Syntagma Musicum II: De Organographia, Parts III – V with Index

Michael Praetorius

Wolfenbüttel

Quentin Faulkner trans. & ed.

University of Nebraska - Lincoln, qfaulkner1@unl.edu

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Preface to the Translation

Michael Praetorius was born Feb. 15, 1571, and died Feb. 15, 1621. The fifty years of his life are distinguished by unremitting creative energy. Praetorius achieved distinction as a practicing musician: as organist and Kapellmeister at Wolfenbüttel, Dresden and Magdeburg, and (in his later years) by incessant travel to fulfill commissions at various central German courts. Amid his travels Praetorius found time to publish an impressive series of collections of musical compositions, in all more than a thousand works.

Praetorius’s only literary publication, the three-volume Syntagma musicum (Musical Encyclopedia) belongs to the last years of his life.

Volume I, Musicae artis analecta (1614/15, in Latin), treats principles and practices of religious music, from a decidedly Lutheran perspective.

Volume II, De organographia (1619, in German) deals with musical instruments, in particular with the organ.

Volume III, Termini musici (1619, in German) explores the practice of music, both improvisation and composition.

The Syntagma musicum is the first comprehensive treatment of music in the German language. Looking back over the intervening 150 years, Jacob Adlung—himself a major figure in German musical scholarship—cites Praetorius constantly, and refers to him as the “primary book ....”

Volume I has not yet been translated into English. Volume III has been translated and edited by Jeffery Kite-Powell (Oxford University Press, 2004). The first two parts of Volume II, on all musical instruments except the organ, have been translated twice: by Harold Blumenfeld (Bärenreiter, 1962; reprinted by Da Capo Press, 1980), and by David Z. Crookes (Oxford: Clarendon Press; New York: Oxford University Press, 1986). The publication before you translates Volume II, Parts III-V on the organ.3 Its belated appearance would have puzzled Praetorius, who declares the organ to be “a perfect (indeed one might also say “most perfect”) musical instrument ... which ...
A great number of people have graciously and generously offered me their expert help in understanding and interpreting the many challenges and puzzles this translation has presented. I am grateful to all of them for their time, their advice, and their patience.

If I have inadvertently omitted mentioning names of persons that should by right be in this list, I ask for their kind pardon, and assure them that the fault lies not in any ingratitude on my part, but rather in the scope of the project.

Mr. Gene Bedient, organbuilder, for advice both practical and theoretical
Prof. Konrad Brandt, Evangelische Hochschule für Kirchenmusik, Halle/Saale, Germany
Prof. Anita Breckbill, Music Librarian, University of Nebraska-Lincoln
Prof. Dr. Jürgen Eppelsheim, Ludwig-Maximilians-Universität, Munich, Germany, for many hours' wrestling with the most challenging passages.
Dr. Mary Murrell Faulkner
Prof. Kyriakos Gounaridou, Smith College, Northampton, Massachusetts
Prof. Raymond Haggh, School of Music, University of Nebraska-Lincoln
Frau Kettmann, Bibliothekarin, Evangelische Hochschule für Kirchenmusik, Halle/Saale, Germany
Mr. Wayne Leopold and Ms. Christina Gogdill, for kindly preparing musical examples.
Prof. Paul Royster, Coordinator of Scholarly Communications, University of Nebraska-Lincoln Libraries, for his enthusiasm and creativity in preparing this digital publication.
Prof. Pamela Starr, School of Music, University of Nebraska-Lincoln
Prof. Harald Vogel, North German Organ Academy; Hochschule für Künste Bremen, Germany
Herr Christian Wegscheider, organbuilder, Dresden, Germany
Herr Rüdiger Wilhelm, Braunschweig, Germany
Prof. Dr. Christoph Wolff, Department of Music, Harvard University, Director, Bach-Archiv Leipzig
Marlene M. Wong, Head of Werner Josten Library, Smith College, Northampton, Massachusetts

4. p. 143: "...every organbuilder ought diligently to pursue very narrow scales, since the narrower they are, the more gentle [lieblich] and charming they are."
5. See, e.g., the bottom of p. 127, "Eisen Principal..."
Notice

Even with the generous, patient counsel I have received from those with particular expertise, I have all too often been unable to arrive at an incontestable translation of Praetorius’s text. Questionable words and passages are indicated in dark red type in the electronic edition of the translation (http://digitalcommons.unl.edu/zeabook/), and appear in gray type in the printed version (available from http://www.lulu.com/spotlight/unlib). Among the advantages of electronic publishing is the opportunity it affords to alter and correct such words and passages. The translator and publisher would be grateful for suggested corrections and clarifications, but they reserve the right to accept or reject them as seems prudent.

Quentin Faulkner
1. the Universal Table of organ stop names, bound between pp. 126 and 127.

2. Duke Heinrich Julius of Brunswick and Lüneburg, Praetorius's patron; see p. 139.

Music Encyclopedia

By Michael Praetorius of Creuzburg

Volume Two

Concerning Musical Instruments.

In which may be found The Name, Sound Properties and Structural Characteristics of Every Musical Instrument, ancient and modern, both those that are foreign, barbarian, rustic, and unfamiliar, as well as those that are indigenous, artful, gentle, and familiar, together with a drawing of each to scale; Furthermore, A precise description of ancient and modern organs, their manual and pedal keyboards, bellows, stoplists, and various kinds of stops, as well as how to tune regals and harpsichords easily and precisely; and what to consider when accepting a newly-built organ, together with an appended detailed table; Not only useful and necessary for organists, instrumentalists, organbuilders, instrument makers, and all who are well-disposed toward the muses, but also to be read with pleasure by philosophers, philologists, and historians. Together with a detailed Index.

Printed at Wolfenbüttel by Elias Holwein, Printer and Woodcut-Engraver to the Prince of Brunswick. Published by the author. A.D. 1619
Concerning Organs of the Past

Contents

1. The dignity and excellence of organs.
2. How long they have been in use, and who first invented them.
3. Stops and other characteristics of the earliest small organs.
4. Later instruments of medium size.
5. How and when the pedal was discovered.
6. Very large early organs.
7. The arrangement of the keyboards in early organs, and what sort of music they played.
8. The pitch of early organs, and how many pipes each key played.
9. The bellows at that time.
10. Various names for early organs.
11. The distinction between early and present-day organs.
12. The invention of spring- and slider-chests.
13. How the keyboards, as well as
14. The stops have been changed, increased, and improved up until the present.
Chapter 1.

The dignity and excellence of organs, and how those designed especially for worship are superior to all other instruments.

Here are those who believe it proper and right that, next to theology, the highest place should be accorded to music, since it is a beautiful and splendid gift of God, and provides an image of music in heaven, where God's holy angels together with the entire heavenly host praise their creator without ceasing in gentle harmony, and sing "Holy, holy, holy is God, the Lord of Hosts." Among its many merits, effects, and powers, perhaps not the least is that music is in its essence more a spiritual than a physical phenomenon, and thus awakens in human hearts an inner spiritual devotion, in order to praise Almighty God all the more fervently with beautiful psalms and hymns of praise. Thus both King David and King Solomon, when they wished to arrange worship in the Jerusalem Temple as magnificently and elegantly as possible, went to great effort and expense to appoint many musicians, both singers and instrumentalists, with the intent of making the people more fervent and zealous. David himself used his harp for the same purpose, and doubtless had several splendid organs built and placed in the Temple, because of its great size.

Thus church music, as a service to God, ought properly to be held in great esteem today as well, and to be celebrated with all due reverence. For this purpose skillful, celebrated organists are needed, who inspire rather than irritate their listeners, and who make God present to hearts and minds, as they prelude upon a text or psalm with appropriate devotion. But when this purpose is not heeded, and due to indifference someone is appointed who can only play little dances, then church music will soon come to be held in contempt, and even be abolished due to abuse; experience has proven this to be true.

And religion itself is usually the next to go; this has indeed happened in Greece, where in the past music flourished at the highest level. Since Mohammed

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1. cf. Martin Luther's letter to Ludwig Senfl: "Music is a beautiful and glorious gift of God…"
2. Praetorius provides a visual realization of this image in the frontispiece of the Theatrum Instrumentorum, the collection of illustrations at the end of this volume, following p. 236.
3. See I Chronicles 6: 31-48; 16: 4-42; 25: 1-31; cf. Luther, "One reads in the Bible that pious kings supported, maintained, and gave salaries to singers;
4. Praetorius may be referring to the magrephah, an instrument that the Talmud (Arachin tractate) reports as being found in the temple at Jerusalem and having pipes sounded by wind from a bellows. Nothing specific is known about it.
5. Friedrich Blume notes that "… [Lutheran] church orders sometimes mentioned that the organ must not impede congregational singing,... perhaps directed against an overly elaborate practice of alternation or an egocentric accompaniment and embellishment of the chorale (Bach was reprimanded for this in Arnstadt);"
6. Praetorius is probably referring to Plato's writings on music.

2. John Calvin considered instruments inappropriate for worship services. See I Chronicles 6: 31-48; 16: 4-42; 25: 1-31; cf. Luther, "One reads in the Bible that pious kings supported, maintained, and gave salaries to singers;" see Buszin, Luther on Music, p. 14. Here Praetorius's intenti is in part to refute reformers such as Calvin and Zwinglei who excluded instruments and elaborate polyphonic music from services of worship.
3. Praetorius provides a visual realization of this image in the frontispiece of the Theatrum Instrumentorum, the collection of illustrations at the end of this volume, following p. 236.
4. Praetorius may be referring to the magrephah, an instrument that the Talmud (Arachin tractate) reports as being found in the temple at Jerusalem and having pipes sounded by wind from a bellows. Nothing specific is known about it.
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6. Praetorius is probably referring to Plato's writings on music.
7. During the 7th-8th centuries Islam spread throughout the Middle East, North Africa, Spain, and the Caucasus. Over the course of the 15th-16th centuries the Ottoman Empire annexed Greece, the Balkans and present-day Hungary.

8. See Theatrum Instrumentorum, Plate 29.

9. In 1536 Francis I entered into an alliance with the Suleiman the Magnificent, ruler of the Ottoman Empire, against their common foe, the Hapsburg Empire.


11. i.e., a body of musicians, both vocal and instrumental, that provides music for both secular and religious events at noble and royal courts.


13. i.e., the Jews, as God’s chosen people.

14. Wind and string instruments mentioned in the Old Testament, filtered through writers of antiquity as well as several layers of translation of the Bible.

15. p. 56, incorrectly numbered “54.”

De Organographia.

has pitched his tent; however, music has decayed so badly that it has all but disappeared. Indeed it is held in such low esteem that, just as among the barbarians, the panpipe and drum are favored above decent and proper music. A number of years ago the King of France, Francis I, sent the ‘Turkish Emperor Suleiman’ the finest musicians, intending thereby to do him great honor. But the latter soon did away with them and sent them back, with the message that such music was inappropriate for his people, since it only made their spirits soft and effeminate. This is entirely contrary to the opinion of the [ancient] Greeks (who scorned anyone inexperienced in music, and never bestowed high office upon him, since they were of the opinion that experience with music developed good character).

And experience proves that music cannot survive where the devil holds sway, since the godless are not worthy of it. But the true church has always held music in high regard: there has never been a chapel to equal that of King Solomon, as described in the fourth chapter of the Second book of Chronicles.

And at that time it was certainly the case that music flourished far more among the people of God than among the heathen, since in addition to wind instruments such as tubas, buccinas, tubas ductiles, tubas corneas, etc., the Jews also had stringed instruments such as psalteries and decachorda of 8 to 10 and even 24 strings. As has already been mentioned in Part II, No. 32, Jerome writes that the Jewish cithara, now called a lute, had 24 strings. On the other hand, the heathen knew only three tetrachords, that is, 11 strings. Although it is hardly possible today to know anything about the music of that time, the circumstances leave no doubt that it must have been splendid, especially considering that the saintly Kings David and Solomon, both well-versed in music, took great care in arranging for it. Since they spent great sums on the temple, which was after all only a lifeless pile of stones, in order to increase their own fame throughout the world, how much more effort must they have taken with the sacrificial rites at which God himself was present.

Since [the ancient Israelites] used so many different instruments and voices together, they obviously must have intoned the Psalms of David (perhaps in partic-
DE ORGANOGRAPIA.

The organ, the instrument of instruments, is held in such high regard in the church. It is certain that our forebears never expended as much effort on any instrument as upon complex, melodious organs. They built them not only of brass, silver, and gold, but often out of other rare and marvelous materials as well; indeed, their inventiveness with new materials seems almost unbelievable. All of the organ's many parts exhibit a wealth of artistry and careful construction, not only in their inner and outer form (which seems almost alive), but in the inner parts as well, which are often of the finest quality. The organ, as Praetorius notes, is a true master of its art, and its sound is a true marvel of human ingenuity.

16. This is all guesswork on Praetorius' part, and remains so today. He seems to be projecting a structure built on a cantus firmus (a compositional technique venerable but still well known to him) back onto a musical practice about which he could have known nothing.

17. Again, Praetorius is projecting a polyphonic texture back onto an unknown musical practice.

18. This comment is based on an erroneous assumption; see note 4 above.

ular modes, just as with plainsong nowadays) in a given principal voice, such as the bass, augmented ad libitum by all the other singers and instrumentalists. Otherwise [the music] would have had no form, if every part performed its own independent melody. The text relates that it sounded as if a single voice trumpeted or sang, praising and thanking the Lord. It is no surprise, however, that this music exists no more, and that nothing further is found in Holy Scripture about the arrangement of choirs (except what is reported in the headings of the psalms). For just as God's vengeance obliterated the Jewish temple together with its sacrifices and ceremonies, Jewish music also had to be exterminated, so that no memory of it would remain.

The Jews themselves (as some of their number have told me) today have no desire to hear organs; they allege that our organs are only a pale reflection and nothing in comparison with the organs that Soloman had built for the temple in his day. They say that, since the most wise king Solomon must undoubtedly have been the highly skilled and competent builder who constructed that splendid, artistic instrument, in his great wisdom he never would have built an inferior instrument for the temple, but rather one that was excellent, splendid and pleasing to hear. And indeed that cannot be denied. Since the Greeks were so keenly interested in music, it is odd that they never learned from the Jews how to build such a splendid musical instrument. It is due to its exceedingly, inexpressibly great art that the organ, the instrument of instruments, is held in such high regard in the church.

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Again, Praetorius is projecting a polyphonic texture back onto an unknown musical practice.

DE ORGANOGRAPHIA

in the variety of sounds, loud and soft, produced by all the pipes, both large and small, when the keys and stops are used well. This artistry is likewise evident in the operation of the bellows, that produce a constant, stable supply of wind, surpassing all other instruments, that have to be sounded by human breath.

This lovely instrument, with its many voices, indeed contains within itself everything that can possibly be conceived in music. It produces a genuine, natural sound, like a whole choir of musicians, with young boys and mature men singing different melodies together. In sum, the organ comprises within itself all other musical instruments, large and small, of whatever type. Whatever you want to hear—a drum, trumpet, trombone, cornett, recorder, traverse flute, pommer, shawm, dulcian, racket, sordun, krummhorn, violin, hurdy-gurdy—the organ has all of these, and many more beautiful things as well. When you listen to this instrument, you think you are hearing all of the other instruments sounding together. I hardly need mention that a less accomplished organist can often outshine a great master on another instrument, since both hands and feet are needed in order to make the organ do one's bidding. And to tell the truth, there is no art that has risen to such great heights as that of the organ. Thanks to subtle inventiveness and diligent reflection, the organ has reached such a state of perfection that it lacks nothing; it needs no further experimentation or development at all.

In a preface that I have translated into German, the Italian Girolamo Diruta testifies to this excellent, one might almost say, divine instrument:

"All the arts and sciences that human understanding, thanks to God's boundless grace and favor, can comprehend, are related to a principal intelligence, a master who is praised and honored above all other intellects due to his great excellence. Thus it is understood that, when one speaks of "the philosopher," one means Aristotle, the prince of philosophers; in medicine it is Hippocrates, in Latin poetry it is Virgil, a"
Among the Italians Petrarch is honored as "the poet." Similarly, in theology "the prophet" is King David, and "the apostle" is St. Paul. Since these men exceed all others in their respective fields in their skill and artistry, therefore their name rightly represents the entire endeavor. The ancients also adhered to this custom in music and singing, and bestowed this lofty title on the greatest musicians who ever flourished in their midst, Orpheus24 and Amphion.25

Among all the instruments, it is likewise the organ, due to its excellence, that is granted this title in our time, the Greek word "organum"26 signifying in general all the kinds of instruments and tools that are in the world; and for this reason, that it comprises in itself all other instruments, whatever their name. And thus the organ today, in that it praises the divine Majesty in the assembly of the faithful, is rightly considered the king of all instruments. For the same reason the human hand is called "Organum," the best of all tools, because it takes the lead when engaging in all the demanding tasks that require its services, and comes to the assistance of all the other limbs.

