sainte-Clothilde completed in 1857, as the first Neo-Gothic building), wonderful temples

Specification

I. Grand-Chœur (C-g³)

1. Salicional	8' B
2. Octave	4' D
3. Fourniture	IV A
4. Plein Jeu	IV A
5. Cymbale	VI A
6. Cornet	V (od d¹) A
7. Bombarde	16' A
8. Basson	16' D
9. 1ère Trompette	8' A
10. 2ème Trompette	8' A
11. Basson	8' D
12. Clairon	4' A D
13. Clairon Doublette	2' D

A = Clicquot, 1776-1781
B = Daublaine-Callinet
C = Ducroquet, 1845, 1854
D = Cavaillé-Coll, 1862

Accessoires: Machine à grêle, Rossignol

II. Grand-Orgue (C-g³)

1. Principal Harmonique	16' A
2. Montre	16' A
3. Bourdon	16' A
4. Flûte cônique	16' D
5. Montre	8' A
6. Diapason	8' C
7. Bourdon	8' A
8. Flûte harmonique	8' A D
9. Flûte traversière (od d¹)	8' D
10. Flûte à pavillon	8' C
11. Quinte	5 1/3' A C D
12. Prestant	4' A D
13. Doublette	2' A

Tirasses:
Grand-Chœur,
Grand-Orgue,
Récit Octaves graves:
Grand-Chœur,
Grand-Orgue,
Positif, Récit,
Solo Appel Grand-Chœur
Accouplements: I/II, II/I, III/I, IV/I, V/I, IV/III

III. Positif (C-g³)

1. Violon basse	16' D
2. Quintaton	16' D
3. Salicional	8' A C D
4. Viole de gambe	8' B
5. Unda maris	8' D
6. Quintaton	8' B
7. Flûte traversière	8' D
8. Flûte douce	4' B
9. Flûte octaviante	4' B
10. Dulciane	4' B
Jeux d'Anches	
11. Doublette	2' D
12. Quinte	2 2/3' A D
13. Tierce	1 3/5' A
14. Larigot	1 1/3' A
15. Piccolo	1' A
16. Plein Jeu harmonique	III-VI D
17. Basson	16' D
18. Baryton	8' A D
19. Trompette	8' A
20. Clairon	4' A

IV. Recit-expressif (C-g³)

1. Quintaton	16' A
2. Diapason	8'
3. Bourdon	8' A
4. Violoncelle	8' D
5. Voix celeste	8' D
6. Prestant	4' A
7. Doublette	2' A
8. Fourniture	IV A
9. Cymbale	V A
10. Basson-Hautbois	8' A D
11. Cromorne	8' A
12. Voix humaine	8' A
Jeux d'Anches	
13. Flûte harmonique	8' D
14. Flûte octaviante	4' D
15. Dulciane	4' B
16. Nazard	2 2/3' A B
17. Octavin	2' D
18. Cornet	V A
19. Bombarde	16' D
20. Trompette	8' D
21. Clairon	4' D

Trémolo

V. Solo (C-g³)
(previous Bombarde)

1. Bourdon	16' A
2. Flûte cônique	16' D
3. Principal	8' A B D
4. Bourdon	8' D
5. Flûte harmonique	8' D
6. Violoncelle	8' D
7. Gambe	8' D
8. Kéraulophone	8' D
9. Prestant	4' A
10. Flûte octaviante	4' B
Jeux d'Anches	
11. Octave	4' D
12. Octavin	2' D
13. Quinte	5 1/3' B
14. Tierce	3 1/5' D
15. Quinte	2 2/3' D
16. Cornet	V A
17. Bombarde	16' D
18. Trompette	8' A
19. Clairon	4' A
20. Trompette coudée [high wind pressure]	8' B? D

Pédale (C-f¹)

1. Principal	32' A D
2. Contrebasse	16' A B
3. Soubasse	16' A
4. Principal	8'
5. Violoncelle	8' C
6. Flûte	8' A
7. Flûte	4' A B
Jeux d'Anches	
8. Bombarde	32' A D
9. Bombarde	16' A D
10. Basson	16' B
11. Trompette	8' A B
12. Ophicléide	8' A
13. Clairon	4' A

Wind pressure in mm:
Grand Orgue: 95, 100
Grand Chœur: 95, 115
Solo: 100, 115, 127
Positif: 100, 115, 120
Recit: 100, 115
Pedale: 90-100
Trompette coudée: 140-150 mm

Table 1. The specification of the Aristide Cavaillé-Coll organ from 1862 r. in Saint-Sulpice church in Paris.
Source: Klein Gregor, "Le grand Orgue de St. Sulpice", w: "La Flûte Harmonique", no. 20, Numéro Spécial, 1981.


