CHAPTER 4

REGISTRATION

4.1 Introduction

The history of registration is undoubtedly bound up with the development of styles in organ building itself. The earliest observations on the subject of registration are almost as ancient as the oldest known music for the keyboard. Developments spread from the period of the so-called *Blockwerk* in the 15th century, which consisted of only a single tonal character, to the multiple spectra of timbres of the massive North German organs of the 17th and 18th centuries. As developments took place through most parts of Europe, organists were confronted with the challenge of choosing and blending different kinds of registers. The earliest instructions in the art of registration can be traced back to the 15th century. (Williams & Owen 1988: 253.) The German school of organists was in certain respects the first to attain maturity by the 16th century, ultimately reaching its climax in the works of J.S. Bach (Clutton & Niland 1982: 7).

Registration according to Wills (1993: 247) is the art of selecting registers or stops suitable to the work being performed and is thus dependent on the player's knowledge of historical performance practice, organ building and composition. It can thus be said that registration is the selection of appropriate pitches and timbres available on an organ to give the desired tone colour in accordance with the style of the specific genre.

Information on the subject of registration has two basic categories (Williams & Owen 1988: 253):

- practical advice, usually supplied by organ builders and;
- instructions from composers or theoreticians.

Registration treatises during the Baroque era are very sparse and one wishes that some of those that are available could have been more specific on this topic. The most important reference of the German registration practice during the Baroque period can be found in the following sources by theoreticians, organ builders and composers (Davidsson 1990: 47; Kooiman, Weinberger & Busch 1995: 162):

Syntagma Musicum II de Organographia	1619	Michael Prætorius (1571-1621)
Tabulatura Nova	1624	Samuel Scheidt (1587-1654)
The Pelpin Tabulature	*c.*1630	
The Lüneburg Tablature KN 209		
Organistenchronik		Johann Kortkamp (*c.*1615-1664/65)
Erweiterte und Verbesserte Orgel-Probe	1681	Andreas Werckmeister (1645-1706)
The Plauener Orgelbuch	1708/10	Johann G. Walther (1684-1748)
Registrations for the organs of Walterhausen, Altenburg and Eisenberg	*c.*1722	Gottfried H. Trost (1681-1759)
Registrations for the organ of the Berliner Garnisonkirche	1726	Johann F. Walther
Harmonische Seelenlust	1733	Georg F. Kauffmann (1679-1735)
Der Vollkommene Capellmeister	1739	Johann Mattheson (1681-1764)
Registrations for the organ in Grosshart-mannsdorf and Fraureuth	1741/42	Gottfried Silbermann (1683-1753)
Historisch–Kritische Beyträge zur Aufname de Musik	1758	Johann F. Agricola (1720-1774)
Musica mechanica organoedi	1768	Jacob Adlung (1699-1762)
Choralvariationen	1740	Daniel Magnus Gronau (d 1747)

Choralvariationen	1732	Lahm

Most of Alain and Van Oortmerssen's choice of registers are mainly based on these sources and their principals to bring about the desired *affekt* required by each individual work (Davidsson 1990: 49). In light of this aspect Davidsson mentions that "clarity, character, structure and figuration" should be the important factors in illustrating a specific *affekt* through registration.

4.2 The "Bach organ"

Bach's life spanned more than a half-century in a time when the organ in Germany was increasingly being developed. He knew, played and tested a great number of organs, not only in his immediate region but as far as some of the Hanseatic cities in North Germany such as Lübeck and Hamburg. Bach himself effected the construction of organs so that generalisation could be avoided. He was thus recognised as an expert and church authorities sought his advice on the maintenance of their valuable instruments as well as by the builders themselves.