But of course not everyone would accept this definition of "organum," even though it is quite accurate. Many would understand this word to refer only to the organ, the instrument controlled by bellows, that is used in churches and choirs for the glory of God. Thus Psalm 150 says, "Praise the Lord with harps and organs."27 The lute, harp, violin, and other instruments that produce their sound by means of strings are likewise called "organi" or "instrumenti,"28 because players use them as tools to exhibit their performing skill. The organ, long established as the superior instrument, encompasses in its scope all the other instruments. It deserves its noble title "organum" because it comes closest to the human voice; both are controlled by wind and by the hands of their master. For the pipes actually represent the human throat, through which humans direct their breath to form the sound of their voice. One
might indeed say that the organ is an artfully constructed living being, which, as it were, speaks and sings by means of wind and human hands. Organs are put in churches, at great expense and with elegant skill, to the glory of God and for the sole purpose of ceaselessly praising the inexpressible works of the divine Majesty.

Thus the organ in its grandeur is quite fittingly compared to the human body, that is controlled in its actions by the soul. For just as the organ attracts and pleases the sense of sight, and fills and melts the sense of hearing with its sweet, lovely sound (by means of wind, which is as it were the soul of the organ), so also the human being whose sweet eloquence communicates the hidden, inner meaning of words is the one others look to. Furthermore, the bellows represent the lungs, the pipes the throat, the keyboards correspond to the teeth; the one who makes the organ sound represents the tongue, and if he plays deftly and sweetly, he is as it were a most elegant speaker.

Therefore anyone who pursues this noble art should apply himself to it with the greatest industry, and thereby attain complete and perfect mastery of this instrument that is controlled by wind. Anyone who neglects this will diminish the majesty and dignity of this excellent instrument, just as a man with a handsome body but a lisping, stammering tongue gives a contradictory, distorted impression.

Furthermore, just as beautiful, skillful paintings attract the eye of the beholder, the lovely, sweet harmony penetrates the inner thoughts and feelings of the listener as it strikes his ear. Therefore the organ belongs in the church, the temple of God, to awaken holy, devout hearts, and through its lovely tone to encourage, yea, urge them to take part in the praise sung to the divine majesty.

It is indeed true that the organ holds pride of place above all other instruments, since it alone comprehends in itself all the sweetness and
loveliness that all the other instruments can produce. This is especially so, since it has reached such a degree of excellence that there is no other music, either vocal or instrumental, in the whole world that can represent the lovely song the holy angels sing to the glory of God. This is well expressed by the following verse on the organ at St. Peter's, Peru:  

Hac si contingunt terris, quae gaudia Coelo? — Since this can take place on earth, what joyful and lovely sound must there be in heaven?  
That is to say, since there is such lovely, beautiful, harmonious music on earth, my Lord, what inexpressible joy, bliss, and loveliness must there be with the choirs of angels and the blessed souls in heaven! (Here ends the quote from Girolamo Diruta.)

Anyone can see that the church has with good reason chosen and praised this instrument, above all others, for the preservation and public proclamation of religion in God's name.

If this instrument is thus great and excellent beyond all praise (as just stated), then all organists ought properly to keep this in mind, and daily to apply all their thoughts and senses, hands and feet, to do justice in performing on this splendid instrument. Thus they will avoid being considered ignorant and bringing the label τηϖ αντιΦρασιν on the name 'organist.' For there are those who are indeed called and installed as organists, but never consider how they can live up to their vocation and become an ornament to their profession. Experience will testify that many of these cannot play the most insignificant piece or motet, or accompany a full choir. But what they ought to be doing is using the organ to keep the entire ensemble together, and especially choirs of singers, so that the singers maintain the right key, neither forcing their voices so that they go sharp (as happens over and over again, especially when many boy singers are involved), nor going so flat that the singers cannot do anything with their voices.

The following considerations however should impel such organists to more industrious practice:

29. Greek "an impostor."
The excellence of the instrument, already discussed at length in this first chapter.

The renowned masters of this art who have lived during the past number of years, not only in Italy, but also in our own Germany (and formerly in the Netherlands), and who still flourish as celebrities in both places. They have cultivated their art to such a high degree that it is doubtful it could be improved in any way.

The young boys, some of whom are nowadays so proficient that even experienced and skillful organists have expressed their astonished admiration, commenting that, with the aptitude these boys are showing, the future is indeed full of promise.

Furthermore, it would be a thing worthy of praise, if the authorities in some cities would also do their part, and seek the funds with which to pay the fine and diligent organists in their churches a proper salary for all their hard work. It is regrettable what paltry salaries even some prominent places pay their good and skillful organists; some of these musicians can barely support themselves. Indeed they sometimes curse their noble art, and wish they had become cowherds or petty laborers instead of organists. This is indeed lamentable, and needs to be noted and corrected by city and church officials. (This is the end of Chapter I.)

Chapter II.

At approximately what date and by whom the organ was discovered.

The Inventor:

Truly, it is sad to say, nowhere recorded who the inventor of this wonderful instrument was. Polydorus greatly laments this in Book 5, Chap. 121 and Book 3, Chap. 18. He writes: "Many musical instruments were discovered in antiquity, and it is completely forgotten who invented them; among these is the one called "organ," an instrument worthy of admiration and praise. It is indeed quite unlike the ones built by David, the Jewish King and Prophet, to whose
accomplishment the Levites sang their hymns, psalms, and spiritual songs. Of this same sort are the monochord, harpsichord, and others like them; the good names of their inventors are likewise hidden in obscurity, a great loss. When the Instrument was Invented: Historians are not in complete agreement as to when the organ was first invented, and when it began to be used in the Christian Church.

V. lib. 23. 35 (933 A.D.) states that Pope Vitalianus inititated both singing and the use of the organ in church, during the reign of Emperor Constantine III.

Polydorus (de invent.) Book 6, Chap. 2 and Cranzius, Metrop[ialis], Book 11 report that Pope Vitalianus I introduced rules for the church, regulated singing, and used the organ to gain a fuller, more harmonious sound. Platina in Vitalianus writes that the instruments powered by water or wind originated around 660 or around 930 A.D.; Guili. Perkinsus, Anglic. Theol. Acad. Cantab., agrees with this in his prol. de Cantileneius. Aimonius sets the year at 812, Genebrandus at 997. In his Lib. de Grat. et Gori. Canon, Chap. 16, Navarrus says that at the time of Aquinas the organ was not yet in use; according to Chytræus, Thomas Aquinas died in 1274, A.D.

The organ is likely much older, however, and Vitalianus in 660 A.D. probably only approved and confirmed its use. According to the opinion of Mr. Seth Calvisius, the most outstanding historian of our time, as soon as a great deal of singing, divided into choirs, became the rule in churches, then without doubt the organ was put to use wherever two choirs were not available. It performed the simple chant, monophonically, for the purpose of allowing the singers a bit of rest. And thus, with the help and support of the organ, the ancient tetrachord, still in use at the time of Boëthius (who flourished around 487 A.D., in which year he was a Roman consul), was done away with, and the 6 church modes were invented. The musical scale was also greatly improved, as can be seen in Guido, who flourished around 1026 A.D., more than five hundred years after Boëthius. We have Guido to thank for the expansion of the keyboard to 20 keys, where there were previously only four, then seven, then fourteen, and finally fifteen.

It was also by means of the organ that figural music was invented. For ancient times musical harmony was far different from what we know as figural mu-
43. From the ancient tetrachord the semitones, the chromatic keys, were invented. They arose from the tetrachord of the ancients, the tetrachord Synemmenon (this is a linking of tones, such as E f g a b♭ c d) in which a b♭ was inserted between b♮ and a. After the b♭ key was there, the other chromatic keys were quickly introduced. Otherwise it would never have been possible to extend the hexachord system. D♯ was undoubtedly the next note to be invented, which made g a b♭ c d possible.

44. From reliable historians it is possible in some measure to determine at what time these keys first appeared in Germany and France, and when highly developed organs were to be found in Italy and elsewhere.

45. In Annales Bojorum, Book 3, Aventinus records that in 742 A.D. Constantinus VI Copronymus, son of Leo and Emperor of Byzantium, dispatched legates (the foremost of whom was Stephen, a Roman bishop) to deliver quite a sizeable organ to Pepin, King of the Franks, the father of Charlemagne. Such an instrument was at that time still unknown, both to the Franks and to the Germans. Aventinus reports that it was made with pipes of lead, it was winded by bellows, it was played with hands and feet, it was called an organ, and that it was seen for the first time in the Frankish kingdom. Lambertus Schafnab. and Marianus Scotus, Book 3, report that this happened in the year 758. Others record that the pedal was first invented for an organ in Venice. Thus it is apparent that the kind of musical instrument that we today call the organ has not been in German and French churches very long.

46. In order to give credence, however, both to Aventinus (who says that in Pepin's day the organ was unknown either in France or in Germany) and also to Platina (who asserts that the organ came into the church through Vitellianus, who lived 300 years before Pepin), one must realize that Platina is referring without doubt to the crude instrument that had 15 pipes operated by 12 bellows, the sort of instrument that stood on Mt. Olivet in Jerusalem and produced a noise like thunder. Either that, or he is referring to the ancient hydraulis, commonly called the organ, described by Vitruvius, Book 10, Architect., Chap. 13.

Although both of these, the hydraulis and today's organ, are indistinct...
The body of our organ today, the case (Kasten), skillfully constructed of wood, has however many rows full of pipes, and emits the sound from the pipes in front, in back, from the Brustwerk, on the sides, and beneath the feet, by means of wind supplied by bellows.

Leander writes in Colug. 23 that he saw a very melodious organ in Venice made solely out of glass (Majolus relates this as well). He also reports having seen an organ whose chest, pipes, keyboard, and bellows were of alabaster (a stone found in the field at Volterra in Italy); a skillful Neapolitan master, after having built it and voiced it exceedingly sweetly, presented it to Friderico, Duke of Mantua, to do him honor. Leander in his Thucia testifies that he himself saw this exceedingly wonderful instrument. Such a positive, in which not only the entire case and keyboard, but even the pipes themselves were made entirely out of glass and alabaster, was exhibited several years ago in an electoral art collection as a newly invented instrument. But as the abovementioned historians indicate, such an invention was around long before our time.

Among Christians, the most distinguished and famous musical inventors have been: Georgius the Priest, born in Venice, whom a Hungarian count, Daldricho recommended to Louis the Pious, cast and built in Aachen the musical instrument, the hydraulis, called an organ (see Aimonius, Book 4, Chap. 113, de Francis; also Aventinus, Book 4, Annales).

Gilbertus, Bishop of Rheims, who later was named Pope in Rome, as Sylvester II, built with the aid of his mathematical knowledge an organ that produced its sound by the violent power of boiling water; this was in 997 A.D., as Erfordiensis and Genebrandus both testify.

Boethius, who was at once a good mathematician, a philosopher, and an exceptional poet, is considered to be the inventor of the musical instrument, the chiterini (see Bergomas and Genebrandus), in A.D. 515.

And lest we forget: Sabellicus, Book 8, Ennarratio 10, reports that about the year 1470 A.D. there lived in Venice an exceedingly distinguished man, especially in music.

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66. This statement rests on a misunderstanding propagated by medieval descriptions of the instrument.
66. The German word "Kasten" corresponds neither to the modern German word for "case" (Gehäuse) nor for "chest" (Lade); here the context seems to suggest the former.
67. Leandro Alberti, (Alberto, Albertus), 1479-c1552, Italian Dominican monk and historian.
69. 778-840; son of Charlemagne; King of the Franks from 814 until his death.
70. Aimon of Fleury, Historia Francorum, 32.
72. Gerbert d'Aurillac, c946-1003; reigned as Pope from 999.
73. Gilbert Genebrard(?), (1537-97).
74. Index I, p. 205, gives the name as "Henricus Erfordiensis" (Heinrich of Erfurt); identity unknown.
75. Gilbert Genebrard(?), (1537-97).
76. Anicius Manlius Severinus Boethius, c. 480-c524; Roman senator and philosopher.
77. Marcus Antonius Coccius Sabellicus? (1436–1506), either Ennarratio sive Rhapsodia historiarum (a universal history, pub. 1498) or Historiae rerum venetarum ab urbe condita (a history of Venice, in Latin).
This remark attests to the diligence and effort Praetorius invested in seeking out primary source material. His name was Bernhardus, but he bore the surname "Teutscher" [i.e., "the German"] to indicate the people from whom he sprang. He was the first one to improve and expand the organ by stretching thin strings [from the keys] to the pedal, thus helping the organ sound fuller and more harmonious. But no one can say with certainty whether the first organs were in Greek, Italian, Asian, or African churches.

It is to be regretted that nothing can be known about the invention of the first organ, or when it was built. From that knowledge one could not only learn about the gift, given by God to men, of making this particular musical instrument, but also about our forebears' diligent, laborious thought several hundred years ago. They set a ladder in position, as it were, on which their descendants could subsequently climb ever higher; they illuminated for us the right way to proceed in the future. Their example could impel us to the same diligence in applying the liberal arts all the more effectively and usefully to the glory of God, in this marvelous age in which we live (when it appears that everything has risen almost to perfection).

Simply to tear down old instruments, some less than 100 years old, without a second thought, and to leave not a single description of them (despite an exhaustive search of the old records79): such a shoddy way of doing things is a blot on the reputation of those responsible for it—organists and organbuilders alike.

Nevertheless, on the basis of the remnants of organs that still exist (at least as of several years ago), which are to be described in this treatise, one can surmise certain things. Evidence, such as the dates on organs at Halberstadt and in the Paulinerkirche at Erfurt, among others, as well as other indications scattered here and there, suggests that organs were built as long as 600 years ago.

Chapter III

The characteristics of the earliest organs, which were quite small

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Chapter III

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Some, though, were like this:

\[
\begin{align*}
&cdefgabcd e, \\
&cdefgabcdefga.
\end{align*}
\]

After this first invention, also the use of the organ tubing must be taken into account. The largest pipe of each key stood in front, in the façade, where the Principal stands in today's organs. These instruments sounded powerful and penetrating; their keyboards had no semitones, like this:

\[
\begin{align*}
b & cdefgabcd e, \\
&cdefgabcdefga.
\end{align*}
\]

Soon after the time of Timotheus Milcius the fourth tetrachord, \( \textit{hyperbolain} \), was invented, the e f g a in the higher position; thus there were 14 tones. Finally the lowest key, A below the tetrachord, was added, as a bass tone, lest anything be lacking in the music of the ancients. Thus it was possible to play a Cantus durus upon 15 tones. When they wanted to shift to the Cantus mollis or transpositus, then they added the tetrachord \( \textit{synnemmenon} \); in this regard, see Calvisius's Exercitium 2, p. 105.

As already mentioned, all this happened at the time of Alexander the Great, before Christ's birth. The organs that still existed up until a few years ago,
However, were built long after Christ's birth, and still had no more than 11 or 12 keys (encompassing the first three tetrachords), just like those built in the days of Timoteus Milesius.

This is quite astonishing. Perhaps it is because at that time they had as yet no experience with keyboard [instruments] and had to begin by taking their timid first steps ("holding onto the bench," as is said), improving with each try, until they finally increased the number of keys. Mr. Calvisius,\(^86\) though, thinks it is because the Mixture had so many octaves, one atop the other, that it was considered unnecessary to increase the number of keys. Furthermore, the natural range of the human voice does not require many more pitches than the eleven keys produce; if the melody ascended beyond the compass of the keyboard, the octave beneath was played. This situation prevailed until more keys were invented, as reported more fully in Chapter 7.

Chapter IV.

How the earliest small organs were extended by an octave, and made into medium-sized instruments.

No doubt the matter remained like this for many years—progress being slow and protracted, as with any new invention—until this new and wonderful instrument became known, and was built at various widely separated places.

A hundred or more years ago, however, as the art of organ-building became more common and blossomed into a true discipline, envy doubtless began to play a role in the matter. For now builders became more and more clever, and they began to build larger instruments, twice as big as the first ones.

There are not only reliable reports about this here and there, there are actual instruments still to be seen in important cities, collegiate and monastery churches. One thing then led to another, and master builders vied among themselves in coming up with one ingenious idea after another.