JEUX de COMBINAISON
RECIT EXPRESSIF
JEUX de FOND
SOLO
GRAND ORGUE
PEDALE
GO
P
R

Saint-Sulpice console

were created there. It is hard to find better interiors where symphonic music could be heard: high vaults, stone walls and floors reflecting streams of majestic organ sound, beautiful stained glass windows and magnificent organ cases. It can be said that in a natural way these factors favoured the development of the idea of symphonic organs, which with their powerful and at the same time variable and multicoloured sound filled such interiors.

Thanks to the changes in the liturgy of the Roman Catholic church and, above all, the introduction of the so-called quiet mass (without singing), a solo played on the organ during the liturgy began to be more and more needed and gained more and more importance. The Concordat signed in 1801 between the Vatican (Pope Pius VII) and the French Republic (Napoléon), which restored the Church's solid status[1], the work of liturgical reformers such as Choron, La Fage and Danjou increased historical awareness, with the revival of religion and again (after a revolutionary confusion) the creation of the organ class at the Paris Conservatoire[5] in 1819 are among the factors that favoured the gradual renewal of organ culture in France,[6] whose fruits were mainly felt in the second third of the 19th century - exactly at that time when Aristide Cavaillé-Coll came from Toulouse to Paris to start his brilliant career. His great instruments were (and still are) located in the greatest churches in France. The first symphonic organ was built in Saint-Denis cathedral near Paris. One of the largest examples is the organ in Saint-Sulpice church in Paris – its disposition is shown below. The evolution of the symphonic organ of Cavaillé-Coll was the subject of an article in the last issue.

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In addition to the monumental figure of Cavaillé-Coll, among the French major organ builders of the 19th century the following figures should be mentioned: Jean-Baptiste Stolz (eg rebuilding in 1864 the instrument in the Saint-Germain-des-Pres church in Paris),[7] Edouard and Eugène Stolz (eg the construction of the 32/3M+P instrument in 1880 in the Saint-Medard church in Paris),[8] Merklin from Lyon.

At the end, it is worth mentioning the theses of Albert Schweitzer, who admitted the decidedly superiority of the French organs represented by the works of Cavaillé-Coll over the German organs. This is due to the fact that the French instruments were constructed in such a way that, thanks to the appropriate number of mixtures, Johann Sebastian Bach's works could be performed on them.[9]

Germany

The first harbinger of the Romantic changes in German organ building is the instrument of Joseph Gabler (1700-1771) built in Weingarten in 1750, the year of the death of the great Johann Sebastian Bach.[10] However, the beginning of the integral period of the German Romantic organ is considered 1833, when Eberchard Friedrich Walcker (1794-1872) completed the construction of a large instrument (72/3M + 2P) for the church of St. Paul in Frankfurt.[11] The organ master sought a "great and holy" sound, which he understood by using a 32-, 16- and 8-foot stops of a dominant quantity, a limited number of high mixtures and high aliquots.[12] The role and contribution of Eberchard Friedrich Walcker in German organ-building of the 19th century is compared to the figure of Aristide Cavaillé-Coll in the French circle: both, through intelligent evolution and the use of the instruments of the previous era, developed a new Romantic aesthetics of sound.[13]

It is worth quoting the conclusions of Cavaillé-Coll from the inspection of Walcker's organ in Paulskirche, which he made on October 10, 1844: "This morning I watched the famous organ of St. Paul. It is very beautiful, but like Germany, it is also cool. The principal stops are majestic, but the reeds are narrow, the stops are weak and the plenum somewhat timid. Bellows have lack of strength, which makes the instrument sound boring and lukewarm. But as one French soldier is worth as much as five soldiers of other nationalities, the French 15-stop instrument with different air pressures offers more power and nuance than their colossus. Truly, there are beautiful elements in it, but the lungs are weak. Like a handsome man who suffers from tuberculosis."[14] Similar conclusions about good principals and mixtures, but weak reed stops in Romantic German organs, were noted by Guilmant.[15]

In many respects, the German organ builders of the 19th century were following the same path that their counterparts in England and France were following. The instruments were larger than before and played at higher pressures. Higher wind pressure in the windchests required the use of pneumatic support to make playing easier; hence the interest of the German organ builders in the Barker lever used by the Cavaillé-Coll company in France. Other mechanical achievements in the 19th century were similar to those in France and England, including German organs of the second half of the century which were equipped with switches supporting pneumatic combinations, allowing the organist to change the sound. At the end of the century,

pneumatic combinations were widely used.