The most general style of organ building during Bach's lifetime can be traced to two main streams: that of Arp Schnitger and that of Gottfried Silbermann (the latter in Bach's later life) (Newman 1995: 238). Many scholars have considered questions about the ideal Bach organ. The controversial question is whether the organs of Gottfried Silbermann are the best instruments for Bach's organ works. Bach most definitely knew Silbermann's organs and his son Wilhelm Friedemann (1710-1784) was appointed organist at the Sophienkirche in Dresden in 1773, which contained an organ built by Silbermann (Boyd 1995: 255). It should however be kept in mind that Bach played other organs and recommended or approved the organ builders themselves who worked in a different style other than that of Silbermann. Bach also had an extensive knowledge of organ building including the styles that differed from the normal German traditions. It can therefore only be said that the Bach organ is unattainable and a utopian ideal. His

works represent a synthesis between the Central German approach, the North German monumentalism, harmonic development from the West and the South German structure, which ultimately can be realised on almost any good organ. (Owen 1997: 169; Van Oortmerssen Vol. 5 1998: 3.)

In the year 1708 when Bach became organist of the Blasiuskirche in Mühlhausen, he recommended and supervised the rebuilding of the organ in collaboration with the builder Johann Friedrich Wender (1655-1729). Wender also built the organ in Arnstadt (1701-1703) where Bach was organist from 1703-1707. (Faulkner 1997: 214.)

Specification of the organ in the Blasiuskirche, Mühlhausen.

HAUPTWERK	RÜCKPOSITIV
Quintadena 16'	Quintadena 8'
Prinzipal 8'	Gedackt 8'
Viola da gamba 8'	Prinzipal 4'
Oktave 4'	Salizional 4'
Gedackt 4'	Oktave 2'
Nazard $2^2/_3$'	Spitzflote 2'
Oktave 2'	Quintflote $1^1/_3$'
Sesquialtera II	Sesquialtera II
Mixtur IV	Zimbel III
Zimbel II	
Fagott 16'	

BRUSTWERK	PEDAL
Stillgedackt 8'	Untersatz 32'
Flauto dolce 4'	Prinzipal 16'
Quinte $2^2/_3$'	Subbass 16'
Oktave 2'	Oktave 8'
Terz $1^3/_5$'	Oktave 4'

Mixtur III
Schallmey 8'
Rohrflote 1'
Mixtur IV
Posaune 16'
Trompet 8'
Kornett 2'

Couplers
HW/BW
HW/RP
PED/HW

Tremulant
Cymbelstern
Pauke

Bach's recommendations are very similar to the "ideal stoplist" found in Adlung's *Musica mechanica organoedi* (1768). The alterations to the organ of Mühlhausen should give a general idea of what Bach was looking for in an organ. It seems that he only wanted to bring this specific organ up to the latest trends in organ building of Central Germany (Stauffer & May 1986: 6; Owen 1997: 164-165; Schouten & Stuifbergen 1980: 177):

- Bach requested a 32' Subbass or a so-called Untersatz to give the organ more "*gravität*" as mentioned by authors such as Adlung and builders like Silbermann and Trost;
- the existing 16' Posaunebaß was to be constructed with larger resonators also for more gravity;
- in the *Oberwerk* the Trompet 8' was to be replaced with a Fagotto 16' as mentioned by Kauffmann to be used for a typical left hand *basso continuo* line;

- the *Hauptwerk* Gemshorn was replaced with a Viola da Gamba to be used with the 4' Salizional in the *Ruckpositiv*;
- the principal-scaled $2^2/_3$' register was changed to a flute-scaled register in the *Hauptwerk*, a general trend followed by Central German builders of the time;
- a coupler was installed between the *Oberwerk* and the *Brustpositiv*;
- for the new *Brustpositiv* Bach suggested the following:
  - i) a mild Stillgedackt 8'
  - ii) a Flauto dolce 4'
  - iii) a Schallmey 8'
  - iv) a Quint $2^2/_3$'
  - v) an Oktave 2'
  - vi) a Tertia $1^3/_5$'

The rebuilding of the Mühlhausen organ should not be viewed as the alpha and omega of Bach's registration preferences. Many of the organs on which Bach played are no longer extant, and consequently we have a very vague idea of how these instruments really sounded. Furthermore, there is no evidence whatsoever confirming that these organs conformed to Bach's tonal ideal. We are only aware of a few organs that exist in their original condition that were approved by Bach himself. One example of such an organ is that in the Schlosskirche (or the so-called Castle Church) in Altenburg built by Tobias Heinrich Gottfried Trost (1681-1759) from 1735-1739, which was examined and approved by Bach in September 1738 or 1739. (Thistletwaite & Webber 1998: 244.) He judged the construction "durable" and the quality of the registers as "lovely and very successful" (Stauffer & May 1986: 18). Bach's pupil Johann Friedrich Agricola (1720-1774) mentioned that the imitative stops of the Altenburg organ such as the Querflöte 16' and Gamba 8' "comes as close to the attack of a bowstroke on a [stringed] bass as is possible to achieve with pipes"(Owen 1997: 159).