From the two types of keyboards just mentioned above,\(^87\) (since one had a b♭ and the other a b♮), it seems logical that, about 100 years after the instrument was invented,\(^88\) someone had already devised semitones; 400 years ago various semitones began to appear in keyboards, especially the b♭ in the b♭ keyboard and the e♭ in the b♭ keyboard.\(^89\)
How the pedal was invented, and thus the first and primary keyboard (previously without a name) came to be called “Manual”

Although the organ had by this time increased in the size and number of pipes and in the number of keyboards, nevertheless when it was first invented the principal and the mixture were not yet split up, but sounded as one inseparable stop. The only alterations were in the increased number of notes in the treble and in the addition of the pedal, already invented 400 years ago. Although written records no longer exist, a glance at the layout of very old organs provides evidence of this: there are two side towers for the pedal, and the manual occupies the middle section.

Here it is only proper to acknowledge and to praise our forebears' profound thought and diligent inventiveness, in that they discovered how to produce musical sounds with their feet as well as with their hands.

In Vol. I, Chapter 10, Membrum 4, Pars I 90 Sabellicus reports that a German by the name of Bernhardus brought the pedal from Germany to Venice in Italy.

The pedal is seldom used in Italy, England, and elsewhere as well, although the art of the organ is presently flourishing [in those places]. Some writers assert that in times past Italian music had totally perished, and that the Germans had to bring it there again.

A long time after the pedal (which originally had only eight keys: B⁰, C, d, e, f, g, a, b⁰) 91 had been invented, another manual was devised, played by the left hand, to be used instead of the pedal as a bass. It was identical to the already existing manual in size and configuration. A second manual keyboard likewise grew out of the original manual keyboard; its layout will be described below. 99

After the pedal was invented, the original keyboard that we have been referring to as “Manual,” was called “Discant” instead of “Manual.” The pedal was
then given the name "Pedal." This can be seen in an ancient monastic manuscript, and common sense confirms it as well. Here is the reason why: in the beginning the chant cantus firmus was performed monophonically, and so the keyboard doubtless bore no name since it was more or less an anchor for the chant. The names and compass of the notes confirm this. Subsequently however, after the pedal was invented, the manual keyboard gradually kept on adding smaller pipes in the treble, until it had added more than an octave to its range. In comparison with the pedal, therefore, it was rightly named "Discant."

The keys of this Discant manual were shaped like this $\mathfrak{U}$ or this $\mathfrak{G}$ (sketches of these may be found in the Theatrum Instrumentorum, Plates XXIV and XXV). They were so hard to depress that they had to be thrust down with a fully clenched fist.

Such a keyboard, with only 9 keys, was almost 1¼ or 1½ yards wide. The Theatrum Instrumentorum, Plate 24, provides a sketch of keys of this actual size and length. They are to be found in the three keyboards, lying one atop the other, still extant in the large instrument in Halberstadt Cathedral; more will be said about them below.

Reliable reports indicate that this sort of keyboard was in use for 300 years or more after its invention, and that during this time only one manual keyboard was built (called "Discant," as mentioned above) together with a pedal; with practice one might finally have been able to play a trio on such an instrument.

Chapter VI.
Concerning very large organs

Just like the small organs (the first ones to be invented), these medium-sized ones produced only one sound, an unchanging full organ. Because of their many pipes, these organs got louder and louder, until 250 years ago the third kind of organ was invented. Such organs were not built in ordinary churches, but rather in large, eminent monastery and cathedral churches. The case of one such large cathedral
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97. For further information about this instrument, see: Karl Bormann, *Die gotische Orgel zu Halberstadt*, Berlin: Verlag Merseburger [c. 1966]. On p. 17 this publication provides a plate with an attempted reconstruction of the case, according to Praetorius’s description.

98. September 20.


100. See *Theatrum Instrumentorum*, Plates XXIV and XXV.

Instruments such as this one exhibit a high level of achievement, to a degree not encountered in the two types described earlier. From this, one may deduce that by this time the undertaking had already been thoroughly thought through. Just as today, builders had devised and thoroughly explored various clever inventions; their imaginations gave them new and loftier insights, just as one visualizes something in a dream. Thus they eagerly sought not only the semitones, but also all varieties of sound. Both of these innovations are already encountered in the organ at Halberstadt. It is only fitting to report here in greater detail about the construction and use of manual and pedal keyboards in this instrument and others like it, and also about the rapid rise of the organ as these inventions soon pointed the way to further advances.

Chapter VII.

Concerning the layout of the keyboards in the very large organ, in particular in the abovementioned old organ at Halberstadt, and how such keyboards were used.

1. The uppermost keyboard, called at that time “Discant,” controlling the full organ, the Prestant pipes in the front as well as the one large Mixture behind them.

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100. See *Theatrum Instrumentorum*, Plates XXIV and XXV.
Judging from the sketches of these keyboards (Theatrum Instrumentorum, Plate XXV), the sense of this remark seems to be that the keyboards were (more or less) alike in available pitches and in compass.

This highest note may have been a $b^\flat$ instead of a $b^\natural$, despite its position as a lower key. Both $b^\natural$ and $b^\flat$ were originally considered diatonic notes, and thus old organ keyboards (e.g., the instrument formerly at Norrlanda, on the island of Gotland, Sweden, dating c1370-1400, now in the National Historical Museum in Stockholm), have four "naturals" between $g^\#$ and $c^\#$: a, $b^\flat$, $b^\natural$, and c. Since the Halberstadt organ was not in playing condition when Praetorius examined it, he could not have known this; but a keyboard that already had a $b^\natural$ (here, as the lowest note) would likely have had a $b^\flat$ instead of another $b^\natural$. For this insight I am indebted to Prof. Jürgen Eppelheim (Ludwig-Maximilians-University, Munich, ret.).

The second keyboard, also called "Discant," but used to play the Principal alone.

This pedal keyboard lies directly under the third, described above, and is of the same size, but does not have precisely the same keys, as can be seen in Plate XXV of the Theatrum Instrumentorum.

The primary advantage these four keyboards provide is the possibility of achieving a difference in sound. The two middle keyboards (numbers 2 and 3) could have allowed the principal, the pipes in the façade, to be played alone with the hands, the right fist (then called the "Discant") playing on the second keyboard, and the left hand playing the bass on the third keyboard (instead of the pedal), thus producing nothing other than a bicinium, based on the chant. The other two keyboards, the top and the bottom, were for the powerful full organ, i.e., the mixture (called at that time "Hindersatz," since it stood behind the Principal (præstanten) sounding together with the praestant pipes. Since the uppermost keyboard was the Discant and the lowest was the pedal or bass keyboard, it would have been possible to perform a trio on them. According to my own observation, in the Discant there were 32, 43, or 56 pipes that sounded on various keys in the Hindersatz, but there were only 16, 20, or 24 pipes (large ones, like a low mixture) on the pedal or bass keys.

Since the praestants were quite large and the mixture had a great many pipes, all under considerable wind pressure, this instrument must have produced...
Here the word "Mensur" means "the length of the pipes" (Praetorius specifically assigns it this meaning on p. 119 below). At other times, however, (such as in the first sentence under the entry "Schweitzerpfeiff," p. 128 below) the word clearly means what it means today: the relationship of the body's height to its width. In both instances "mensur" has to do with measurement, and Praetorius does not distinguish between the various senses of the word. Accordingly it has been translated as either "length" or "scale," depending on its context.

104. i.e., with a drone.

105. It is unclear whether Praetorius is actually quoting Calvisius, or simply paraphrasing him; but the following sentence suggests that the presentation of Calvisius's ideas ends here (if not indeed earlier).

106. Praetorius seems to be referring to his statement on the bottom of p. 90, that Guido d'Arezzo expanded the keyboard to 20 notes.

Thus the instrument produced an exceedingly powerful sound. There was also a limited number of manual keys, and so the instrument could not produce the gentle higher tones, but only a deep, coarse, rumbling roar.

This must have been all the more so, since, with such low pitches, nothing within the octave but fifths or major thirds could be played (each key requiring an entire hand, or rather, clenched fist). Listening to such an instrument must therefore not have been especially pleasant according to our taste, unless the higher pipes of the Hindersatz could penetrate through the mass of sound and allow the listener to hear the chant melody.

The twelve large pedal pipes stand in the side towers, and the Discant pipes are arranged between these two high towers progressively according to their height.

Here is what Mr. Calvisius thinks about the sound of old organs and harmony in the past; this is what he wrote in a certain letter to me:

Here is the question: is it not possible to find vestiges of ancient harmony? Without doubt this harmony has been preserved in the church. Two musical instruments from the past are still in constant use today: the bagpipe and the hurdy-gurdy. Both of these continuously sound a consonance. With the bagpipe it is simply a fifth. In the hurdy-gurdy, though, there are three or four strings. Three of them simultaneously produce fifths and octaves; then there are keys that depress the fourth string, producing in contrast a true melody.

This sort of music has without doubt always been preserved in the church. In order to produce consonances on the organ, there had to be separate ranks of pipes that always sounded the consonances that fit with the pitches of the chant (just as happens on the hurdy-gurdy), e.g., C-G-C', or D-A-D', or E-B-E', etc. These notes sounded continuously, and then a chant whose final was C or D or E was played against them, just as one plays a shepherds' dance on a harpsichord. Various authors indicate that this is how all instrumental music was performed, from the very beginning. From this it is easy to see that, when this sort of music was current, not as many keys were needed as indicated at the end of Chapter 2.

Later certain clever musicians made further private attempts to furnish consonances beneath the notes of the chant, which they transferred to a higher

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They played two notes on the keyboard itself, and thus finally discovered how to bring the chant to a close properly, with a cadence. That was the most important thing. For as soon as they learned to make cadences (which was no easy matter, since there are various types of them), they were able to find consonances for the rest of the notes, and to play two voices in note-against-note counterpoint. Thus they discovered the bicinium. They continued to make progress until they produced a tricinium, and finally they invented florid counterpoint.

All of this, however, took a long time. It required a lot of effort to find the consonances, because organs were not tuned as accurately as today, and to the pitches, both naturals and chromatic tones, could not be tuned purely. For a long time musicians were not willing to accept thirds and sixths as consonances, since musical tradition would not permit this. For no one wanted to be considered impudent, or to present himself as more clever than Ptolemy, Boethius, Euclid or other eminent musicians.

If one should want to hear the kind of harmony found in early music, then in my opinion one need only draw the full organ: principals, octaves, superoctaves, quints, zimbels, mixtures, together with the subbass and whatever other plenum stops are available; this would be an accurate reproduction of an old mixture. Then one should sound a continuous fifth in the pedal with both feet (C-G, or D-A, or F-c, etc.), and play a chant responsory or introit, or a German hymn, as a cantus firmus on the manual—but in the tenor register, since there were no higher-pitched pipes in old organs. In this way one would come fairly close to the early way of making harmony—though in the past it would not have sounded so good.
107. Praetorius has "6'"; the context indicates that this is an error.

108. As the subsequent paragraph demonstrates, Praetorius is here referring to chamber pitch, a step (sometimes even a step and a half) below choir pitch. Since the Halberstadt organ stood one and a half steps above choir pitch, it would have been approximately a fourth higher (or a fifth lower) than chamber pitch.

109. Elsewhere, however (p. 116) Praetorius asserts: "Regarding pitch … there has never been a universal standard observed by all builders."

Therefore in the Hindersatz there were all the varieties of today's open principal pipes. In succeeding years the great number of pipes in that mixture were divided into separate stops (to be described below) by means of spring- or slider-chests. Thus many different stops from this one mixture could be used separately, yet some pipes were still left together in a mixture.

This instrument, however, was a good step and a half higher than our present-day instruments at choir pitch, as the length of the abovementioned large praestant pipe demonstrates. Long ago all instruments, no matter how large or small, probably stood at that pitch, or even higher, since before the Reformation they were used for nothing but to accompany chant. It appears that chant-organs that were built a perfect fourth higher or a fifth lower than our present-day pitch were finally recognized as being the most suitable, and so that pitch was adopted. And if there is some pitch discrepancy between various old organs that are still in use, it should not be attributed to a lack of good will and diligence among the masters who first built them, but rather perhaps to the absence of a standard choir pitch for them to use as a guide—something that we, praise God, have today.

Organs that were installed in churches to accompany fine choirs of men
and boys were at times tuned a step higher (or even a step lower), and their pitch was often raised even further from the original due to repeated tuning and rebuilding. As a rule, though, the abovementioned pitch—a fourth higher or a fifth lower than our usual pitch (i.e., chamber pitch)—was considered the right one, and is still found in the important cathedral- and monastery-churches.

But many instruments can also be found that are a step higher or lower,110 and also quite a few that are built about a half-step higher.

Chapter IX.

About the kind of bellows found at that time.

At the time mentioned above (350 or 300 years ago) when large instruments such as the one at Halberstadt were built, less thought must have been given to the bellows. Twenty little bellows are laid out in the Halberstadt Cathedral organ, and there were twenty four very small ones in the one at Magdeburg, in the size and order depicted in the Theatrum Instrumentorum, Plate XXVI. In their size and proportions they were not unlike our present-day blacksmith's bellows. They were not depressed by lead or stone weights, but by assigning one person to tread every two bellows. When the treader's weight depressed one bellows with one foot, the other foot drew the other bellows upward. Thus twenty bellows must have required ten people to operate, and twenty-four must have required twelve.

One must indeed wonder why our forebears back then, since they were so advanced in other aspects of organbuilding, never contrived a more convenient way of supplying wind, by designing the bellows to provide more adequate wind, and by devising a better way of treading them (since all people are not of uniform size and weight).

110. (presumably) than the pitch Praetorius has just been discussing (a fourth higher than choir pitch).
Surely the tuning difficulties occasioned by such unsteady wind pressure must have made someone pause to reflect, since the organ was only one mixture, made up of octaves, fifths, fourths, and many unison ranks, from low to high.

Since today’s organbuilders, as successful as they are in building instruments with stable winding (as I have observed), have difficulty tuning organs perfectly, how difficult and tiresome it must have been for our forebears! Not to mention the hardship such ceaseless movement imposed on the treaders. The only relief that [organbuilders] had was not having to tune such instruments by specific consonant intervals and by tests, since [organists] never played polyphonic compositions, but only the plainchant melody.

Therefore, after tuning the praestant pipes (which by that time could be drawn separately), all that remained was to tune the pipes of each keypure according to the praestant, as with a mixture. I wish that someone would restore such an instrument, so that one could compare that sort of instrument with our modern ones.

Chapter X.

Concerning the various names of old organs.

There I will describe the three sorts and sizes of the earliest organs that were in use for long periods at various times. The question that arose with these different sizes is this: which instruments should be given the name “whole,” “half,” or “quarter,” in order to distinguish one type from another? This question was not merely current among our forebears several hundred years ago, it seems actually to have been right and necessary. For back then there was no variety in stops. So when really large instruments began to be built, it was thought necessary to call them “whole
instruments;" then the medium-sized ones were called "half-instruments," and the small ones, which were the earliest, were called "quarter-instruments." And so each name originated from the one before it, just as each size originated from an earlier, smaller one.

At that time the large instruments were appropriately given the name "whole," because they were constituted as one entire, complete mixture, from the largest pipes to the smallest. The inevitable result of such a great number of pipes sounding with each key was a mighty, thundering sound, which medium-sized instruments were incapable of. The earliest, smallest instruments, in turn, could not emulate the sound of the medium-sized ones. So labelling the instruments in this way was necessary to distinguish one from another. Older organists and ordinary citizens still make such distinctions among organs today.

Some are of the opinion that names like "whole," "half," etc., arose from the number of bellows. But this cannot be so. One need only consider both of the cathedral instruments discussed above, at Magdeburg and Halberstadt (to say nothing of others like them); Magdeburg had 24 bellows, while Halberstadt had only 20, yet both of them were of the same size. Since they were of the same size and constitution, the distinction between them could hardly be drawn on the basis of the number of bellows. Back then the simplest way to designate them as "whole," "half," and "quarter" was according to the size of their structure and their praestants.

In the same way today, instruments are labeled according to the size of their principals, and have only one of three names. If an organ has a 16' Principal and an 8' Octave on the Hauptwerk, it is called a "Gross Principal-Werk." In former times, however, a "whole instrument" was usually one whose lowest pedal note was a 24' F. It was only a single mixture, having no separate stops.

If an organ has an 8' Principal and a 4' Octave on the Hauptwerk, it is called an "Acqual-Principal-Werk" (in the past, however, it was called a "half-instrument").