Just as the adaptation of Barker's lever used in France influenced German instruments, so did the harmonic flutes and trumpets of Cavaillé-Coll found in German instruments of the second half of the 19th century. This does not mean, however, that the German instruments of this period copied the sound of Cavaillé-Coll organs. They constituted a separate, autonomous, national school of organ building in the 19th century, as it was in the 17th and 18th centuries, and some features of previous eras influenced the thinking of German builders throughout the period of Romanticism. The nomenclature of sections of 19th-century German instruments drew on the patterns of the previous epochs: the main section was Hauptwerk, the auxiliary section was Positiv (or build on the balustrade Rückpositiv), the closed section in the expressive box was Schwellwerk and the Pedal. In addition, in larger instruments there were also such sections as Brustwerk, Kronnwerk, Oberwerk or Solowerk.

In addition to the stops known from previous eras (Prinzipal, Bordun or Gedeckt), a number of new or modified stops of already existing stops were created (eg Harmonika, Prinzipal Amabile, Lieblich Gedeckt…). Each of these stops represents a particular type of pipe construction that corresponds to a specific sound colour.

Romantic German organs are characterised by a large proportion of 8-foot stops placed in large numbers even within a single sound section. One of the reasons for the large variety of delicate stops in German instruments is the rather late adaptation of the expression box in the Schwellwerk section. Even at the end of the 19th century, the German Schwellwerk contained only a few stops. Hence the large variety of delicate stops - despite the limited scope of the expression box - allowed for dynamic shading of the sound that characterizes Romantic music. Romantic German organs also contain a very wide sound spectrum of delicate stops: from 32' flutes to delicate intonated mixtures - often with a chorus of thirds.[16]

An important example of German Romantic organ building is an instrument from Merseburg Cathedral (Merseburger Dom) built by the leading German organ master of the 19th century, Friedrich Ladegast (1818-1905). Finished in 1855, just like the other great instruments of this builder, it uses Barker's lever, which he learned from Cavaillé-Coll during his visit to Paris. The instruments of Friedrich Ladegast have a full, round sound, typical for Romantic instruments. Despite the tonal and mechanical similarities to the Cavaillé-Coll instruments, Ladegast's instruments are definitely German, not French. Ladegast's instructions, in comparison with the French instruments of that period, usually contain much more labial stops but less reeds.[17]

Other examples of German late organ building are the instruments of Wilhelm Sauer (1831-1916) from 1889 in Thomaskirche in Leipzig (rebuilt in 1908) and from 1905 in the Berlin cathedral (Berliner Dom), where he used French flutes and reeds with high pressure. The work of this master – due to the close contacts he has to Cavaillé-Coll – is a perfect example of the interpenetration of sound and technical solutions between individual countries, while maintaining its own specificity and autonomy.[18]

England

The English organs of the first half of the 19th century did not differ much from their predecessors from the late 18th century; they were very small compared to French, German, Dutch or Italian instruments. In the first decade of the 19th century, the largest instruments were the organs of the London St. Paul's and the cathedral in York – both had only 27 stops; only two cathedral instruments in all of England had separate stops in the Pedal section.[19] The English instruments of the early 19th century did not have 16-foot stops in manuals; it resulted from the fact that the sound of stops was shifted compared to the names of the stops by an octave that was used on the continent; i.e., the nominal English 8-foot stop sounded in reality like a continental 16-foot stop. Only in the 1840s – with the rebirth of the Church of England, which led to the construction of new churches and replacement of old instruments with new ones in existing churches and the growing industrialization of the country and the resulting eagerness to emphasise the prosperity of the secular city through the installation of organs in city halls – did English instruments began to match the size of the continental organs.[20]

A typical English instrument of the second third of the 19th century had three manuals (Great, Choir, Swell), whose stop cast and tone relations were quite standardised. The basic manual was Great, which usually included two stops of Open Diapason 8' (labial principal) and one Stopped Diapason 8' (labial flute), Flute 4', Sesquialtera or Cornet and Trumpet. The three-choir mixture, which crowned the choir, was slightly smaller than its 18th-century ancestors, its sound was more round and more fundamental, less brilliant than on the organs of the 18th century. The Choir section, a descendant of the 18th-century Chair section, was usually used for accompaniment. Most often it contained Stopped Diapason 8 'and Dulciana 8', but without Open Diapason; Flute 4 'and one or more reeds, usually cylindrical type with short resonator; in larger instruments

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Ladegast-organ-merseburg-cathedral

Specification

I. Rückpositiv (C-g³)

1. Bordun	16’
2. Principal	8’
3. Flauto traverso	8’
4. Fugara	8’
5. Quintatön	8’
6. Octave	4’
7. Gedeckt	4’
8. Octave	2’
9. Mixtur	IV
10. Cornet	II-V
11. Oboe	8’

II. Hauptwerk (C-g³)

1. Bordun (od c)	32’
2. Principal	16’
3. Bordun	16’
4. Principal	8’
5. Hohlflöte	8’
6. Doppelflöte	8’
7. Gemshorn	8’
8. Gambe	8’
9. Quinte	5 1/3’
10. Oktave	4’
11. Spitzflöte	4’
12. Gedackt	4’
13. Doublette	II 4’+2’
14. Quinte	2 2/3’
15. Oktave	2’
16. Mixtur	IV
17. Scharff	IV
18. Cornett	III-V
19. Fagott	16’
20. Trompete	8’