Specification of the organ in the Schlosskirche, Altenburg

HAUPTWERK OBERWERK PEDAL

Groß Quintadena 16'	Geigen-Principal 8'	Principalbaß 16'
Flaute travers 16'	Quintadena 8'	Violonbaß 16'
Principal 8'	Vugara 8'	Subbaß 16'
Bordun 8'	Lieblich gedackt 8'	Octavbaß 8'
Rohr-Flöte 8'	Holh-flöte 8'	Posaunenbaß 32'
Spitz-Flöte 8'	Gemshorn 4'	Posaunenbaß 16'
Viola di Gamba 8'	Flaute douce 4'	Posaunenbaß 8'
Octava 4'	Naßat 3'	Quintadenbaß 16'
Klein-Gedakt 4'	Octava 2'	Bordunbaß 8'
Quinta 3'	Wald-Flöte 2'	Flaute traversenbaß 16'
Super Octava 2'	Super Octava 1'	Octavbaß 4'
Block-Flöte 2'	Cornett V	Mixturbaß VI-VII
Sesquialtera II	Mixtur IV-V	
Mixtura VI-IX	Vox humana 8'	
Trompete 8'		

<u>Couplers</u>

OW/HW

HW/Ped

<u>Tremulant</u>

Hauptwerk

Oberwerk

Tremulant to Vox humana (The Tremulant is connected to Vox Humana stopknob)

Glockenspiel

The specification of the Altenburg organ is a typical Thuringian disposition with an enormous collection of 8' stops. Also worth mentioning is the fact that there are only two reeds on the manuals, i.e. the Trompete on the *Hauptwerk* and the Vox humana on the

Oberwerk. The Altenburg organ possesses a relatively "darker" *plenum* than its North German counterparts, which includes Mixtures containing third ranks (Thistlethwaite & Webber 1998: 245).

Bach's expertise in organ building and design was again called upon and he was delegated, together with Gottfried Silbermann, to inspect and approve another organ in 1746. This was the organ in the Wenzelskirche in Naumburg and Bach praised it for its collaboration of North and Central German characteristics. Dänhert suggests that Bach could have had a direct influence on the design of the stoplist himself (Stauffer & May 1986: 20). A student of Silbermann named Zacharias Hilderbrandt (1688-1757) built the organ from 1743-1746 (Boyd 1983: 184; Thistletwaite & Webber 1998: 245-246). The original spelling of the stoplist has been preserved.

Specification of the organ in the Wenzelskirche, Naumburg

HAUPTWERK	OBERWERK
Principal 16'	Burdun 16'
Quintadehn 16'	Principal 8'
Octav 8'	Hollflött 8'
Spillflött 8'	Praestant 4'
Gedackt 8'	Gemshorn 4'
Octav 4'	Quinta 3'
Spillflött 4'	Octav 2'
Quinta 3'	Tertia 1 $^{3}/_{5}$'
Weit Pfeiffe 2'	Waldflött 2'
Octav 2'	Quinta 1 $^{1}/_{3}$'
Sex quintaltra II	Süflött 1'
Cornet IV	Scharff V
Mixtur VIII	Vox humana 8'
Bombart 16'	Unda maris 8'
Trompet 8	

RÜCKPOSITIV	PEDAL
Principal 8'	Principal 16'
Quintaden 8'	Violon 16'
Rohrflött 8'	Subbaß 16'
Violdigamba 8'	Octav 8'
Praestant 4'	Nachthorn 2'
Rohrflött 4'	Mixtur VII
Fugara 4'	Posaune 32'
Nassat 3'	Posaune 16'
Octav 2'	Trompett 8'
Rausch Pfeiffe II	Clarin 4'
Cimbel V	
Fagott 16'	