If an instrument has a 4' Principal on the Hauptwerk, regardless of the fact that it has an 8' stopped or open register in the pedal (or sometimes even in the Hauptwerk), it takes its name from the size of its praestants, and is called, accord-
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Concerning the distinction between old organs and those of today.

If we pause here and reflect, comparing organs of the past with those of today, we find that in all essential ways the difference is not so great. It is actually quite astonishing how quickly the instrument attained a degree of excellence that even present-day inventiveness and new materials have hardly improved upon. Lengthy experimentation has only succeeded in making the inventions of long ago somewhat more natural, convenient, elegant, and gentle.

Just like our modern instruments, the oldest ones already were operated by wind and bellows. The bellows, also overlaid with leather (like ours today), had the same wind valves or ventils through which wind entered and left.

There were also conduits or wind ducts to carry the wind from the bellows into the instrument, likewise structures in various shapes that held the windchests. Their interior parts were laid out just like those still in use, with channels, pallets, pedal-bells, and manual keyboards. There were principals, which they later called prestantia, “auf den Grundt gesaßt,” polished and in the façade for show (“auf den Grundt gesaßt” means that these pipes were set directly on the windchest, there being no sliders or tables). The full organ, like ours, had a series

112. Literally, “to name the child.”
113. German “Schönheit.” Schönheit means “fair” or “good.” The organbuilder Christian Wegscheider of Dresden offers the following explanation for this curious usage: for organbuilders, pallet springs are among the most troublesome parts of an organ; they constantly require adjustment or replacement. In order to avoid ciphers, builders often made these springs quite stiff (or put two or more on each pallet), the result was a heavier key action. Thus both builders and organists had good reason to groan about them!
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of octaves, quintas, superoctaves, etc., except that it was all one mixture or “Hin-
dersatz,” and so all the pipes sounded all the time. It is quite amazing how the old
builders were able to devise flue pipes and get them to sound, with all the same
materials and according to all the same methods available today; also how they
were able to devise the correct scales (though they were not uniform) to achieve a
good tone.

Although there was only one kind of pipes back then, open flues, never-
theless some of the principals 200 years ago were tonally of such precise scale and
workmanship that one must admire such a skillful and highly developed use
of the compass. Some of today’s organbuilders would do well to study these pipes
seriously and diligently; they could indeed learn something from them. Such prin-
cipals can still be found in various places, transferred from old, pre-Reformation
organs into modern instruments.

Chapter XII.

Progress and development up to our day:
improvement to chests, change and
increase in number of keyboards
and pipes.

First:
A description of the early spring
and slider chests.
114. This refers to all the Saxon lands, including the present German states of Sachsen-Anhalt and Niedersachsen as well as Saxony.

115. A city in the province of Friesland, Netherlands.

116. The distinction between the two is unclear. Perhaps Praetorius is distinguishing between wedge and multifold bellows (cf. Theatrum Instrumentorum, Plate IV).
the poor people in cities and villages who occasionally have a modest organ built in their churches, often at no small cost, to honor the Lord of Hosts.

Then when the organ is delivered, some organists (in part due to ignorance, in part due to excitement) support the organbuilder, and for silly reasons let things pass in silence, disregarding honesty and their conscience, thus allowing the churches to be cheated badly.

Chapter XIII.

Changes to the keyboards and the increase in their number.

Two hundred and fifty years ago builders diligently pursued, and through divine inspiration achieved, the division into separate stops; they also invented semitones (as indicated above in Chapter 6117) at the same time keyboards and pedals were invented, and these have remained without substantial change for 350 years. From that time on, the design of the keyboards was changed in various ways and constantly improved. They increased in number and were made smaller until finally the sort of keys described above became obsolete, and the kind we have today gradually came into use. But each key was still 2 1/2 inches wide (fully the width of three fingers), twice as large as today’s.118 I have measured and sketched just such keys as this in a small, old organ in the Cathedral at Minden. I only wish there had been a date on it.

Not long afterwards the keys were once again made somewhat smaller, so that it was possible to reach the interval of a fifth, about the same span as today’s octave. This can still be seen in the old organ at St. Aegidius in Braunschweig; a sketch showing their shape and size may be found in the Theatrum Instrumentorum, Plates XXVII and XXVIII.

I have decided to include here the verse found inscribed beneath this organ.

Offert devota nunc Claustri concio tota,
Organa facta piæ Christo matrique; Marie
Bartholdus rexit tunc Abbas, acopifex sit,
O 3, Andreas
119. "The entire monastic community devoutly offers this organ, now completed, to Christ and his mother Mary. At that time Barthold reigned as abbot, and the builder was Andreas, an expert master of rare skill. Let this organ's melodies now resound, that they may ascend to heaven! That you may learn the count of years, know this: 1000 years, then twice 200, plus 50 and twice 3 (1456) having past, this thing which you should admire was built. Therefore be jubilant in psalms to please the Lord." (from a German translation, provided by Herr Rüdiger Wilhelm, from: Piekarek, Richard, Die Orgel der Aegidienkirche. Eine Historische Studie, Braunschweig (Selbstverlag), 1979.)

120. Perhaps this should be read "♭"; see note 106 above.

121. p. 109 above.

122. according to the medieval hexachord system (deriving from Guido d'Arezzo), which was still taught in some schools during Praetorius's time as a part of the quadrivium.

This Heinrich Traxdorff built another organ at this same time in the Frauenkirche at Nuremberg, this one without a pedal, which is said to have made a sound like a schalmei. Its keyboard was laid out with this compass:

\[ \begin{array}{cccccccc}
\text{c} & \text{d} & \text{f} & \text{g} & \text{a} & \text{b} \\
\text{e} & \text{f} & \text{g} & \text{a} & \text{b} & \text{c} \\
\text{f} & \text{g} & \text{a} & \text{b} & \text{c} & \text{d} \\
\text{g} & \text{a} & \text{b} & \text{c} & \text{d} & \text{e} \\
\end{array} \]

This builder called the praestantes, the façade pipes, "flutes," in the previously mentioned large instrument at St. Sebald. He also built an Octave stop in
123. There is a small village with this name north of Berlin, but Praetorius may be speaking here of the much larger and more significant town, Miltenberg on the Main River.

124. Presumably, as mentioned above.

125. In Praetorius’s time, measures were far from standardized, but for the sake of comparison (admittedly unreliable), in Braunschweig one “Spann” was 0.220 meter.

126. “Stiftskirche,” an endowed monastic or cathedral church. Such churches have often retained their title, although their status may have changed over the course of time.

In subsequent years other builders appeared who were also considered eminent, masters such as Friederich Krebs and Nicolaus Mälner of Mildenberg. Their pedalboards extended from A to a, like this:

\[
\begin{align*}
B\flat & c^\# & d^\# & f^\# & g^\# \\
A & B & c & d & e & f & g & a
\end{align*}
\]

and they built the Discant in this manner:

\[
\begin{align*}
\begin{array}{ccccccccc}
B\flat & c & d & e & f & g & a \\
B & c & d & e & f & g & a & b & c & d & e & f & g & a & b & c & d & e & f & g & a
\end{array}
\end{align*}
\]

At this same time there was another eminent organbuilder, Conrad Rotenbürger, a baker’s son born in Nuremberg, who likewise gained an outstanding reputation. He built the large instrument in Bamberg Cathedral, and in 1479 the instrument at the Barfüsserkirche in Nuremberg. The keyboard and pipes of these instruments maintained the same layout. But 18 years later, in 1493, Conrad Rotenbürger enlarged the instrument in Bamberg Cathedral, mentioned above (which had originally begun with b♭), and introduced the practice of making more and smaller keys, like this:

\[
\begin{align*}
F & G & A & B & c & d & f & g & a & b & c & d & e & f & g & a & b & c & d & e & f & g & a
\end{align*}
\]

It originally had only 8 bellows, but during the renovation it was furnished with 18 bellows, ten spans long and 3 spans wide.

Shortly before that time, in the year 1483, the builder Steffan from Breslau, together with his sons Caspar, Melchior, and Michael, constructed the large organ in the cathedral at Erfurt. I myself have read the contract for this instrument.

In the year 1499 Heinrich Kranz built the large organ in the Collegiate Church of St. Blasius at Braunschweig, as the following verse beneath the organ indicates:

\[
\begin{align*}
F & G & A & B & c & d & e & f & g & a \\
F & G & A & B & c & d & e & f & g & a & b & c & d & e & f & g & a & b & c & d & e & f & g & a
\end{align*}
\]
DE ORGANOGRAPHIA.

127. i.e., the main case.

128. "That an organ should appear upon the round earth that should surpass this one, built here in such a marvelous way, in its playing mechanism, stoplist and sweet sound, an organ among the earth’s inhabitants that vies with the inhabitants of heaven: this we doubt greatly. Whosoever you may be who behold his instrument, the builder was Heinrich Kranz from Gutenberg [in Hesse?]. When the sun distanced itself from the earth for the 1400th and 99th time, reckoning from when the Virgin bore God."

129. i.e., the Ruckpositiv.

130. "Johannes Thomas, a young man talented as Daedalus, built this instrument for Christ. Come now, Christ, defend the assembly of your people, that they may let your praise resound, here and everywhere." (from a German translation in: Uwe Pape, Orgeldatenbank, 1/7/1997.)

131. These are indeed the indications that Praetorius uses, but this translation has rendered them in conformity with modern usage: C, c, c', c".

132. The earlier method of designating a pipe’s octave often began with b♮, e.g. a, b♭, b', c', etc.

The manual keyboards in the latter organ are the same as ours in almost every respect. The semitones are located between the [natural] keys, as are today’s, and are either black or some other contrasting color. An octave of keys, though, is about one key wider, the keyfall is deep, and the action is stiff, so the instrument is difficult to play.

The reason I have recorded the layout of various keyboards, together with the pitches they sound (even up to the two-stroke octave), as well as the names of various master builders, is to make the practices of our forebears, and also the inventions that kept increasing year by year, better known and accessible to more people.

Regarding the distinction between the letters in the various octaves, the first octave remains unaltered, the second has a small sign (’) drawn above it, and the third is indicated with double letters. The number of keys in each keyboard has constantly increased, and over time one can observe a considerable difference. But at first the octaves all commenced with b♮; it is impossible to know what reason they had for doing this.
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Chapter XIV.

Change and increase in the number of pipes and stops.

garding the earliest sort of pipes, open ones of principal scale, large and small (150 years ago there was no other sort of pipe than this); instead of having various stops as we do today, our forebears arranged them all together in the form of one large mixture or "Hindersatz," often with up to 56 pipes on one note, together with the facade pipes, the prae- 
tants. Chapter 7 contains some information about this.134

Our large Subprincipal 32', according to the way we reckon pitch today, the large Principal 16', our Aequal Principal or large Octave 8', then the Octave 4', Quinta 3', Superoctave 2', etc., as well as our mixtures: all of these, united with each other, stood in their Hindersatz (with the exception of their Præstant or façade) Principal. All of the stops mentioned above that we now can draw together to produce the full organ (stops now separable due to the discovery of the spring and slider chests)—these were at that time placed on one common channel for each note; all sounded together as a single stop.

It sounds impressive to say that 56 pipes sounded on one key. One needs to view the matter in perspective, however. If we simply draw the full organ and play a five-note chord in the manual today, say, \(\text{c g c'}\) \(\text{e' g'}\), and add a C in the

133. This name may be translated "sitting behind" or "located behind."
134. See p. 99 above.
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Pedal, which has its own independent pedal pipes, and figure that each note has the usual 4 stops, Principal, Octave, Quint, and Superoctave, plus the mixture with, say, 6 stops, that makes 10 pipes on each note. (Our mixtures are simply a complement to the full organ, or to other stops. Therefore they often repeat, in the manner of a Zimbel. Their lowest bass notes contain only small pipes; big ones are unnecessary, since they are already on hand in the Octaves, Principals, Gedackts, Quintadenas, etc.) Thus these 6 notes contain 60 or even 62 pipes. They all sound as if they were on one single key, without sliders or stops. Suppose that I play C and e in the pedal with two feet, however, and then play e' g' c' e'' in the manual with the left hand and g'' e'' e'' with the right (a total of 10 keys). Figuring that 4 pipes sound with each key (as described above) plus at least 6 in the mixture (though there are often 10, 12, or 14), there are then 100 pipes sounding together.

About 100 years ago, however (at almost the same time that Mr. Luther through the providence of God expounded the Protestant Christian doctrine, the pure word of God), musical inventiveness began to distinguish itself mightily, through the extraordinary inspiration of God, and to perfect itself to God's praise. Organ builders learned how to separate the various types of sound one from another, and how to create a variety of sounds, specifically by means of the spring and slider chest. Just as the Holy Scriptures remained so long hidden in an insignificant, infantile state during the years of papal rule, so also the art of music, both its instruments and its compositions, remained mired in a wretched state, near extinction, until (as just mentioned) exalted by the grace of God it came radiantly forth as if out of a dark cloud. In our time it has risen to such a height of perfection that it can scarcely be improved upon.
Open pipes were first altered by stopping them at the top, to test what sort of sound they might then produce. That is how stopped pipes originated.

Builds then immediately turned their attention to separating the great number of pipes in the oft-mentioned Hindersatz. They removed from the mixture the rank of pipes that sounds an octave above the Praestant, and gave it its own separate stop and slider; this they called “Octave.” They also separated off the rank of pipes that sounds a fifth above the Octave, and called it “Quint.”

The same process produced the Rauschpfeife, recognized as excellent from the moment it was invented. It consists of two pipes per note, namely the Quint (just mentioned) and a higher Octave at 2’ pitch, together on the same stop. These two pipes always sound the interval of a fourth: ut-fa, re-sol, mi-la.

When a lower open or stopped rank is drawn with it, it produces a pronounced rustling effect.

Because it still had so many ranks of pipes, the mixture nevertheless remained large enough to keep it all alone on its own separate chest, with the wind turned on and off by means of a ventil. Only the principal was drawn with this mixture, and these two were then called “the full organ,” because the mixture still contained Octaves, Quints, Superoctaves, and other smaller ranks; thus it was unnecessary to draw anything other than the Principal with it. When the mixture was shut off by means of its ventil, then a variety of stops was available on the front slider-chest: Octaves, Quints, Superoctaves, Gedackts, Zimbels, Rauschpfeifen.

Proper bellows, with weights providing well-regulated wind, likewise came into use about 119 years ago, although these were still covered with tanned horse- and oxhides (as they had been already for hundreds of years). They had to be recoated every five years.

Further improvements were conceived ninety years ago. Mixtures were placed on their own separate chests with cut-out ventil. New stops were then introduced.
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137. "Calves-Regal" (because of the bleating sound it produced?)
139. i.e., a swallow's-nest organ
140. This seems to be a parenthetical remark that applies to all the instruments Praetorius is discussing. With the sentence following, he seems to return to describing the organ at Nordhausen.

covered as well, namely the tapered pipes, called Spitzflöten, and various reeds. Wedge bellows were also well.

At that time someone conceived the idea of inventing the Rückpositiv. One large organ (among others) from this time still stands in the Paulinerkirche in Leipzig; it has a Principal 16' in the pedal and 8' in the manual, as well as a Grobgedackt at 8', Octave 4', Superoctave 2', Quinta 3', Rauschpfeife, Zimbel, and a twelve-rank mixture on a separate chest.

In the Rückpositiv it has a Principal 4', Mittelgedackt 4', Zimbel, little Octavlein, and a large Kalberregal of plated metal. The compass of its manual keyboard is D - c, of its pedal C - c, and it is provided with 12 wedge bellows. It also has a Messingregal in the Brustwerk, and a Posame in the pedal.

Many instruments of this sort, both large and small, were built at that time. For example, at St. Johannes in Göttingen there is a small instrument suspended high up under the vaulting, still in use, that has some elegant, gentle stops, and a good trumpet as well.

Another such instrument stood in the St. Blasius Church at Nordhausen, with three manuals; it has recently been torn down. The first manual had only the large Principal and the Mixture. It was possible to retire the Mixture, but not the Principal, which was always ready to sound (it could of course be used by itself when the Mixture was retired). The second manual had its own chest, on which the other stops were placed, such as Gedackt, Octav, Quint, Superoktav, Zimbel, etc. The third manual operated the Rückpositiv.

When they first started to experiment with varieties of stops, builders tried out some quite remarkable notions, but always with the goal of achieving a good, pure tone. This instrument had a Principal 16' on the manual, which began at F. As with most organs of that time, it was tuned one step higher than our present chamber pitch. Regarding pitch, however, there has never been a universal standard observed by all builders.