III. Oberwerk (C-g³)

1. Quintatön	16’
2. Principal	8’
3. Rohrflöte	8’
4. Flauto amabile	8’
5. Gambe	8’
6. Gedeckt	8’
7. Oktave	4’
8. Spitzflöte	4’
9. Rohrflöte	4’
10. Quinte	2 2/3’
11. Waldflöte	2’
12. Terz	1 3/5’
13. Sifflöte	1’
14. Mixtur	IV
15. Schalmei	8’
16. Stahlspiel	
Tremolo	

IV. Brustwerk/Echo expr. (C-g³)

1. Lieblichgedeckt	16’
2. Geigenprincipal	8’
3. Flauto dolce	8’
4. Salicional	8’
5. Unda maris	II 8’
6. Lieblichgedeckt	8’
7. Oktave	4’
8. Zartflöte	4’
9. Salicional	4’
10. Nassat	2 2/3’
11. Octave	2’
12. Cymbel	III
13. Progressiv-Harmonica	II-IV
14. Aeoline	16’

Pedal (C-f¹)

1. Untersatz	32’
2. Principal	16’
3. Salicetbaß	16’
4. Violonbaß	16’
5. Subbaß	16’
6. Großnassat	10 2/3’
7. Principal	8’
8. Violoncello	8’
9. Bassflöte	8’
10. Terz	6 2/5’
11. Rohrquinte	5 1/3’
12. Oktave	4’
13. Flöte	4’
14. Scharfflöte	4’
15. Mixtur	IV
16. Cornett	IV
17. Posaune	32’
18. Posaune	16’
19. Dulcian	16’
20. Trompete	8’

Couplers

OW-HW	RP-HW
BW-HW	HW-Pedal
OW-Pedal	RP-Pedal
mechanical key and stop action	81 stops

Table 2. The specification of the Friedrich Ladegast organ from 1855 in Merseburg Cathedral.
Source: Laukvik Jon, “Historical Performance Practice in Organ Playing. Part 2. The Romantic Era”, Carus-Verlag, Stuttgart 2010, p. 167.

Principal 4' and the third component of the sound in the form of a small Cornet. The third manual, called Swell, was usually placed high in the organ cabinet in an additional expression box (Swell box) and equipped with Open Diapason 8' and Stopped Diapason 8' and Principal 4' and/or Fifteenth; additionally equipped with at least one reed – usually Oboe 8' or Trumpet 8' – the Swell section was the sound balance for the Great section, taking over this role from the 18th-century Chair section. The pedal-board usually played only the auxiliary role, without having its own stops, and benefited from copulations of manual stops. It was not until the first half of the 19th century that the

Ladegast organ merseburg cathedral console

independent stops of the Pedal section were introduced in the English organs; most often it was 1-2 stops of the Diapason type. The scale of both the Great and Choir sections was wider than the accepted continental standard and often began with G. The Swell keyboards usually had a narrower range, often beginning in the middle of an octave that is small, from e, f or g.

Since the mid-19th century, organs in England began to acquire new features similar to currently known standards; some of the new features were adapted from the continent (mainly due to the German organ master Edmund Schulze who lived in 1824-1878: e.g., the choirs of labial stops in each section, the versatility of Pedal stops, the use of Lieblich Gedeckt type stops –narrower than English Stopped Diapasons). Others were English inventions (mainly Henry Willis 'father' (1821-1901), creator of English Romantic-symphonic-orchestral organs,[21] e.g., using the Barker lever, pneumatic-tubular action, with the Pedal section becoming independent, more reliable reeds, and the introduction of electric action from 1888).[22] These transformations led to the so-called 'Victorian' organs. One of the first changes was replacing the previous English range of keyboards with the continental standard, i.e. with all keyboards beginning with the sound of C. It implied two consequences: the scale of the Great and Choir sections was reduced by omitting sounds below C; the Swell section scale was extended by about 1.5 octaves from the bottom. Along with this change there was a change in the names of stops: for the first time in the history of English organs, there were stops in the names of 16-foot (sounding unchanged). The Pedal standardised keyboard in the C-d^1 range began to take the radial and concave form[23] (the first applications by Henry Willis from 1855)[24], and the section itself began to be more richly filled with independent stops.[25] In terms of organ mechanisms, the English builders finally adopted the invention of their countryman, Barker, only after he was appreciated by Aristide Cavaillé-Coll in France. Developing the idea of Barker, the British, as the first, began to use a new type of action: tubular pneumatics; it allowed to place individual sections of the instrument in a distance from one another, which was not possible with mechanical action, giving interesting sound effects. The pneumatic action used to control the registers made it possible to use a combination of fixed stop sets actuated most often by foot switches (their first application took place in 1875 by Henry Willis)[26], as well as the setting of register switches in the form of manubrias at 45 degrees making it easier for the organist, practiced to this day in English and American consoles.