Tremulant
Rückpositiv

Cimbelstern
Windkoppel
4 Ventils

A few important characteristics of this organ are worth mentioning (Kooiman 1992: 72; Thistlethwaite & Webber 1998: 245):

- the organ has an abundance of 8' registers, most notably the Violdigamba 8' on the *Rückpositiv* and the Unda maris 8' on the *Oberwerk*;
- an interesting quality in this instrument is that Hildebrandt used the original old case which included a *Rückpositiv*. None of Hildebrandt's instruments contained such a division.
- the organ consists of powerful reeds that add considerable brilliance and force to the massive *Organo plenum*;

- the mixtures do not contain thirds.

David Yearsley (Thistletwaite &Webber 1998: 245) states the following concerning Hildebrandt: "[His] ability to draw on influences taken from Silbermann, Hamburg and contemporary trends in Thuringian organ building parallels Bach's own genius for synthesising."

4.3 The art of registration in Bach

It is an interesting enigma that a meticulous, organised and an exacting composer such as Bach should have left the organist with a handful of registration indications. This tendency was nothing exceptional among German organ composers of the time, probably due to the fact that they were not as prescribing and dogmatic as the French composers in terms of registration. French Classical organs differed in many respects from their German counterparts most notably in their Pedal division, and the music written for it (Newman 1995: 238). The French organs were all standardized in the Baroque period and consequently composers devised and developed a specific system of registration for their organs. This system was used throughout France at the time. The German organ on the other hand, varied in size, timbre and other diversities depending on the specific region's preferences and tastes. This diverse character of the German organ therefore prevented the composers from creating and developing a registration system as codified and exact as that of their French counterparts. (Douglass 1995: 3; Stauffer & May 1986: 193-194.)

Bach however, had a few basic preferences (Lamprecht 1995: 37):

- organs consisting of three manuals that could be coupled;
- an independent pedal division;
- bright principal choruses;
- a palette of diverse mutation registers ($2^2/_3$'; $1^3/_5$'; $1^1/_3$'; Sesquialtera);
- a good and equal distribution of reeds over all manuals and pedal;

- additional colour variation in the form of a Quintadena, Gemshorn, Salicional and Viola da Gamba;
- the inclusion of two compound mutation registers to the principal chorus and;
- the importance of flue foundation registers.

Bach's registration indications are very limited and he is not always clear as to the type of register(s) to be used. Altogether there are approximately 20 registration guidelines in Bach's organ works. It should be noted that some of these indications are not all originally by Bach himself (Faulkner 1997: 226):

- the designation *Organo pleno* at the beginning of some preludes and fugues and some chorale-based works;
- the instruction '*à 2 claviers et pédale*' in some chorale-based works and the six trio sonatas;
- a registration indication for "Gottes Sohn ist kommen" (BWV 600) from the *Orgelbüchlein:* viz. manual Principal 8', pedal Trompete 8' (according to Alfred Dürr this practice is influenced by the style of Samuel Scheidt (1587-1654) (Badura-Skoda 1993: 136).
- registration indications in Bach's transcription of Vivaldi's *Concerto Grosso in D minor* (BWV 596);
- registration and manual designations for *Ein feste Burg ist unser Gott* (BWV 720), in the hand of Johann Gottfried Walther;
- indications of pitch levels but not specific registers for the six so-called Schübler chorales (BWV 645-650) and;
- manual change indications using terms such as *forte* and *piano* as well as *Oberwerk* and *Rückpositiv*.

4.4 Contemporary registration practices

The sources of Bach's contemporary registration practices can basically be divided into three main categories (Faulkner 1997: 224-226):

Category 1: writings on general principles of registration not applying to any specific type of work. Examples are those from Mattheson's *Volkommene Capellmeister*, Adlung's *Musica mechanica organoedi* and Agricola's essay on registration.

Category 2: detailed and specific combination of registers or remarks on the use of specific registers. Examples are the registration instructions of Silbermann for Grosshartmannsdorf and Fraureuth, and Johann Friedrich Walther's instructions for the organ of the Berliner Garnisonkirche.