Thus this innovation gained general approval, that the Mixture should have its own chest with a cut-off vent, and the rest of the pipes should also have their own chest with sliders; thus one could not rob wind from the other. And so
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141. i.e. flutes and other ranks that are not part of the principal chorus.

Organs like this, even though they were built 60, 70, or more years ago, are still in use; they are still in good condition and produce a very fine sound.

One example of this is the small, old instrument still standing in Magdeburg Cathedral, that is pitched a fourth higher than the newly built large instrument.

Another is at Aschersleben in the residence of the Counts of Mansfeld, and there are yet others as well that have beautifully made pipes and chests of this type, and are still quite playable.

The best examples of this sort of instrument, however, were built by a monk by the name Master Michael; it was he who constructed the abovementioned instrument at Magdeburg with extraordinary diligence. This instrument's full organ consisted of only the Principal and the Mixture, because the Mixture contained all the basic ranks, such as Octav, Quint, and Superoctav.

These developments were the immediate precursors of the kind of instruments built today, but now the Mixture is no longer on a separate chest, but is arranged together with the other ranks on a single chest. Other stops are also placed on this same chest.

Furthermore, by now all sorts of stops of various timbres, flutes and reeds both large and small, have been invented. Up to now, these include among others the Gemshorn, Rohrflöte, and Quintadena, the Sordun, Ranket, and other quiet reed stops, as well as the stopped Untersatz. The tremulant also appeared at the same time as these new stops just mentioned.

Beginning 50 years ago, builders became very zealous in the pursuit of gentle, charming sounds, more so in the Netherlands than in this area. Among others there was a Master Gregorius Vogel, still alive 51 years ago, who built a very lovely instrument with open and stopped [flue] pipes and reeds at St. Johannes in Magdeburg, and at various places in the Mark (Brandenburg), as well as St. Agudius and St. Martini in Braunschweig. He must have had an especially thorough understanding of the use of the compass in determining pipe scales.

And so from one year to the next, the art of building organs has risen to such heights as rightly deserve to be admired. And the Almighty and Only-wise God can never be given sufficient thanks for granting men, out of his boundless grace, such a gracious gift as the ability to build such a perfect (indeed one might also say *most perfect*) musical instrument as is the organ (which, as was men-
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Gesungenen, welcherenemsches in einem einigen Werke können bestessen / ver- 
nommenen und gebeter werden; (kostlich geräustet und herfür gesungen wird) vergetheile 
disponiret und bestsentden; Und die auch dasselbe bestsenten crachen, manibus 
pedibus; zweisen können; des Herren Hemel dadurch gezieret; der Gott 
redenspricht geschehen; und die Menschen zu Christlicher Ausdacht 
bewogen und erweckt werden.

Und des so also von alten Orgeln gnug 
ver deiial.

Vierter

This description of old organs will suffice for the present.

142. See p. 8 above.

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tioned at the outset, takes pride of place above all other musical instruments, most 
of which can be incorporated into this single instrument*142, and to play it with 
hands and feet in such a way that God in Heaven may thereby 
be praised, His worship adorned, and human beings 
moved and inspired to Christian 
devotion.
Concerning today’s new organs,¹

Chapter I deals with
the proper names and titles of organs, according to the sizes of their Principals.

Chapter II

treats all the various names of organ stops, how they are to be properly understood according to their particular tonal characteristics, as well as how the pitch levels of these stops may be calculated in general according to the length of their bodies, commonly referred to as their number of feet; it further reports on what is necessary to know specifically about each stop, such as:

the scale,² or length of the pipes;
as well as how the different pipes may be categorized, together with an appended General Table.

¹ Theatrum Instrumentorum, Plate II, depicts such a “new organ,” with three manuals (one a Rückpositiv) and pedal.
² See footnote 103, p. 110 above.
Chapter III

provides an explanation about how to tune organ reeds purely,\(^3\) with a separate discussion about tempering Regals and other instruments such as harpsichords, spinets, and the like, as well as how subsequently to tune the other pipes\(^4\) by oneself\(^5\).

Chapter IV

tells how churches, and those who want to have an organ built in their churches to the glory of God, should take care to make inquiries about experienced and reputable organbuilders, so that they are not cheated by choosing inexperienced, novice builders, thinking they can get a cheaper price; also how to avoid being taken in by either experienced or novice builders, and nevertheless at times ending up with an unstable, unreliable instrument that needs mending and patching every year.

\(^3\) Praetorius is referring to setting a temperament within an octave of pipes.

\(^4\) i.e., how to transfer the temperament to the other octaves of pipes.

\(^5\) i.e., without an organbuilder.
About naming organs properly according to their size.

Since subsequently [in this treatise] pitch is often cited in feet, cantors need especially to note that 8’ is the proper unison pitch that lies at the correct pitch level [for singing]. The other pitch levels have to be figured according to this one, both the lower ones that double in size and the higher ones that halve.

Whenever this number [8’] is doubled, the pipe sounds an octave lower; whenever it is halved, it sounds an octave higher.

For example, 16’ pitch sounds an octave lower than 8’ or unison pitch, and 32’ two octaves lower.

On the other hand, 4’ pitch sound an octave higher than unison, 2’ two octaves higher, and 1’ three octaves higher, as shown in the following diagram:

Moreover, take note that organs are named according to “feet.” A small one is at 4’ pitch, and its lowest manual and pedal note sounds:

A medium or unison organ is at 8’ pitch; its lowest manual and pedal note is:
A large organ is at 16’ pitch, and its lowest manual and pedal note is an octave lower than the one above. If however a Principal 2’ is meant, its lowest note is:

If at 1’ pitch, [the lowest note will be:]

32’ pitch is an octave lower than 16’, but it produces a very unnatural and imperceptible sound.

Part III above, about old organs has provided a sufficient report about how our forebears named their organs. Nowdays, however, there are three principal types of organs. They should be given their proper names, because there are three categories or sizes of Principals placed decoratively in the façade, according to which the case is proportioned. For as is said, à potiori parte fit denominatio.

The first type of name is “large Principal,” which organbuilders call “16’ pitch” because of the length of its body and its low pitch. If such a Principal were to stand in the façade of a manual division of an organ, its proper name would be a “large Principal instrument.” In such an instrument the Grossoctave is at 8’ pitch and the Octave at 4’ pitch. At times a Subprincipal or Subgedackt Bass 32’ is found in the pedal of such instruments.

The name of the second type is “unison-” or, as others call it, “medium-” or “Chorprincipal.” Its name is appropriate, because it corresponds in pitch to the hu-
The first type is an "octave"- or "little Principal," and is at 4' pitch, corresponding to the sounding length of its body. Instruments in which this size Principal are found are properly designated as "small-Principal instruments." In them are found a small Octave 2' and Superoctave 1', also called "Sifflöit." The situation and space often dictate that organbuilders must increase or diminish the size of the case. Thus the largest pipes of the Principal are often not placed in the façade, since it cannot accommodate their length. Sometimes it also happens that the Principal is augmented with even larger pipes, just to fill up the case, for the sake of proportion. Nevertheless there remain only the three types of instruments described above: 16', 8', and 4'.

The names that have just been described, however, are determined solely by the size of the manual Principals. For there are in fact large Principal instruments which have a 32' pedal Principal (since the Hauptwerk Principal is at 16'). This happens when the structural layout is such that the pipes especially designated for the pedal are arranged on either side of the Hauptwerk. Since such large Subprincipals are not suited for use in the Hauptwerk, but belong only in the pedal, to sound the bass notes, and since only a few organbuilders build them, an instrument cannot rightly take its name from them, but from the Hauptwerk [Principal].

There are also some very small instruments whose Principals are only of 2' pitch; however, these are not actually considered to be among those named "organs," but belong to the category of positivs. The reason for this is that [such Principals] are normally undergirded by other lower stops, such as a Gedackt or Quintaton of either 4' or even 8' pitch, and so take the name "large-" or "church-positiv" or "little octave Principal instruments." Every organbuilder ought to see to it that his instruments are properly categorized according to the size and pitch of their principals, so that they are always identified by the size and pitch of their stops, just like other instruments.

8. See *Theatrum Instrumentorum*, Plate I, as "old positiv with one set of pipes and three different stops, i.e., three separate voices at 2', 1 ½ ', [i.e., 1 1/3'], and 1' pitch." Plate IV also depicts a small positiv.
How the various and sundry names of organ stops are to be designated correctly according to their sound and characteristic timbre; also, how such stops are variously classified in general according to their pitch in feet; with a further report concerning what is necessary to know about each stop in particular.

At this point something could be said about scaling pipes according to the length of their bodies. But because that is a matter for the organbuilder alone, it is unnecessary to treat it here.

But this much can be said in passing about the length of Principals and all open flue pipes (not including the length of their toes, which are only conduits for the wind, but beginning with the lip which sets the body above it into vibration), that they are almost always actually as tall as their designation in feet indicates. Even here, though, lengths are not precise, one or another of them having to be shortened because of varying widths (though only a little bit, hardly noticeable in the smaller pipes). Reason will tell you that when something gets wider, its length must diminish slightly, and vice versa.

With regard to stopped ranks, however, the designation in feet has another meaning. For although a stopped pipe is of the same or even of somewhat greater diameter than a Principal, nevertheless it is not even half as tall. For example: a Principal pipe of 8' pitch has a body that is 8' long; a stopped pipe, while it also produces an 8' pitch and has almost the same diameter as the Principal (technically speaking), is only 4' (or even a bit less) tall. The reason for this is that it is stopped; as soon as any open pipe is coated, it speaks an octave, or a fifth, or a sixth lower. Thus it is that a Quintaton pipe is much longer than a Gedackt, because it is only a bit wider...
than a 4' Principal, while on the other hand a Gedackt is as wide as a medium Principal 8'.

These two stopped ranks have very different widths, and yet produce the same 8' pitch; the resulting narrow scale of the Quintadena, aided by the beard surrounding its lip and especially by the lip's very low cut-up, produces this stop's prominent fifth. Without both of these features, namely that it is narrower than the Gedackt, and that its beard confines the flow of wind, the Quintadena could never produce its strong fifth, but would merely sound like a type of Gedackt.

To express the distinction between open and stopped ranks clearly in words, one refers to those open stops whose size corresponds to their pitch as "Principal of 8' pitch," "Octav of 4' pitch," etc. With stopped pipes, however, in which the size does not correspond to the pitch, one says "Quintadena at 8'," "Nachthorn at 4'," "Blockflöitlin at 2' pitch," etc.

But enough about this for the present.

One should take careful note at the outset that there are only two types of pipes, open and stopped, from which all the various timbres are produced. Although some are against including reeds as a third type, yet it is undeniable that changes to their bodies result in modifications in their timbre (just as with other open and stopped pipes). Because they can produce as many or more remarkable varieties of tone as other types of pipes, it is only fitting to include them.

Therefore: 1. organ pipes are divided into flues and reeds 2.

Flue pipes are either open or stopped at the top. 3.

Some open flue pipes are cylindrical, and their bodies are of a uniform width; some, however, are conical.
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9. In the original publication the Table was printed on an unnumbered fold-out double page, bound between pp. 126 and 127.

10. See Theatrum Instrumentorum, Plate XXXVII, no. 3.

11. Although it is not numbered as such, this title appears to mark the beginning of section I; section II begins on p. 131.

12. See Theatrum Instrumentorum, Plate XXXVII, no. 1.

13. i.e., the instrument’s façade is normally composed exclusively of this kind of pipes.

14. Although Praetorius has previously mentioned Principals a number of times, and identified them as pipes standing in the façade, he has not specifically called them the most prestigious.

4. Of those that are cylindrical, some have long, narrow bodies, while others, such as Hohlflûtes of all kinds, have short and wide bodies.

5. There are also two types of conical pipes: some, such as the Gemshorn, Spitzflûte, and Flachflûte, are wide at the bottom and narrow at the top; others, however, such as the Dulzaen, are wide at the top and narrow at the bottom.

6. Stopped flue pipes, such as Quintadenas and Gedackts of all types, are either entirely covered; or they have some sort of opening in their cover, like the Rohrflûte.

7. There are also two types of reed pipes: some, like the Posane, Trumpet, Schalmei, Krummhorn, Regall, Zinck, and Cornett, are open; others, like the Sordun, Rancket, Baerpipe, Bombart, Fagott, Apfelf- and Köplinregal, etc., are stopped. This is all depicted in the following Table of various and sundry stops. Here is where the Table belongs.

About open Pipes that are cylindrical and of Principal Scale, namely Principal, Octaves, Quints, Rauschpfeifen, Schweizerpfeifen, Mixtures, Zimbels, and the like.

"PRINCIPAL" (our forebears in former times called it “Praestanten”) is a judiciously chosen, well-suited name for this kind of pipework. For these pipes are not only the ones that provide the instrument’s ornamentation, but are also (as has already been mentioned, and for the sake of brevity need
Including the names and categories of most, though not all stops presently found in organs.

(N.B. "M." and "P." appearing before a name indicate that the stop in question appears only in the manual or in the pedal, in which case it is labeled Principal-Bass, Gedact-Bass, etc., or simultaneously in the manual and pedal, with either a single rank or two independent ranks. either as one stop or as two separate stops.)

(N.B. This table belongs after p. 126)
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15. In the Low Countries.
16. p. 122 above.
17. With reference to the human voice?
18. i.e., with proper spacing of intervals, without unpleasantly low thirds and fifths.
19. Praetorius seems never to have fulfilled this intention.
20. See pp. 122-123 above.

not be repeated) the most prestigious, they are rightly given the name "Principal."
Some, however, call them by the name "Doeff."

There are many varieties of these:

1. Large SubPrincipal at 32' feet.

Dies Stimme fahr nicht vorzüglich zum Manual Clavier, sondern
allein zum Pedal gebracht werden; darum ist vorstehender Hau

15.

16.

17.

18.

19.

20.

19. De Organographia. 127

17. With reference to the human voice?

3. Large Principal at 16'.

This stop is currently in common use. It can produce a clearly perceptible
tone when it is built diligently and exactingly and with proper scaling of body and
mouth. It can be played alone as a manual stop, as long as big chords with thirds and
and fifths are not played in the low register, and if it is played gently at a slow tempo. It
is preferable, however, to draw a second, higher stop (as described below) with it, so
the sound carries better.

3. Unison Principal at 8' pitch.

A body of this size, 8' pitch, is the loveliest of all, and corresponds to the uni-
son pitch of the human voice and all the principal instruments. All stops at 8' pitch
are well suited for use in accompanying motets and unison singing, according to the
correct principles of composition, without any fear of sounding offensive. A mys-
terious property lies hidden within such 8' pitch: it absorbs all the impurities that lie
innate within all other higher stops, making them partakers in its noble purity. I will
explain this in greater detail at another time, God willing.

4. Little Principal or Octave Principal 4'.

This is likewise a stop that is lovely when used by itself, but since it is not es-
pecially sweet or gentle in the upper register, a foundation stop such as an 8' Quin-
tadema or Gedackt is normally provided in Octave or Small Principal instruments,
as mentioned earlier.\(^{20}\)

17. In the Low Countries.
16. p. 122 above.
17. With reference to the human voice?
18. i.e., with proper spacing of intervals, without unpleasantly low thirds and fifths.
19. Praetorius seems never to have fulfilled this intention.
20. See pp. 122-123 above.

[1075x413]
Some unison instruments are built with a small treble Principal at 4', beginning at a ½' in the tenor octave\textsuperscript{21} and extending through the rest of the keyboard. Normally, however, it begins only with middle c or c\sharp.\textsuperscript{22}

**Schweitzerpfeiff.**

This is yet another sort of Principal stop, though of very narrow scale, that the Netherlanders have named Schweitzerpfeiff. This is perhaps because its body is so long and narrow, and in its proportions it looks like a fife (Schweitzerpfeiff). As a result of its narrow scale, it has an unusual, gentle, keen timbre, rather like a violin. The mouths are provided with box beards, as organbuilders call them; otherwise it would be difficult, because of their very narrow scale, to make them speak well. For this reason the little pipes in the treble have to be built at a somewhat wider scale.

There are only two varieties of this stop:

1. large Schweitzerpfeiff at 8' pitch.
2. small Schweitzerpfeiff at 4' pitch.

Some builders construct the small Schweitzerpfeiff only in the treble range, and call it Schweitzerpfeiff Discant. The same stop is also found in the pedal, but at 1',\textsuperscript{23} and is called Schweitzerpfeiff Bass or Schweitzer Bass.