> Perhaps the most important tonal change in English organs was the development of the Swell section: at the beginning of the century, the Swell section became a richly manned section along the lines of the Great section.

The third original sound solution of organ building in nineteenth-century England was the construction of new reed stops operating at high air pressure; the most popular are Cornropean and Tuba. Both of these stops are descendants of the Trumpets, although their conical resonators are wider than those of Trumpets, and the reeds are thicker. Their tone lacks some glow associated with Trumpets, and later examples sound even dull. The high pressure on which they are intonated gives them power that other stops do not have.

Perhaps the most important tonal change in English organs was the

Willis Organ
St-George's
Hall, Liverpool

Specification

I. Choir (G_1-a^3)

1. Bourdon	16’
2. Open Diapason	8’
3. Clarabella	8’
4. Lieblich Gedact	8’
5. Dulciana	8’
6. Viol di Gamba	8’
7. Voix Céleste	8’
8. Principal	4’
9. Harmonic Flute	4’
10. Octave Viola	4’
11. Twelfth	2 2/3’
12. Fifteenth	2’
13. Flageolet	2’
14. Sesquialtera	IV
15. Tromba	8’
16. Clarionet	8’
17. Orchestral Oboe	8’
18. Clarion	4’

II. Great (G_1-a^3)

19. Double Open Diapason	16’
20. Open Diapason	8’
21. Open Diapason	8’
22. Clarabella	8’
23. Flute à Pavillon	8’
24. Lieblich Gedact	8’
25. Violoncello	8’
26. Quint	5 1/3’
27. Octave Viola	4’
28. Principal	4’
29. Principal	4’
30. Flauto Traverso	4’
31. Decima	3 1/5’
32. Twelfth	2 2/3’
33. Fifteenth	2’
34. Fifteenth	2’
35. Doublette	II
36. Sesquialtera	V
37. Mixture	IV
38. Contra Trombone	16’
39. Trombone	8’
40. Ophicleide	8’
41. Trumpet	8’
42. Clarion	4’
43. Clarion	4’

III. Swell (G_1-a^3)

44. Double Open Diapason	16’
45. Open Diapason	8’
46. Open Diapason	8’
47. Echo Dulciana	8’
48. Lieblich Gedact	8’
49. Voix Céleste	8’
50. Corno Dolce	8’
51. Principal	4’
52. Gemshorn	4’
53. Waldflote	4’
54. Twelfth	2 2/3’
55. Fifteenth	2’
56. Fifteenth	2’
57. Piccolo	2’
58. Doublette	II
59. Sesquialtera	V
60. Contra Trombone	16’
61. Contra Fagotto	16’
62. Ophicleide	8’
63. Trumpet	8’
64. Oboe	8’
65. Corno di Bassetto	8’
66. Vox Humana	8’
67. Clarion	4’
68. Clarion	4’
69. Tremulant	

IV. Solo (G_1-a^3)

70. Bourdon	16’
71. Flauto Dolce	8’
72. Lieblich Gedact	8’
73. Flute Harmonique	4’
74. Piccolo Harmonique	2’
75. Contra Fagotto	16’
76. Trombone	8’
77. Bassoon	8’
78. Clarionet	8’
79. Orchestral Oboe	8’
80. Clarion	4’
81. Tromba	8’
82. Ophicleide	8’
83. Cornopean	8’
84. Trompette Harmonique	4’