Category 3: specific registration indications or instructions applied to specific works of organ music. This category provides the most detailed and accurate information. An example is the registrations supplied by Kauffmann in his *Harmonische Seelenlust.*

4.4.1 *Plenum* registrations

According to Harald Vogel (Stauffer & May: 1986: 32) the *plenum* as we know it today, with its doublings of ranks emphasising the octave and the fifth, was an inheritance from the so-called Gothic *Blockwerk. Plenum* registrations (or "full organ") were mainly used for all the free compositions such as preludes, toccatas, fugues, fantasias and other non-chorale-based works. The ongoing endeavour to strengthen the *plenum* was also a result of the fact that the organ was in its embryo stages to be used as an accompanying instrument for congregational singing. As a direct result of the organ's new function as an accompanying instrument, the *plenum* became the tonal center in the late 17th century and the 18th century. During the 17th century reed stops were gradually being used and added specifically to the North German *plenum*, first to the Pedal and later to the manuals.

We know that Bach used the *plenum* – which is unique to the organ among all musical instruments – to an unprecedented degree. He was without any doubt the first Central German composer to succeed in combining the concept of strict polyphony and

counterpoint with the true tonal identity of the organ, the *plenum*. Bach did not record his view of the construction of the *plenum*, but fortunately some of his contemporaries did. These writings confirm that the *plenum* did not call for a random use of the *tutti* [in the sense of the Romantic symphonic organ of Aristide Cavaillé-Coll (1811-1899) for example] but rather a carefully chosen group of both manual and pedal registers. (Stauffer 1986: 31-34 & 195-199.)

The most important authors on the subject of *plenum* registration are Johann Mattheson, Jacob Adlung and Johann Friedrich Agricola. Their overall and general composition of the *plenum* is basically identical in certain aspects, except for a few differences.

Mattheson's composition of the *plenum* is as follows (Owen 1997: 145):

> *To the plenum belong the Principals, Sorduns, Salicionals (WeidenPfeiffen), Rauschpfeifes, Octaves, Quints, Mixtures, Scharfs, Quintadenas, Zimbels, Nasats, Terzians, Sesquialteras, Superoctave, and the Posaunes in the Pedal – not in the manual, for the Posaunes are the reed pipes, excluded from the manual plenum.*

Adlung gives a fuller description (Stauffer & May 1986: 199):

> *Anyone who would like to know what to draw in the manual for the plenum need only remember this: One must have registers, which brighten. To this end the Principal serves together with all the Octaves and the Quints and Terzes and best of all the mixed voices such as the Terzian, the Sesquialtera, the Mixtures, the Scharfs, the Cymbels, and so forth. If one does not wish such a strong combination, then one should leave something out - whatever one wishes. But if one desires an even brighter plenum then one should pull the appropriate stops on another manual and couple it into the main keyboard. One must also have stops, however, which add gravity. For this purpose, the Gedackts act as well as*

the Quintaton 16', or even better, the Gedackt 16' or Rohrflute 16' or a Bourdon of similar size (according to what is available), the Gedackt 8', Rohrflute 8', Gemshorn 8', and so forth.

What has been said about the manual plenum is also true for the Pedal plenum, for it must be very strong in order to be heard above the manual. One usually depends more on gravity in the Pedal, although sometimes one brightens it as well. In order to obtain gravity one should use the Contrabass 32', Subbass 16', Gedackt 8', Principal 32' and 16', Violon 16', and the Octave 8'. All these stops may be drawn together when the organ has enough wind (and especially when the Pedal division has its own bellows). Sometimes one employs bright voices in the Pedal, such as the Octave 4' and 2' and perhaps Mixtures, too. If the organ does not have such stops, then one can bring manual registers into the Pedal through the use of the coupler. If several bright ranks are already found in the Pedal, then one does not need to use the coupler at all. The Posaune 32' and 16' along with the Trumpet and other reeds can be included in the plenum. Often the Posaune 16' is sufficient, however, especially in rapid passages where 16' stops work better than 32' stops.