These stops are not, however, in common use, and are not easy to build; because they are difficult to voice, they require an experienced master builder. When it is used in the pedal against quiet [manual] stops, the large Schweitzerpfeiff also provides a beautiful, gentle bass, quite similar to a bass viol. One should also note that, when this stop is in the manual, it should be played in simple chords at a slow tempo, without rapid embellishments, due to its slow speech; otherwise it cannot achieve a pure, gentle tone.

\textsuperscript{21} i.e., at tenor g.

\textsuperscript{22} i.e., at 1'.

\textsuperscript{23} This is indeed identical with the variety described in the previous sentence; both begin at 3'.
DE ORGANOGRAPHIA.

24. For an explanation of this designation, see p. 122 above.
25. See Theatrum Instrumentorum, Plate XXXVII, no. 2.
27. See Theatrum Instrumentorum, Plate XXXVII, no. 4: "Klein Octava 2. Fuß."

Octava

As four types of Principals have been described, so there are also four types of Octaves of the same Principal scale: large Octave, Octave, small Octave, and little Superoctave.

1. Large Octave is at 8' pitch

This stop belongs only in large Principal instruments. In its scale and sound it is nothing other than a unison Principal, and so some call it small Principal, as compared to the large Principal [16']. This stop is properly called large Octave, however, in order to distinguish it from the small Principal 4' already in the Ruckpositiv. Moreover, Principals are usually of tin and are in the facade, while Octaves are made of lead or pipe metal (i.e., half tin and half lead) and are inside the case.

2. Octave at 4' pitch

This stop belongs in unison instruments, and gets its name because it lies at a medium pitch level, an octave higher than a unison Principal and other stops of 8' pitch. It may be used by itself, or it may be drawn with higher and lower stops.

3. Little Octave at 3' pitch

This stop is also called "Superoctave." But because there are also Octaves at higher pitches (described below), it is not proper to call this stop "Super-" or "highest Octave." Take note also of the order already established above: large Octave 8' pitch, Octave 4' pitch, thus the stop at 3' pitch must properly be called "little Octave," and the octave above it "little Superoctave." This stop is also called "Sedez," since it lies two octaves above the Octave 4'. But since the Octave 4' is not a stop at unison pitch, this stop cannot rightly be

28. In Musica mechanicæ organœdi (Berlin: Birnstiel, 1768, Vol. I, p. 117), Jacob Adlung states: "Sedetze is the same as Sedecima, the 16th; however, if I proceed upward 16 keys from c, then I arrive at d'' rather than c''. This cannot be the Superoktave, since [the Superoktave] is 15 tones higher than the Principal; ... this name is given to the Octave even though it is not correct."
named "Sedetz" figuring from the Octave. Rather the name "Superoctave" should be retained. It belongs principally in large Positiv organs that are based on a Principal at 3' pitch.

5. The Quints at 6', 3', and 1 ½' also belong under this heading. Some call the last of these "Quindetz," but this is incorrect.

6. The Rauschpfeiffe belongs here as well, an old name for a stop invented a long time ago. Some builders left the two stops Quint and Superoctave to be drawn together, while others put them both into a single, separate stop, and gave it the name "Rauschpfeiffe," just as each Mixture or Zimbel is one stop, but yet has more than one rank. Some called it "Rauschquinte," since the Quint is lower than the Superoctave. They also put a Rauschpfeiffe in the pedal, as is still found today.

Mixtur Zimbeln

Mixtures and Zimbels in sizes large and small are built at this scale. They are properly considered in the same category as the Principal and Octave stops, since they are of the same scale, and furthermore the Octaves and Quints are drawn along with the Mixture and Zimbel to make the full organ. And because their make-up varies considerably, depending on the type and size of the instrument and the church, nothing specific can be said about them, with one exception: they always rise several octaves, and then begin to repeat frequently. These distinctions should be made, however: one kind is called

1. large Mixture, which our forebears put in their instruments, since back then they did not have all the different kinds of stops known today. These Mixtures, as previously indicated, often had 30, 40, or more ranks, the largest of which was at 8'. These days, however, large Mixtures have only 10 or 12 ranks, and very seldom as many as 30; their lowest rank is at 4' pitch.

2. The second kind is called Mixture, because it is of medium size, with neither too many nor too few pipes. This is the sort of Mixture that is now built into unison Principal instruments, as well as into large Principal instruments. It has 4, 5, 6, 7, 8, or 9 ranks, and its lowest rank is normally at 2' or 3' pitch.
The third kind is called small Mixture, or Scharp, as the Netherlanders started calling it years ago—not without reason, for it is a very penetrating stop, even if it is composed of only 3 ranks (e.g., f 4 5). It repeats frequently. It is also placed in the Brustwerk in large instruments, or in small instruments in place of the actual Mixture. It is sometimes built of very tiny pipes, the largest of which is 3 inches long (e.g., f 4 5), or of three or four little pipes in unison, sounding only a unison pitch, and not a Quint. These break back every octave, and for this reason they are called "Scharp." ("To repeat" means to repeat the same pitches at several octaves of a keyboard, e.g., several times always at c, or always at f. For this reason Mixtures and Zimbels cannot be played by themselves.)

Zimbeln
1. a low-pitched Zimbel has 3 ranks.
2. a Klingende Zimbel also has 3 ranks, and repeats at f and c throughout the keyboard. The most artistic way to build it is said to be as a chord, f and c.
3. [an ordinary] Zimbel has 2 ranks, and repeats a number of times, mostly at the octave.
4. a small Zimbel has only one rank, which repeats often.
5. a repeating Zimbel contains 1 or 2 ranks, and repeats constantly.
6. Zimbels in the pedal are of two, three, or at the most, four kinds. The large ones are around ½ pitch, and repeat once. The other kinds are somewhat higher in pitch, and repeat twice. Both of these types are made up of fourths and fifths.

II. Holflöit
This is an open stop, of a scale much wider but somewhat shorter than a Principal. It has a cylindrical body. In its width it is almost the scale of a Gedackt, except that it has a narrower lip. Its being open and of such wide scale are what make it sound hollow, and that is how it got the name "Holflöit."
Sixty years ago or more, organbuilders began to build this stop in the pedal [of instruments] in monastery and cathedral churches, at the same pitch as the Principal, since having a variety of pedal or "Untersatz" stops was unknown at that time. Such a pedal stop was also called Subbass, Coppel, or Thunbass, because of its broad, ringing sound. The fact that instruments back then stood a fifth lower than choir-pitch gave this stop a special sort of booming effect in its lower register. There are still examples of this stop found in many old cathedral churches; they replace the Untersatz in the plenum, and they sound so full and resonant that anyone who did not know better would think that there was actually an Untersatz there.

1. Large Holflöit 8' pitch

2. Holflöte 4' pitch

3. Holquint 3' pitch

These may be used in either manual or pedal, as desired. In former times organists liked to have a Holquint in choir organs; they sometimes used them mischievously, to mislead cantors and singers as to the correct beginning pitch of the chant.

4. little Holflöit 2' pitch

Some also call this stop "Nachthorn," because it sounds hollow and has about it something of a horn-like timbre. Its timbre does not entitle it to this name; it is more appropriate to build this stop like a Quintadena.

5. Small Flöit in the pedal at 2' is well suited for playing a cantus firmus.

6. Quintflöit 1 ½' pitch

7. Suiflöt 1' pitch. Some reckon the Suiflöt or Siefflitt among the Principal stops.

8. Waldflöitlin 1 ½' pitch

This stop is still in use in the coastal cities, because it is at such a high pitch, it repeats a or 3 times.

9. Small Flöit in the pedal, at 1' pitch,

is put there in place of the Bawrflöitlein, but the former has somewhat brighter and louder sound.

37. Theatrum Instrumentorum, Plate XXXVIII, no. 5, depicts an "Offenfloit [Open flute] 4 foot."
38. i.e., the large Hanseatic cities on the North Sea and the Baltic, whose commercial ties promoted similar characteristics in their organs.
These small stops produce a fine and unusual sound when they are drawn with stops of 8' pitch, with or without the Tremulant.

Schwegell

here exists yet another separate sound category, not of such wide scale as the Holflöit. About 100 years ago the Netherlanders named it "Schwegell" (one may see it in Sebastian Virdung’s Musicae 39) because in comparison with other narrow-scale stops it sounds both hollow, somewhat yet gentle, much like the sound of a traverse flute. It is sometimes built in the shape of a Gemshorn, though somewhat wider both at the bottom and the top, and bevelled inward on top. The lip is narrow, and the stop is quieter than a Spillflöit.40 There are only two varieties of this stop:

1. Large Schwegell 8' pitch
2. Small Schwegell 4' pitch

I will leave it to others to give a thorough report as to how this gentle tone is produced. This is enough to say about pipes of this scale,46 from the largest to the smallest.

III.

Conical Open Pipes.

his is a second kind of open pipe that has a very different timbre than those of Principal scale described above, since it is cone-shaped44 and thus more than half stopped. It rightly bears the name "Gemshorn," because its proportions give it a horn-like sound. There are various types of these, such as Gemshorn, Plockflöit, Spitzflöit, Flachflöit, Dulzain,45 and the like.

Gemshorn

40. Praetorius does not describe the Spillflöit, but he provides an illustration of it in Theatrum Instrumentorum, Plate XXXVIII, no. 11.
41. i.e., Holflöiten.
42. Literal translation: "rather wide at the bottom and proceeding to a point at the top.
43. Here Praetorius spells this stop "Dulzain," but the stop is entitled "Dulzain" on p. 137. "Dulzain" is a reed stop; act p. 104 below.
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1. Large Gemshorn is at 6' pitch.

   This is a gentle stop, better used in the Pedal than in the manual, unless another stop at 4' or 2' pitch is drawn with it.

2. Unison Gemshorn is at 8' pitch.\(^{44}\)

   It is an especially gentle and sweet stop when all its dimensions are built according to the correct basic proportions, and when it is properly voiced. It creates unusual sounds when it is combined with other stops. It may also be called "Viol de Gamba,"\(^{48}\) because when it is correctly built, its timbre closely resembles that instrument. The Netherlanders also call it Coppelflöit.\(^{46}\) It is taller than a Gedackt, but shorter than a Principal.


   This stop is quite similar to the abovementioned variety at 8' pitch, in that it can be combined with other stops to produce many lovely combinations. Both stops may appear in both large- and small Principal instruments.\(^{47}\)


   This stop belongs primarily in the Ruckpositiv or in small Octave Principal instruments,\(^{48}\) rather than in large instruments. Yet it cannot be excluded from the stoplists of larger organs, where it may be used either as a gentle manual stop or as a beautiful pedal stop for playing the cantus firmus, since it can be heard clearly and distinctly.

   The Gemshorn may also be built as a Quint stop:

   5. The large Gemshorn Quinta at 6' pitch

   6. The Gemshorn Quinta at 3' pitch, and finally

   7. The small Gemshorn Quinta 1\(^{1}\)½' pitch.

The Gemshorn is half as wide at the top as at the bottom. The mouth is 5/6th the length of the circumference, and the cut-up is half the width of the mouth.

This stop is also called NASATH, and not without reason, since, due to its being so small, it adds a nasal quality when drawn with other stops, especially when it is voiced properly, i.e., not so keenly. It provides a beautiful treble solo when it is played with the right hand in combination with other stops. Some builders construct the Nasath as a wide-scale stop with a narrow mouth.

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\(^{44}\) See Theatrum Instrumentorum, Plate XXXVII, no. 10: "Gemshorn 8 foot."

\(^{45}\) Theatrum Instrumentorum, Plate XXXVIII, no. 2, depicts a "Coppelflöit 4 foot."

\(^{46}\) See pp. 122-3 above.

\(^{47}\) See p. 123 above.
Some also call the Gemshorn "Spitzflöit," because the shape of these pipes closely resembles a hand spindle.

Some continue to call Gemshorns "Plockpfeifen," but that name is incorrect, since Plockpfeifen have another shape and sound. The name "Plockpfeife" or "Plockflöit" can more properly be applied to the 4' Spitzflöit (discussed immediately below), if it is built at the correct width (somewhat wider than a Gemshorn). Then this stop produces a timbre as natural as the sound of the actual wind instrument, the Plockpfeife. Knowledgeable builders do not build this sort of stop smaller than 3'.

Some build the Plockflöite almost like a Querflöit, i.e., with a body one and a half times as long as is appropriate for its scale, but capped. It is then forced to overblow at its octave.

Spitzflöit

There is another stop, very similar to the Gemshorn, that is likewise conical, called the Spitzflöit. Stops with this scaling have not been in use very long.

There is a considerable difference between the Gemshorn and the Spitzflöit. The latter is wider at the lip and more tapered at the top than the abovementioned Gemshorn; it is therefore properly called "Spitzflöit." They come in only two sizes.

1. Spitzflöit 4' pitch
2. Little Spitzflöit 2' pitch

I have also encountered a type of Spitzflöit that is almost completely closed at the top, and has a very narrow lip at the bottom. Thus it produces a truly gentle timbre; but it is very difficult to voice properly and cleanly.

48. See Theatrum Instrumentorum, Plate XXXVII, no. 12: "Plockflöit 2 foot."
49. i.e., the Blockflöte or recorder.
50. See p. 146 below.
51. See Theatrum Instrumentorum, Plate XXXVII, no. 3 (labeled "Grossgedact lieblich i,'" clearly an error.)
52. German "pointed flute."
53. German "flat flute" or "thin flute."

54. See Theatrum Instrumentorum, Plate XXXVIII, no. 3 (spelled "Flachflöit").

55. Praetorius writes "Werck," which may signify either an entire organ, or a single division of an organ.

56. i.e., 1 1/3'

57. See Theatrum Instrumentorum, Plate XXXVIII, no. 1, where this stop is called "Dolcan" (in the Universal Tabell, p. 126, it is called "Dulzaen"). Praetorius seems never to have seen this stop.

58. See Praetorius, Syntagma musicum II, p. 167; there the stop is called "Dolcian," at 8'.

59. The illustration in Theatrum Instrumentorum, Plate XXXVIII, no. 1, however, is labeled "Dolcan 4 foot.

There is yet another type of stop, with almost the same scale [as the Spitzflöit], called Flachflöit. The bottom of the pipe, at the lip, is not very wide, but the lip is quite broad and has a low cut-up. This is why it sounds so thin and not full. It is only slightly conical. Its voicing requires an experienced master. It has a pleasant timbre, somewhat thinner than the Gemshorn, and therefore it has rightly been dubbed "Flachflöit." There are three varieties of this stop:

1. Large Flachflöit 8' pitch
2. Flachflöit 4' pitch
3. Small Flachflöit 2' pitch

If there are many stops in an instrument, all three of these are quite useful in creating gentle combinations. [The Flachflöit] also works well as a pedal stop, since it sounds somewhat louder, but more exotic than a Gemshorn.

In particular, the small Flachflöit built as a Quint stop in the Ruckpositiv may be used in combination with a Zimbel and a Quintadena to produce a string-like treble [solo]; this registration does indeed sound very much like a stringed instrument. But enough about this type of stop.

There is one final stop that is of conical construction, but it is wide at the top and considerably narrower below at the lip. This stop is called "Dulzain." It stands in the new instrument at Stralsund. Since it is very difficult to voice, it cannot be built smaller than at 8' pitch. It sounds rather like the instrument the Dulzain, because its body is narrow at the lip and gets wider as it lengthens out. But since the Dulzain is by nature a reed instrument, and the Dulzain is a flue pipe, the

Dulzain

German "Dulzain" or "Dulzain.

See Theatrum Instrumentorum, Plate XXXVIII, no. 1, where this stop is called "Dolcan" (in the Universal Tabell, p. 126, it is called "Dulzaen"). Praetorius seems never to have seen this stop.

See Praetorius, Syntagma musicum II, p. 127; there the stop is called "Dulcian," at 1'.

The illustration in Theatrum Instrumentorum, Plate XXXVIII, no. 1, however, is labeled "Dulcan 4 foot."
The sense of the foregoing passage seems to proceed from the presumption that, because the names "Dulzain" and "Dulzian" are similar, their sounds also ought to exhibit some similarity. Since however their sounds are fundamentally dissimilar, being produced by entirely different means, it is best that they retain different and distinct names.

Translation: "little hollow tinkling/jingling bells".

Latin "fifth added to a unison."

See Theatrum Instrumentorum, Plate XXXVII, no. 6: "Quintadena 16 foot."