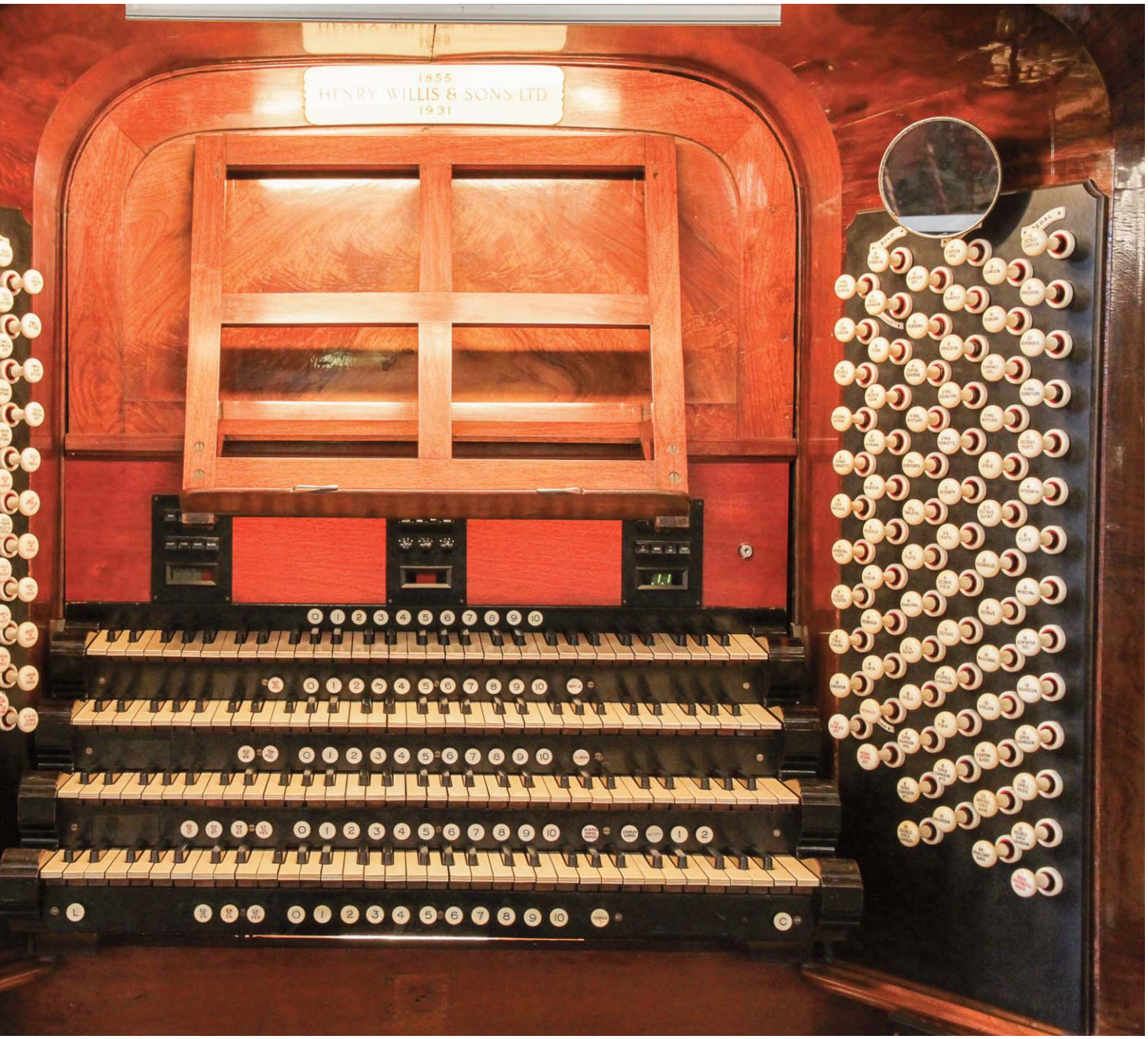
Pedal (C-f^1)

85. Double Open Diapason	32’
86. Double Open Diapason	32’
87. Open Diapason	16’
88. Open Diapason	16’
89. Violone	16’
90. Bourdon	16’
91. Principal	8’
92. Flute	8’
93. Quint	5 1/3’
94. Fifteenth	4’
95. Fourniture	V
96. Mixture	IV
97. Contra Trombone	32’
98. Trombone	16’
99. Ophicleide	16’
100. Trompette	8’
101. Clarion	4’

couplers:
Solo to Choir
Swell to Great 8’
Swell to Great 16’
Swell to Great 4’
Choir to Great
Solo to Great
Great to Pedal
Swell to Pedal
Choir to Pedal
Solo to Pedal

Table 3. The specification of Henry Willis organ from 1855 in St. George’s Hall Liverpool, England.

Source: Hopkins & Rimbault, “The Organ: Its History and Construction - A Comprehensive Treatise on the Structure and Capabilities of the Organ”, 1877.



Willis Organ St George's Hall Liverpool, console

development of the Swell section: at the beginning of the century, the Swell section became a richly manned section along the lines of the Great section; in the middle of the century, when the Récit section in the Cavaillé-Coll instruments had only a few stops, the English builders constructed organs where the Swell section already had a full principal chorus from 16' to the mixture, flutes and aliquot stops (fifths and thirds), a full battery reed stops about the sound of Trompette and at least one solo reed stop with a softer sound. At the end of the 19th century, the Swell section was extended to include stringing stops, one of which was the undulating stop of Céleste.

Victorian organ building is also characterised by the specific appearance of the organ cabinet, which – most often placed on the floor near the presbytery between the pillars of the building – consists of a wooden base on which the metal pipes are placed in one plane, the whole being open from the top: it has no cover unless it is the vault of the nave. Due to the mechanical

treatment of the key and register action, the console is built into one of the sides or the front of the case, and the player sits facing the instrument.[27]

The subjective comparative impressions of the English (Diapasons) and French (Montres) principal sounds have been preserved: the English principals were more refined than the French ones, their sound more substantial, round and fluid[2]. English organ building, on the wave of the geographic expansion of the British crown, had a major impact on the trends in building instruments in the US and throughout the English-speaking world.