Mattheson and Adlung's principals can thus be summarised and reduced to the following (Stauffer & May 1986: 200; Kooiman, Weinberger & Busch 1995: 146-148):

Manuals

- The Principal chorus of all pitches and Mixtures are used, including stops that add gravity (16') or brightness to the ensemble.
- Reed stops are excluded from the manual *plenum.*
- The *plenum* is mostly concentrated on the sound of one manual (usually the *Hauptwerk*) while secondary manuals are coupled to add power or brilliance to the main division.

Pedal

- The Principal chorus and Mixtures of all pitches are to be drawn plus stops that add gravity to the *plenum*. Thirty-two-foot registers are to be included if the music is not to fast.
- Reed stops are to be drawn in the Pedal division.
- The manual divisions need not to be coupled to the Pedal unless the latter lacks sufficient power to support the manuals.

Agricola's construction of the *plenum* does not differ considerably from that of Mattheson and Adlung, yet he differs on two accounts. Firstly he suggests that the manual reeds be added to the *plenum* (Faulkner 1997: 227):

> *When one wishes to play quite loudly, one draws the full organ, to which all of the principal stops described above belong. To these one may add the Trompets 16', 8' and 4', if they are in good tune. It is indeed also possible to couple to it a second manual, on which the full organ is likewise drawn.*

Secondly, he makes it clear that he considers any flue stops other than the principals as flutes. Thus when he writes, "The flutes are not drawn with the full organ" he means both flute and string registers are to be omitted. He therefore follows the advice of authors such as Michael Prætorius (1571-1621) (*Syntagma musicum*) and Andreas Werckmeister (1645-1706) (*Erweiterte und Verbesserte Orgel-Probe*) (Faulkner 1997: 228; Kooiman, Weinberger & Busch 1995: 150).

Silbermann's *plenum* for the Grosshartmannsdorf organ (1741) is also of considerable interest. The contact between organ builder and organist has always been very close during this epoch. It is also a fact that many an organ builder was also an organist (Douglass 1995: 1). Notably the Grosshartmannsdorf organ's *plenum* is based on a Principal 8' in the *Hauptwerk* and a Gedackt 8' in the *Oberwerk*. His *plenum* recipes could not involve 16' manual stops because the organ had none. These registrations

(together with that for the organ of Fraureuth) were probably used to assist the new organists of the two churches. Silbermann's "pure" *plenum* (as he personally named it) for Grosshartmannsdorf is as follows (Owen 1997: 170):

HW	OW	PED
Principal 8'	Gedackt 8'	Subbaß 16'
Rohrflöte 8'	Rohrflöte 4'	(probably with coupler)
Octave 4'	Octave 2'	
Quinta 2 $^{2}/_{3}$'	Quinta 1 $^{1}/_{3}$'	
Octave 2'	Cymbel II	
Mixtur IV	Sifflöte 1'	

From the above-mentioned information it is clear that eighteenth-century material on registration present a rather detailed picture on the composition of the *Organo plenum.* It can therefore be reduced to the fact that most of Bach's German contemporaries do agree on these general principles.

The differences of the *plenum* as described by the aforementioned authors, can be compared according to the standardised tendencies of the different regions, schools and perceptions. Both Mattheson and Adlung include the flutes, strings and compound mutation stops on the manuals in combination with the compulsory Principals and Mixtures. This blending ability was significantly strengthened by the pure-thirds, or "Prætorian" temperaments in common use during the 17th century. Silbermann also uses the flutes in his manual *plenum*, but also applies flute-scaled mutations e.g. cornets. In total contrast to this, Agricola follows the examples of Michael Prætorius (author of *Syntagma musicum*) and Andreas Werckmeister, whereby only the principal-scaled registers are employed and the omitting of flutes and strings. (Faulkner 1997: 228.) In terms of this aspect Agricola states the following exception (Faulkner 1997: 227):

> *The flutes are not drawn with the full organ. There is an exception to this: if the Principal is only an 8', then a 16' Gedackt, Bordun, Quintadena or Rohrflöte can and must be drawn with it. A 16' Bordun also greatly augments the gravity of a 16' Principal. A similar* [precept] *should be observed if the Principal is only a 4': in that case, it is necessary to draw an eight-foot flute with it, as a foundation stop.*