See Theatrum Instrumentorum, Plate XXXVII, no. 7: "Quintadena 8 foot."

See p. 123 above.

latter cannot sound exactly like the reed instrument. Therefore it is best that it keep the name given it by its inventor.

Concerning Stopped Pipes, beginning with the Quintadena, Nachthorn, and Querflöit.

Quintadena

This stop has not been in use very long, only about 40 or 50 years; it is not found in old organs. It is a gentle stop (some call it "Holschelle") in which two distinct pitches can be heard, sounding a fifth, do-sol. Therefore it was initially named "Quintad una." The dimensions of its body are as wide or even wider than those of a Principal. And since it is stopped, it sounds an octave lower than its length would indicate, or than open pipes of the same length. There are only three varieties of this stop, built with the same scaling but at different pitches, namely:

1. Large Quintadena 16' pitch.

This stop is found in both manual and pedal. It is a very useful and gentle stop, if another stop at 8' pitch is drawn with it.

2. Quintadena 8' pitch.

This stop may appear in the Ruckpositiv, or it may serve as the foundation stop for a small Octave Principal Instrument. It is also well suited to playing a cantus firmus in the pedal.

3. Quintadena 4' pitch.

This is a gentle stop, especially well suited for use with lower stops, for variety. It does not appear any higher (than 4'), however, since it cannot be built any smaller.
Nachthorn.

Some organbuilders make the small [4'] Quintadena just mentioned above at a somewhat wider scale. Since widening the pipes gives them a horn-like timbre and somewhat weakens their innate Quint, its builders therefore call this stop "Nachthorn." And this is an appropriate name for it. It may be combined successfully with many other stops to produce all sorts of gentle registrations.

The Nachthorn at both 4' and 2' in the pedal is of the same scale. It is an elegant stop, above all in the pedal.

The Netherlanders build the Nachthorn as an open stop,67 like a Holflöit but becoming slightly conical as it rises. This variety does not have such a high cut-up at the lip as the Holflöit, and this gives it its characteristic unstable, fluttering sound.

Querflöit.

From the newly invented Quintadena sprang yet another innovation, which closely approximates the sound of the traverse flute. Thus it has been named "Querflöit."68 Its sound is however not the result of unforced, natural voicing, but of overblowing (ubersetzen oder ubergallen). The overblowing happens because the body is about three times too long for its narrow diameter.69

To explain further: if the pipe produces a sound at 4' pitch, then its body, even though it is 12' long and should produce a correspondingly low pitch, nevertheless sounds only its Quint,70 which is the result of the pipe's overblowing. Because it is so unnaturally long in relation to its narrow diameter, such a pipe can do nothing else but overblow to its Quint.

This sort of Querflöit is quite fine, to be sure, and also up-to-date. But I find the variety that is open and of double length71 more pleasing. This is the kind that the distinguished organ- and instrument-builder, Master Esaias Compenius, built72 into the new organ with wooden pipes, which His Reverend, Serene, Noble Lord-

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66. German "night horn," see Theatrum Instrumentorum, Plate XXXVII, no. 8.
67. See Theatrum Instrumentorum, Plate XXXVII, no. 5.
68. German "traverse flute."
69. Literal translation: "...because its body in proportion to its narrow diameter is almost more than one and a half times twice its [normal] length." Thus, to produce a 4' pitch, the pipe would be $4' \times 2' = 8' \times 1\frac{1}{2}$ long.
70. i.e., its second overtone.
71. See Theatrum Instrumentorum, Plate XXXVII, no. 13: "Offen Querfloit 4 foot."
72. From 1605–1610.
ship, Lord Heinrich Julius, Bishop Postulate of Halberstadt, Duke of Brunswick and Lüneburg, my Gracious Prince and Lord of praiseworthy memory, and Her Princely Grace his wife, had built at her palace in Hessen. 73 This instrument has 37 stops and three keyboards, 74 enclosed within an elegant cabinet; its stoplist can be found in Part V below. 75 In that organ, Mr. Compenius built this stop out of wood, but others have previously built it out of metal. It is more natural for this stop to overlap at the octave, rather than to overlap further to the Quint. This variety produces a sound closer to an actual traverse flute than the stopped variety found at 8' and 4' 76 in the manual and pedal, in the great and splendid organ of His Princely Grace mentioned above, 77 at [the Palace at] Gröningen. 78

V.

Gedackts of all Varieties.

The old (organ builders) called this stop simply “Flöitten” in their instruments. The Netherlanders and some others call it “Bordun,” especially when it is of narrow scale. Some call it “Baren” if it is voiced very quietly and gently. There are six varieties of Gedackts, that is, completely stopped ranks, according to their pitch and length.

1. Large Gedackt at 16' pitch.

This stop appears for the most part in the Pedal, where it is called great Gedackt Untersatz. It may also be carried up into the manual. But experience confirms that it does not sound very pleasant and clear, due to its quiet, booming tone. Although stopped pipes of this scale also appear at times at 32' in the pedal with the name ‘great Gedackt Subbass,’ yet they produce a far less perceptible pitch than open pipes (this same observation is made above 80 in connection with the large SubPrincipal). In my opinion there would be no better stop to put into the Pedal at 32' pitch than the Flachflöit. But I will leave that to a knowledgeable organbuilder to test.

2. Gedackt at 8' pitch.

This stop is in common use, and serves both at the foundation stop in small Octave Principal instruments as well as in the Rückpositiv in large instruments.

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This stop is commonly found in all sorts of stoplists, both in organs and in positivs. It is a fine stop, and produces a great variety of good combinations, especially when drawn with Quitentadens and Gemshorns.

About 25 years ago a then young master organ builder, [name omitted], invented an unusual variant, by building a 4' Gedackt with two lips, one just opposite the other, so that one could peer through the pipe; he named it “Duiflöt.” This construction makes it sound completely different from other Gedackts. But at this time it has not yet become a common stop.

4. Supergedacktlein at 2' pitch.

Although this is the same [as the 4' Gedackt], yet it too produces gentle combinations with lower stops, as has already been mentioned about the Suiflöit and other stops as well, especially when a good Tremulant is available. When it is of proper scale, and purely and evenly voiced, it is exceptionally fine when played in the treble by the right hand, and sounds quite similar to a little Plockflöit. When combined with the large Rancket or Sorduen 8', it creates an unusual but pleasant sound.

5. Gedackte Quinta at 3' pitch.

Some builders, such as Gregorius Vogel,10 call this stop Pfeifferflöit, a Quinta at choir pitch.11

6. Bauerflöit or Päurlin in the pedal at 1' pitch.

We Germans hold this stop in high regard, especially for playing a cantus firmus in the pedal. The Italians, however, scorn all such high pedal stops at 2' or 1', since they merely reinforce octaves.

VI.

Pipes that are indeed stopped, but on the other hand open to some degree, such as the Rohrflöit.

10. See p. 117 above.
11. The final clause seems to refer specifically to Gregorius Vogel’s work, such a stop likely used in the organ at St. Johannes in Magdeburg, an instrument Praetorius seems to have been familiar with. See p. 117 above.
From Gedackt pipes there developed another variety [of stop], which becomes slightly open due to precisely proportioned little tubes. Thus it is appropriately given the name "Rohrflöit."

This sort of stop is however built in various ways. Some builders set the tubes half inside [the pipe] and half outside. Others build it entirely inside, so that all there is to see at the top [of the pipe] is a hole. This latter kind is the most durable, since the tubes then cannot become bent; but it must then be tuned by means of its cap.

1. Great Rohrflöit at 16' pitch.
   If such a large 16' capped stop were carried through the entire manual, this large Rohrflöit (in that it sounds louder and clearer) would be far better than a totally stopped Gedackt, since it sounds a harmonious quint as well as its basic pitch.

2. Rohrflöit at 8' pitch
3. Small Rohrflöit at 4' pitch
4. Very small Super-Rohrflöitlein at 2' pitch

All of these are suitable and pleasing when combined with all sorts of stops, but especially with the Quintadena.

5. There is no better way than this to make a little Bauerflöit 1' in the pedal, for its higher pipes produce a sound that is just like someone whistling. This is caused by the little tube on top. Because it produces a prominent Quint, some builders call this stop Rohrscell. But when one considers its characteristics, this name is inappropriate.

Here it would be appropriate to discuss pipes made of wood. But this is a very different way of making pipes, due to a great variety of basic proportional and tonal differences (as I have personally witnessed), and little comparable to other organs, either in tone or construction. The abovementioned organ in the palace at Hessen demonstrates the truth of this statement.

The unusual, delicate, subtle timbre and gentleness of wooden pipes cannot really be described in writing. But since I must avoid wordiness, I consider it unnecessary...
sary to discuss this sort of pipework here. Since building organs is not my profession, perhaps Mr. Compenius, the gentleman mentioned above, will himself soon publish a more detailed report about this and other matters, discussing its basic geometrical aspects. I for my part will never cease diligently to promote this art among organ-lovers, to the best of my ability. And, God willing, there will follow a report on the Monochord, out of which all [stringed keyboard] musical instruments and pipework derive their proper pitch and basic temperament. This instrument might properly be called the mother of all [stringed keyboard] instruments, and of music in its entirety; it stems entirely from the compass, and needs to be demonstrated by the compass (many have occupied themselves with this matter, but in the end unprofitably). Enough about open and stopped pipes; let us turn to the reed stops.

VII.

About open reed stops.

Since reeds are quite common and familiar to everyone, it is unnecessary to report extensively on them here. I will only mention that each builder has his own way of designing the length and structure of these open resonators. Some build a Posaune that produces a 16' pitch with a resonator that is 16' long, but that is quite rare. Some however build it 12' long, a fifth shorter than it actually speaks, and that is the best kind. The most common kind is 8' long. Some build the Posaune with a resonator only 4' long, some 3' long and partially covered on top, with a hole like a square stopper-hole in it. Since this variety's resonator is so small, however, its tone is dull and flat-sounding. If it is to crackle and strut, to sound weighty, the resonator must be 12' long. This proportion is likewise valid for the open reed stops that follow, thus:

\[
\begin{align*}
\text{If the length of } & = 16' \\
\text{Then the length of } & = 12' \\
\text{Of the } & = 8' \\
\text{The } & = 4'
\end{align*}
\]

The reason why not all that much depends on the length of the resonators is

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90. i.e., of scaling pipes.
91. Although he provides an illustration of the Monochord (Theatrum Instrumentorum, Plate XXXVII, no. 1) as well as a diagram of its scaling (Theatrum Instrumentorum, Plate XXXIX), Praetorius seems never to have completed such a report.
92. See Theatrum Instrumentorum, Plate XXXVIII, no. 8: “Trommet.”
i.e., reed stops that are constantly shifting their pitch. Perhaps the word "Regalia" is the impetus behind Praetorius's sudden leap to the ensuing discussion of regals.

that the depth or height of the pitch stems not from the resonator (which nevertheless must be of the proper size), but from the shallot. Take note as well: if shallots are long and narrow, then they produce a much more pleasing tone than if they are short and wide. This holds true for the flue pipes as well: a wide scale never produces as pleasing a tone as a narrow one.

For that reason, every organbuilder ought diligently to pursue very narrow scales, since the narrower they are, the more gentle and charming they are. But because not every organbuilder is capable of making narrow-scale pipes speak properly (this requires much knowledge, great diligence, and considerable effort), most of them, being lazy fellows who find that further learning requires too much effort, continue to build with wide scales; then they need not rack their brains about the matter, they can finish the work all the quicker, and their purses can become all the fuller.

In a monastery in the Principality of Hesse I found an unusual sort of Posaune. Onto the shallot was soldered a brass plate, in the middle of which was a rather lengthy little hole. The actual tongue was then laid on top of it, and fastened with red-hot brass or steel wires, to keep the Posaune from rattling and crackling. And since this dampens the sound of the pipe more than usual, it gives the Posaune (when it is properly voiced and winded by a good builder) a pompous, muffled tone, without the rattling.

Such Posaunes, however, must be tuned by bending the top of the resonator up or down, and that indeed makes them unstable (Regalia mobilia). Their going out of tune is not the result of the tuning wire (with which a regal must be tuned) shifting up or down, as some believe, since it is impossible for the tuning wire to shift up or down of its own accord. Rather it is due to the thin brass tongue that curves outward in warm weather, due to the heat (one can observe this with paper or thin wood, as well). This widens the distance between the tongue and shallot, and so the pitch drops. In cold weather, on the other hand, the tongue curves inward, moving nearer the shallot, thus the distance becomes smaller, and the pitch of all the pipes rises. Anyone who deals with organs and regals experiences this daily. In the winter, as soon as the cold weather gives way to a thaw, regals drop in pitch.
soon as it begins to freeze, they rise again. Therefore it does little good to tie the tuning wire fast. The same thing happens not only to the steel and brass strings in a harpsichord, but also to lute and violin strings that are made of sheep-gut. They become slack with the heat, stretch longer, and thus the pitch drops. But in the cold, they contract and become shorter, and thus their pitch rises. Therefore, when [stringed] instruments stand for a number of weeks continuously in the cold, they will rise a half step or more in pitch. Thus, unless a knowledgeable builder designs harpsichords so that every string can stand the tension of occasionally rising a half step, almost all the strings will pop. I myself have all too often experienced this, with its accompanying damage and annoyance.

Because the instability in regals and reed stops originates from the brass tongue, there is a test by which one can ascertain whether the tongues in a regal are precisely and diligently adjusted throughout the entire instrument. For if a reed stop is diligently built by a fine builder, then when the weather changes, the pitch of the instrument shifts uniformly throughout the entire keyboard, when it gets warm, all the tongues bend uniformly outward, and when it gets cold, they move uniformly nearer the shallot. Therefore one can play on the reeds in an organ or other instrument at all times, provided the flue stops are not drawn, just as well as if they were stable and precisely in tune.

When however a flue stop is drawn with the reeds, then the shortcoming becomes evident; the reed has moved uniformly either higher or lower than the flue, throughout the entire compass. This proves that the reed stop is diligently and precisely adjusted. If it turns out, though, that a reed stop does not shift uniformly in pitch throughout the entire compass of the keyboard, but that one note is flatter than the fluework, while another is sharper, and a third is right in tune, then it is a sure sign that the tongues on the shallots are not uniform, but that one tongue is too stiff while another is too weak, since a stiff, thick tongue is not affected as easily as a thin, weak one.

Although there ought actually to be a detailed report here about all the other kinds of reed stops, there are too many varieties and innovations to be able to de-
scribe them all, especially since new and more exotic ones are being invented every day. It is very difficult to model a reed stop accurately after another instrument that is blown by mouth, and to capture its unique tone. And therefore I will discuss here only some of the principal types.

Schalmey is at 8' pitch

It is better to build this stop, not with true Schalmei resonators, but somewhat wider. This sort blends admirably with the actual sound of the Schalmei.

Krummhorn is only at 8' pitch

Although it is indeed possible to build this stop at 16' pitch, it is seldom encountered. Because it sounds rather loud and low, it is not very pleasant as a manual stop. Since it sounds at such a low pitch, it is better to put it only in the pedal.

This stop's resonators come in all varieties and sizes. Some builders attempt to achieve this timbre with a true regal resonator, covered on top by a cap, and with two, three, or more little holes, bored either into the cap itself or lower down near the shallot. There are other methods of achieving the timbre, as well. Therefore this stop can be counted among the reeds that are stopped. But the best kind, the one that sounds most like a krummhorn, is the one with half-length cylindrical resonators that are open at the top.

Just like other gentle reed stops, however, this one must be built by a fine and knowledgeable master, not just anyone is capable of building it.

Grob Regal is at 8' pitch

In the organ this stop is for the most part built of brass, at a length of 5 or 6 inches. At times, though, the resonators are very small, hardly an inch long, yet producing an 8' pitch; this holds true especially in the [keyboard] instruments called regals, that have been built in Augsburg and Nuremberg. This is described in greater detail in Part II, No. 4 3 above.

The Jungfrauenregal, either in the manual or the pedal, is at 4' pitch. It is a small, open regal with a small, slight resonator, about one or at the most two inches in length. Its name is due to the fact that, when it is combined with flue stops in the pedal, it sounds as if a young woman's voice were singing in the bass register.
German "Violin." 

Some also call such a small regal at 4' pitch "Geigen-" or "Geigend-Regal," because, when a Quintadena at 8' pitch is drawn with it, it sounds in some ways much like a violin (especially when it is played by the right hand as a treble solo.

Since however each stop should be named according to the sound it produces in and of itself, the most appropriate name for this stop is "little Regal."