The greatest English organ makers of the era include the aforementioned Henry 'father' Willis, who built, among others, the largest and most advanced organs in England at the time (70, 3M+P)[29] – out of fourteen instruments (eleven types of English and one type of French, German and Italian) – exhibited at The Great Exhibition in 1851, which took place at the Crystal Palace in London's Hyde Park, or the no less famous organ in St. George's Hall, Liverpool, which made the English virtuoso William Thomas Best famous, the concert organ in London's Royal Albert Hall, and divided into two mirrored sections the organ in London's St. Paul's Cathedral. 'Father' Willis played an analogous role in the field of English organ to that of Cavaillé-Coll in France. Willis's instruments were a kind of friendly rivalry with Cavaillé-Colla instruments in terms of not only stylistic coherence and beauty, but also quality and durability, engineering skills and focus on detail that were not popular features among other organ-makers.[30] In addition to Willis Senior, the following companies should also be mentioned: Hill & Son (subsequently taken over by Norman & Beard, including organs to the City Hall in Birmingham[31] and City Hall in Melbourne, organ rebuilding in Westminster Abbey); Thomas C. Lewis (organ at Southwark

Notes

1. Michels Ulrich, "Atlas Muzyki", Prószy ski i Spółka, Warszawa, 2003, ISBN 83-7255-158-8, p. 435.
2. Grajter Piotr, "Wokół tradycji wykonawczej utworów organowych Césara Francka", in: "Organy i muzyka organowa VI", red. Janusz Krassowski, Prace Specjalne 40, Akademia Muzyczna im. Stanisława Moniuszki w Gda sku, Gda sk 1986, PL ISSN 0239-7080, pp. 130-131.
3. Gembalski Julian, "Problem instrumentu w interpretacji francuskiej muzyki organowej Złotego Wieku", in: "Organy i muzyka organowa V", red. Janusz Krassowski, Prace Specjalne 33, Akademia Muzyczna im. Stanisława Moniuszki w Gda sku, Gda sk 1986, PL ISSN 0239-7080, p. 315.
4. Ochse Orpha Caroline, "Organists and Organ Playing in Nineteenth-Century France and Belgium", Indiana University Press, Bloomington 2000, p. 121.
5. Until 1802, the organ class professor was Nicolas Séjan, who was released on the wave of drastic cuts in full-time jobs at the conservatoire, which resulted in the dissolution of the organ class. After a 17-year break in education in the field of organ playing, from 1819, professors of this instrument were: François Benoist (in 1819-1872), Cesar Franck (1872-1890), Charles-Marie Widor (1890-1896), Alexandre Guilmant (1896-1911). See: Ochse Orpha Caroline, "Organists and Organ Playing in Nineteenth-Century France and Belgium", Indiana University Press, Bloomington 2000, p. 145.
6. Ochse Orpha Caroline, "Organists and Organ Playing in Nineteenth-Century France and Belgium", Indiana University Press, Bloomington 2000, p. 145.
7. Smith Rollin, "Louis Vierne: Organist of Notre-Dame Cathedral", Pendragon Press, Stuyvesant (NY) 1999, ISBN 978-1576471791, p. 90.
8. Smith Rollin, "Louis Vierne: Organist of Notre-Dame Cathedral", Pendragon Press, Stuyvesant (NY) 1999, ISBN 978-1576471791, p. 88.
9. Edrman Jerzy, "Problemy traktury gry oraz traktury rejestrowej w organach w uj ciu Alberta Schweitzera", in: "Organy i muzyka organowa I", Pa stwowa Wy sza Szkoła Muzyczna, Gdansk 1977, pp. 59-65.
10. Roth Daniel, Pierre-François Dub-Attenti, "The neoclassical organ and the great Aristide Cavaillé-Coll organ of Saint-Sulpice, Paris", Rhinegold Publishing, London 2017, p. 19.
11. Laukvik Jon, "Historical Performance Practice in Organ Playing. Part 2. The Romantic Era", Carus-Verlag, Stuttgart 2010, pp. 148-150.
12. Laukvik Jon, "Historical Performance Practice in Organ Playing. Part 2. The Romantic Era", Carus-Verlag, Stuttgart 2010, pp. 150-152.
13. Laukvik Jon, "Historical Performance Practice in Organ Playing. Part 2. The Romantic Era", Carus-Verlag, Stuttgart 2010, p. 144.
14. Cavaillé-Coll Cécile i Cavaillé-Coll Emmanuel, "Aristide Cavaillé-Coll. Ses origines, sa vie, ses œuvres", Paris, Fischbacher, 1929, za: Laukvik Jon, "Historical Performance Practice in Organ Playing. Part 2. The Romantic Era", Carus-Verlag, Stuttgart 2010, p. 149.
15. Laukvik Jon, "Historical Performance Practice in Organ