4.4.2 Non-*plenum* registrations

This category includes all the remaining diverse variation possibilities other than the *Organo plenum.* Mattheson describes this division as "*alle übrige vielfältige Veränderungen, die sich mit verscheidenen Clavieren besonders, und mit schwagen, iedoch ausgesuchten Stimmen machen lassen.*" [All the remaining (register) variations best realised through the use of different manuals and with softer but nevertheless carefully selected stops]. (Kooiman 1992: 33.) This category mostly includes a boundless variety of flute, string and reed combinations. Registrations such as this were either used as solos on two or more manuals or as a type of consort registration. Consort registration is a concept defined by Harald Vogel, which is primarily a combination between reed and flue stops. Vogel also mentions that it is possible to register a homogeneous consort corresponding to a complete family of instruments, or it can be made up of a mixed consort using different families of instruments, ranging from bass to soprano. (Stauffer & May 1986: 32.)

Very particular re the non-*plenum* registrations is the fact that it was employed in genres such as *bicinia*, trios, chorale partitas, duets, canons and works with a coloratura *cantus firmus* (Stauffer & May 1986: 200).

Some of Bach's contemporaries wrote specific registration combinations in their manuscripts or prints of their chorale preludes. An interestingly detailed and important example is that of Georg Friedrich Kauffmann (1679-1735) in his *Harmoniche Seelenlust*

(Leipzig, 1733-1739). This work consists of 63 chorale preludes of which many have detailed registration directions. The most obvious quality of these works is the employing of a 16' stop used in the left hand. Registers that are usually used in such an instance are the Principal, Quintadena, Bordun, or (most important) a Fagott. Such an applying of the 16' (and notably the Fagott) corresponds with Bach's description of these registers' function. The use of the 16' in the left hand as *basso continuo* was also influenced by the cantata setting practice of the day. (Owen 1997: 160; Stauffer & May 1986: 201.)

Trio registrations

The trio as an instrumental idiom for the organ does not appear much in the organ literature before the time of Bach although there are a wealth of rather simple trios, mostly written for manuals only. Some of Bach's movements in his trio sonatas are in fact transcriptions from his own instrumental works. An example is a movement from the fourth Trio Sonata (BWV 528) that was originally composed for oboe d'amore, gamba, and *basso continuo*. (Owen 1997: 164.) Owen also suggests the use of stops that imitate these timbres and which therefore give an atmosphere of authenticity. Mattheson supplies an interesting and well-known registration combination for trios on two manuals and pedal (Kooiman 1992: 67-68):

RH: Prestant 8'
LH: Octaaf 4' (played an octave lower)
PED: Prestant or Subbaß 16' + Octaaf 8'

or

RH & LH: Prestant 8' + 4'
PED: Prestant 16' + 8'

or

RH & LH: Flutes 8' + 4'

PED: Subbaß 16' + Gedackt 8'

Kauffmann's trio registration somewhat corresponds with the tradition and conservatism of the first above-mentioned combination. He suggests the use of this registration for a chorale prelude in the style of a trio (Faulkner 1997: 231):

Jesus Christus unser Heiland:

Manual: Principal 8'

Rückpositiv: Principal 4' (played an octave lower)

Pedal: Subbaß 16' + Oktaven Baß 8'

Kauffmann also left the performer with a few less conservative and orthodox trio combinations (Faulkner 1997: 231):

Ach Gott, vom Himmel sieh darein:

Haupt-Manual: Gemshorn 8'

Oberwerck: Vox humana 8' + Spiell Pfeiffe 4'

Pedal: Sub-Bass16' + Gemshorn 8'

Wie schön leuchtet der Morgenstern:

Haupt-Manual: Principal 8'

Oberwerck: Vox humana 8' + Principal 4'

Pedal: Sub-Bass 16' + Oktaven Bass 8'

Silbermann (who received his training in France and Alsace) supplied an instruction for a trio registration added to the list of other registrations for the Fraureuth organ, employing the typical French combination of the so-called *Jeu de tierce en dialogue* (called *Tertien-Zug zweystimmig*) (Williams & Owen 1988: 133-134):

RH: Prinzipal 8'

Rohrflöte 8'
Oktave 4'
Quinte 2 $^{2}/_{3}$'
Prinzipal 2'
Tierce 1 $^{3}/_{5}$'

LH: Gedackt 8'
Rohrflöte 4'
Nasard 2 $^{2}/_{3}$'
Oktave 2'
Quinte 1 $^{1}/_{3}$'
Sifflöte 1'

PED: Sub-Bass 16'
Posaune 16'

It is interesting to note Silbermann's unusual addition of the Posaune 16' in this trio combination.

4.4.3 The *Äqualstimmenverbot*

The *Äqualstimmenverbot* is basically a rule in registration practice whereby the combination of any two or more registers of different scaling of the same pitch is forbidden. In early times when organs were not sufficiently bellowed, the air supply was not enough for all the organ's registers to be used simultaneously. If all the stops were to be used at the same time, there would usually be a sudden drop in wind pressure that would make the overall sound and timbre of the organ unstable. Andreas Werckmeister in his *Orgel-Probe* (1681) discusses in detail this wind deficiency, which precluded the use of more than a few stops of the same pitch simultaneously. Consequently this unstable wind supply to the pipes literally forced organists to employ registers more

economically. It therefore became a rule: the less registers that were used, the better the sound effect. (Kooiman, Weinberger & Busch 1995: 142-145; Stauffer & May 1986: 45 & 50.)

The combination of two or more 8' registers on the manuals seems to have been a specifically sensitive and, to an extent, a forbidden practice during the Early Baroque and beginning of the High Baroque. Both Werckmeister and Mattheson adviced that "thin" (principals) and "fat" (flutes) stops should not be mixed, specifically in the manual *plenum.* This was perhaps a citing of a concern for tuning and wind stability of the time. Mattheson in his *Der Volkommene Capellmeister* also states clearly that only one register of each pitch length should be used in any given combination. (Owen 1997: 144-145.)

In later theoretical writings of Werckmeister, Niedt, Adlung and even Friedrich Wilhelm Marpurg (1718-1795), there evolved a more relaxed attitude towards the rigid and strict rules concerning the *Äqualstimmenverbot.* Adlung mentioned that a "good" wind system would not affect the air supply when two or more 8' registers were combined (Williams & Owen 1988: 259). Mattheson suprisingly enough also states later (in his *Der Volkommene Capellmeister*) that both narrow and wide-scaled stops are to be included in the *Organo plenum* (Owen 1997: 145). The "gravity" that is so often mentioned by many authors of the Baroque era was thus partially achieved by the addition and combination of low-pitched stops. This change in ideas of the above-mentioned authors is perhaps not suprising due to fact that that there was a gradual improvement in the development of wind stability in organs.

Lynn Edwards (Faulkner 1997: 212) mentions that many organs in Bach's area, especially the instruments of Georg Christoph Sterzing, were very rich in eight-foot stops. She goes on to say that even modestly sized instruments had three to four stops on each manual division. These registers were undoubtly used in combination with each other in some instances. An interesting example outside Northwest and Central Germany is the rebuilding of the organ in the St. Laurenskerk, Alkmaar in the Netherlands. In 1685 Johannnes Duytschot (an organ builder from Amsterdam) built six new bellows

instead of upgrading the existing ones, which were in an excellent condition (Jongepier 1987: 83). It therefore became a necessity to provide organs with the proper amount of wind in the 18th century.

Worth metioning is that Adlung made a special point of writing in his *Musica mechanica organoedi* about the organ in the Bergkirche in Langensalza saying that it had four new large bellows "like those in the castle church of in Weissenfels." This organ was built by Tobias Gottfried Trost from 1697 to 1701. (Faulkner 1997: 213.) It is obvious that the brand new wind supply system made an enormous impression on Adlung.

Bach's pupil, Agricola made this following observation concerning the abolishment of the *Äqualstimmenverbot* (Faulkner 1997: 228):

> *Our ancestors believed that two voices of different scale at the same pitch level would of necessity sound bad if they were drawn together. But if such stops are well constructed and purely voiced, then one can refute our ancestors any day merely by drawing and using them together. I have heard a Lieblich Gedackt, Vugara, Quintadene and Hohlflöte played together on a certain organ, all at 8' and without any other stop, which produced a beautiful and strange effect.*