Cathedral in London, choir organ at Westminster Cathedral in London); Joseph William Walker & Sons (including organs in the Cathedral of Bristol, the Sacred Heart church in Wimbledon); or Robert Hope-Jones (Worcester Cathedral, St. George's at Hanover Squere in London).[32]

Examples of the dispositions of 19th-century English organs can be found in the book "The Organ, Its Evolution, Principles of Construction and Use" of William Leslie Sumner.[33]

Summary

After this general analysis of trends in organ building in the three main cultural centres of 19th-century Europe, the main common features of romantic organ-building can be distinguished. They are: 1. striving for homogenous, fickle and intense sound by accumulating many different organ stops in the scope of particular heights, with particular emphasis on 8-foot stops; 2. introduction of a swell box (for at least one section of the instrument) enabling a smooth change in the dynamics of the sound; 3. introduction of high-pressure and harmonic stops; 4. introduction of pneumatic facilities in the stop and keyboard actions; 5. increase in the size of the instruments being built. ■

> "'Father' Willis played an analogous role in the field of English organ to that of Cavaillé-Coll in France. Willis's instruments were a kind of friendly rivalry with Cavaillé-Colla instruments in terms of not only stylistic coherence and beauty,

Playing. Part 2. The Romantic Era", Carus-Verlag, Stuttgart 2010, p. 149.

16 Laukvik Jon, "Historical Performance Practice in Organ Playing. Part 2. The Romantic Era", Carus-Verlag, Stuttgart 2010, pp. 149-150.

17. Cook James H., "Organ History: The Pipe Organ from its Origin through the Twentieth Century", http://faculty.bsc.edu/jhcook/OrgHist/begin.htm [2017/12/31].

18. Laukvik Jon, "Historical Performance Practice in Organ Playing. Part 2. The Romantic Era", Carus-Verlag, Stuttgart 2010, pp. 144-145

19. Sumner William Leslie, "The Organ, Its Evolution, Principles of Construction and Use", MacDonald & Co. Ltd., London 1958, p. 216.

20. Sumner William Leslie, "The Organ, Its Evolution, Principles of Construction and Use", MacDonald & Co. Ltd., London 1958, pp. 216-217.

21. Sumner William Leslie, "The Organ, Its Evolution, Principles of Construction and Use", MacDonald & Co. Ltd., London 1958, p. 226.

22. Sumner William Leslie, "The Organ, Its Evolution, Principles of Construction and Use", MacDonald & Co. Ltd., London 1958, pp. 217-226.

23. Henderson A.M., "Organs and Organists at Paris", w: "The Musical Times", Vol. 62, No. 943 (Sep. 1, 1921), Wydawnictwo The Musicat Times Ltd 1921, p. 632.

24. Bicknell Stephen, "The History of the English Organ", Cambridge University Press, 1996, pp. 257-283.

25. Sumner William Leslie, "The Organ, Its Evolution, Principles of Construction and Use", MacDonald & Co. Ltd., London 1958, pp. 274-277.

26. Bicknell Stephen, "The History of the English Organ", Cambridge University Press, 1996, pp. 257-283.

27. Cook James H., "Organ History: The Pipe Organ from its Origin through the Twentieth Century", http://faculty.bsc.edu/jhcook/OrgHist/begin.htm [2017/12/31].

28. Henderson A.M., "Organs and Organists at Paris", w: „The Musical Times", Vol. 62, No. 943 (Sep. 1, 1921), Wydawnictwo The Musicat Times Ltd 1921, p. 631.

29. This instrument was then transferred to the Winchester Cathedral, where as a four-manual instrument - despite several subsequent reconstructions by the companies Hele and Harrison – they function to the present day. See: Sumner William Leslie, "The Organ, Its Evolution, Principles of Construction and Use", MacDonald & Co. Ltd., London 1958, p. 225.

30. Sumner William Leslie, "The Organ, Its Evolution, Principles of Construction and Use", MacDonald & Co. Ltd., London 1958, p. 217.

31. In this instrument, for the first time in England, a high-pressure reed stop was used - Tuba 8'. See: Sumner William Leslie, „The Organ, Its Evolution, Principles of Construction and Use", MacDonald & Co. Ltd., London 1958, p. 227.

32. A full list of English organ builders of the 19th century can be found in: Sumner William Leslie, "The Organ, Its Evolution, Principles of Construction and Use", MacDonald & Co. Ltd., London 1958, pp. 220-224.

33. Sumner William Leslie, "The Organ, Its Evolution, Principles of Construction and Use", MacDonald & Co. Ltd., London 1958, pp. 361-450.