Zinck at 8' pitch.

This stop is found only in the treble range of the keyboard. It has conical resonators, somewhat tapered at the bottom and open at the top. And so its sound is somewhat hollow, like a flute stop, and without such a strong rattle. The rattling is largely prevented by its stiff tongues and ample wind.

The Cornett is found for the most part in the pedal. Its dimensions are those of a Regal, though narrower and longer. For although it is only at 4' or 2' pitch, yet its resonator is 9 inches tall, that is, taller than the resonator of a Regal at 8' pitch. Therefore it may be quite credibly compared to the sound of the human voice. Some builders make their Cornet resonators barely 4' or 5' tall; in this matter there is much variety among organbuilders, and so nothing definitive can be written concerning it.

VIII.

Stopped Reeds.

Sordun is at 16' pitch. Because of the way it is constructed, with stopped pipes, and because it contains a concealed resonator, a rather long tube, this stop indeed cannot be built at a higher pitch, if it is to be true to its type. Its exterior resonator is, to be sure, approximately two feet high, and the width of a Nachthorn pipe-body of 4' pitch. If a true master builds it, then its sound is very gentle and quiet, and it sounds well in ensemble with stringed instruments and flutes. One must be mindful, however, just as with other low pipes sounding at 16', not to play intervals of thirds or fifths in the left hand, to avoid producing unpleasantly low sounds. It sounds best in the pedal, indeed quite elegant in all sorts of combinations.
105. See *Theatrum Instrumentorum*, Plate XXXVIII, no. 13: "Rancket 8 [or] 16 foot."

106. Under this heading Praetorius groups a number of colorful reeds with fractional-length resonators, suggesting that he considers them essentially similar.

107. Plate XXXVIII, nos. 19-23

108. Presumably a type of Baerpfeiffe, since that is the stop Praetorius is describing.

109. Plate 38 depicts five varieties of Baerpfeiffen. None of them seems to correspond to Praetorius' description, unless one interprets the German freely to mean something like "all wound around itself." In that case, no. 21 may be a sketch of the resonator Praetorius is describing.
DE ORGANOGRAPHIA.

Appfel- oder Knopf-Regal is at 8' pitch.
This stop gets its name from its shape, which looks like an apple sitting atop a stick. The tallest resonator is about 4 inches high, consisting of a little tube of the same size as its shallot, on top of which is a round, hollow little ball like a braided button, bored full of little holes, through which the sound escapes. Its sound is similar to that of a Regal, but quieter and more gentle. It is well suited to positives that are used in private chambers.

KöpflinRegal is a 4' pitch. At its top is a little round ball, like a button, slit across the middle like an open helmet, that immediately reflects the sound back into the lower part of the resonator. It is a fine and gentle stop.

This is enough for the present about organ stops.

Chapter III.

Instruction concerning how to set a temperament in reed stops within an organ, as well as in Regals (as separate instruments) and other instruments such as harpsichords, spinets, and such; also how to tune or touch up the remaining pipes. 111

It is no particular problem to tune reed stops to the rest of the organ, once the flue pipes are in good tune. If the reed to be tuned is at 16', the best way to do this is to draw a flue stop such as a Principal or large Octave at 8' pitch. If the reed to be tuned is at 8', then draw a 4' stop such as an Octave. If the reed is at 4' pitch, then a Principal, large Octave, or Quintadena at 8' pitch, together with a 4' Octave, should be drawn; then the reed should be tuned against

110. German "Apple- or Button-Regal."
111. i.e., those higher and lower than the octave in which the temperament is set.
De Organographia.

112. At the beginning of the sentence Praetorius does not specify the reed stop to be tuned. Here he specifically mentions the Regal since, practically speaking, reeds with fractional-length resonators are the most unstable and in need of constant tuning.

113. i.e., Regals.

And if by chance the flue rank (be it Principal, Octave, or Quintadena) to which the reed is to be tuned is itself not perfectly in tune, or if an organist wants to tune a Regal within itself, without matching pitches to another instrument, the same way that a temperament is set in a [stringed keyboard] instrument, then the best way to do this is to play a chord on a flue stop (on another manual), and tune the reed against it. For example, if one wants to tune the C or c of a pedal reed (say, the Posaune, Trompet, or some other reed), then one should play the chord e g c' on a manual [flue stop], then the out-of-tune pedal C or c can be tuned perfectly to that chord (since the chord contains a pure third and sixth, a fourth, a fifth, and an octave). This procedure works even if the abovementioned [flue] pipes are not in perfect tune.

Likewise, if one has difficulty tuning a reed in the Rückpositiv to a flue stop in the same division, then it is best to draw a flue stop in the Oberwerk and play chords on it, against which the Regal pipes can be tuned, one after the other.

Vice versa, one can tune an Oberwerk Regal in the same way against a Rückpositiv flue stop. But in that case, one must take care not to draw a very loud flue stop for purposes of tuning, since some of the reed stops are very quiet.

If a Regal is tuned higher or lower by means of the wire or crook that comes out of the boot, then the further the wire is drawn out or driven upwards by a rod (thus making its tongue longer), the lower the pipe sounds; conversely, the further in the wire is driven, the shorter the tongue and the higher the pitch. In organs and positives, the other pipes are tuned differently: open flues get sharper when the top of the pipe is widened or cut down a bit. On the other hand, they get flatter when their tops are pressed inward or coned in with a tuning cone. One ought not to be too quick, though, to cut down the top of a pipe, since it is much easier to make a pipe shorter than longer. Where organ pipes are found to be pinched
114. i.e., the builder has been careless about making the pipes at their proper lengths, and to compensate for this shortcoming and bring them into tune, he has had to pinch them out of shape.

115. Excessive pressure will harden the brass; then when it is set into vibration, the tongue will no longer function as previously.

116. Scraping the metal too thin will make the tongue flimsy.

117. In this paragraph Praetorius abruptly changes the subject and introduces the matter treated in the section following.

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drastically out of shape on top, like a pile of fanciful, twisted headgear, it is a sure sign that a lazy, careless organbuilder, who has paid no attention to their proper length, has been at them.148

Gedackt pipes, on the other hand, are tuned by the lids or caps they have at their tops. The further these are pressed down, or tapped with a little board, the more the pitch rises; the higher these are shifted, the lower the pitch becomes. There are also Gedackts with soldered caps, and these are tuned by the ears they have on both sides of their lips. The further these are bent away from the lip, the higher the pitch; the more they are bent inward, the lower the pitch.

Sometimes one encounters a flute or reed pipe that has become entirely mute. This can easily happen when a fly or a bit of dust has become lodged in the lip or, in a reed, between the tongue and shallot. When this obstacle is removed, the pipe will speak without further ado.

Likewise, it is not uncommon for salt peter, rust, or some other grime to attack pipes, especially the little brass tongues in reed pipes. This can be removed by scraping/filing the tongues. One must be careful, however, not to scrape/file the tongues until they are too stiff or too weak; if they are too stiff, the wind cannot force them into vibration,197 and if they are too weak,198 the wind presses against them too forcefully and drives them hard against the shallots, preventing them from speaking at all.

One ought to begin199 by describing how a harpsichord (Symphonia, Clavicymbel) or other such plucked string keyboard instrument should be strung and quilled. Yet, because this is really the concern of the instrument-maker, and furthermore better mastered by doing it than by reading about it, it is not essential here to write about it at length. This is especially the case, since there is considerable variety in string sizes, and the same number may signify thinner or thicker strings; also since a variety of defects can arise in the jacks.

How to temper and tune a Regal, Harpsichord, Spinet, or similar instrument.

Following are the principal concerns that must be carefully considered:

1. One must choose the particular pitch from which to begin the tempering process; all subsequent pitches are determined by this first one.

2. All octaves and perfect or major thirds must be tuned pure, whether they are tuned from the lower pitch to the higher or vice versa.

3. All fifths must not be tuned pure, but they must beat flat (to a specific degree).

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148. i.e., the builder has been careless about making the pipes at their proper lengths, and to compensate for this shortcoming and bring them into tune, he has had to pinch them out of shape.

197. Excessive pressure will harden the brass; then when it is set into vibration, the tongue will no longer function as previously.

198. Scarping the metal too thin will make the tongue flimsy.

199. In this paragraph Praetorius abruptly changes the subject and introduces the matter treated in the section following.
DE ORGANOGRAPHIA.

118. What Praetorius means by this statement becomes clear when he begins to treat specific tempering recipes, on pp. 153ff.

119. See the previous footnote.

course it is the higher pitch that must be slightly lowered in relation to the lower one; but on the other hand, if the lower note of the fifth is to be tuned against the upper one, then the lower note must beat sharp, must be somewhat larger than absolutely pure.118

If these three matters are carefully attended to, then one is quite unlikely to go astray when tempering. Drawing the final fifth into tune according to the method just described is, however, the most difficult task, and the one that needs the greatest attention. One can temper an entire instrument by octaves and fifths, except that more must be said about using the major thirds as guides/check-points.

Some persons with experience can also temper an instrument according to octaves and fourths. In that case, the fourths will beat just like fifths, but in reverse, or opposite. Thus the upper pitch needs to beat somewhat sharp against the lower, and the lower pitch should beat flat against the upper.119 The word “beat” (Schweben) is the term that organbuilders use to describe intervals that are not tuned pure. It is in such common use among builders, and consequently among many organists, that it would be difficult to eradicate. Therefore in future I must also use it (though not at all unhappily), but always modified by “sharp” or “flat.” For “beat,” judging from its derivation, means the same thing as “impure,” i.e., tuned either too sharp or too flat. When tuning an organ, especially the octaves, fifths, and fourths, the pitch beats a bit in the pipes, just like a tremulant. The closer to pure one tunes the interval, the less the beating gets; the beats get slower and slower, until the octave or other concordant interval draws pure. It is much easier to perceive the out-of-tuneness in organs than in regals, harpsichords and other such instruments. The octave, which contains a fifth and a fourth within itself, must always be tuned exactly pure. When the fifth, one part of the whole octave, is made flat, then the fourth, the other part, must inevitably beat sharp to the same extent, so that the octave remains pure.

The fifth, which contains a major and a minor third, must, as noted above, not be tuned exactly pure. The major third, however, is pure, and so it follows that the minor third must beat to the same extent as does the entire fifth.

The minor sixth is the inversion of the major third; it is the result of the lower note [of the third] being taken up an octave, or the upper note being taken down an octave. Therefore, since the major third must be pure, so also must the minor sixth be pure.

Thus whenever one pitch is exactly in tune with another, then all the octaves of the former must be exactly in tune with the latter. For example, if the interval c/e is pure, it follows that all the octaves of the c, whether higher or lower, must be pure,
both against the corresponding e and all its octaves. Likewise, if the interval d♯f♯ is pure, it follows that all d's must be pure against all f♯'s.

In the same way, inverting a minor third produces a major sixth. If the minor third beats out-of-tune, then the minor sixth must also beat out-of-tune; but since the minor third beats flat, therefore the major sixth must beat sharp, so the octave remains pure. And vice versa, since the major sixth beats sharp, therefore the minor third must beat flat, for when both are put together, they must produce a pure octave. When one part is narrower than its appropriate size, then what is lacking must be added to the other part.

Thus when one pitch beats against another, it must follow that all octaves of the former must beat against the latter. The same holds true in this case as with the pure intervals described above, the only difference being that the wider one part is, the narrower the other part must be.

This variance of intervals is depicted in the following table, to make it more comprehensible:

<table>
<thead>
<tr>
<th>fifths</th>
<th>upper note must</th>
<th>the lower note</th>
</tr>
</thead>
<tbody>
<tr>
<td>minor thirds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>major sixths</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lower</td>
<td>flat against</td>
<td>the upper note</td>
</tr>
<tr>
<td>note</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Octaves, major thirds, and minor sixths remain pure (as mentioned above). When an interval, or rather a consonant interval, is to remain pure, then the intermediate intervals lying within it must be treated in the same way, either both pure, or both beating (one sharp, the other flat).

If one intermediate interval beats and the other one is pure, then the interval proper [which is made up of these two intermediates] must beat; it can never be pure. Thus, according to the principles of geometry: if an indefinite number is added to a definite quantity, the entire quantity will be indefinite.
That explains the matter simply. Below you will find an explanation as to what degree the fifths, fourths, minor thirds, and major sixths ought to beat either sharp or flat.

Although it is not especially important (particularly to one who is experienced in tuning) which key one begins with, it is convenient to begin by using the pitch $f'$ as the fundamental pitch, then the proper sequence for tuning the concordant intervals is as follows:

1. $f'\quad$ the basic, given pitch, [established] according to the capabilities of the instrument; $f'$ is tuned pure against it.
2. $f\quad c'$
3. $f\quad a$
4. $c'\quad c$
5. $c\quad g$
6. $c\quad e$
7. $g\quad d'$
8. $g\quad b$
9. $d'\quad d$
10. $d\quad f$ Test 1
11. $a\quad e'\quad$ Test 2
12. $a\quad c$♯
13. $c$♯\quad $c$♯
14. $c$♯\quad $g$♯\quad $e$♯\quad $g$♯ Test 3
15. $f'\quad b$♭
16. $b$♭\quad $d$♯ Test 4
17. $d$♯\quad $d$♯\quad $g$♯\quad $d$♯ Test 5

(The notes in the left column are tuned first; the ones in the right column are tuned against them.)

Regarding the tests:

If the above concordant intervals and fifths are tuned in the way described earlier, then the five tests must turn out satisfactorily. If in the first test the fifth $d'/a$ does not beat properly, then the previously tuned intervals must all be adjusted (either because the fifths are too pure or because they beat too rapidly) until the interval $d'/a$ reaches its proper rate of beat. If this test turns out to be accurate, then one may confidently proceed to the following steps without further ado.

From step 15 one must be careful to temper the fifths in the opposite way. That is, after the lowest note comes into perfect tune, it must then be tuned sharp, as reported in the above table.

When the above process has been completed, then one begins to tune down the scale from the $b^{120}$ that has already been tuned, drawing the lower octave, the $B$, into tune with it. Next comes $b^\flat/B^\flat$, then $a^\flat/A^\flat$, etc., all the way down to the lowest note. One must pay careful attention that these octaves are precisely in tune, and that the lower notes are not tuned sharp against the already-tuned notes. If that is
allowed to happen, then when the fifths are played in the lower part of the compass, they will be far too out-of-tune, and will offend keen ears when full chords are played.

When all the lower notes are in tune, one should proceed up the scale, drawing the \( f\) into perfect tune with the already-tuned \( f\), then \( g\), and so forth up to the keyboard's highest note. The higher notes should be tuned with even greater diligence and with a more acute ear than the lower notes, in order to insure that the octaves are consistently drawn into perfect tune. Both notes of the octave must sound as perfectly in tune as if they were one pipe, or one string. One should always keep the major thirds as guides; e.g., after the \( f\) is tuned to the \( f\), then test the \( f\) against the \( d\). To be sure that the major third is pure. Likewise, after the \( g\) has been tuned to the \( g\), test the \( g\) against the \( d\); when the \( a\) is in tune with the \( a\), test it against the \( f\).

After this entire process has been completed, one can be sure that the temperament will produce a proper harmony. It takes a great deal of practice, however, to learn how to do this.

The Second Method

Fifths and octaves must be treated here in the same way described in the previous temperament. Just as all major thirds, the major third \( f\) must be perfectly in tune. It is much easier to hear and tune thirds, however, when they are played as tenths, i.e., \( f\). One must be careful, though, that the fifth \( a\) is neither too narrow nor too pure.

Tests 2 and 3 must be carried out in the same way as the first one, \( f\).

In the procedure above, the octaves and perfect thirds must be pure, the fourths must beat sharp, and the fifths must beat somewhat flat. When it is completed, then the notes above and below it must be tuned by octaves, until all the notes of the keyboard (with the exception of the semitones) are tuned.

With regard to the semitones, the \( b\) must first be tuned sharp against the \( f\), like all other descending fifths, and then tested as a major third against the \( d\) (as noted above, \( b\) can be better perceived against the tenth above it, the \( d\)). Next
come the octaves $b^2/b^3$ and $b^4/b_5$; then the fifth $d^5/b_5$, [the $d^5$] beating [sharp].

"Then the $d^5$ must be tested against $g^1$, a tenth above it, it must be pure. Next come the octaves $d^5$ and $d^6$. The three notes $c^5$, $f^5$, and $g^5$ should then be tuned pure against their thirds, keeping in mind, as mentioned above, that these pitches are more reliably perceived against their tenths. Finally, all the [higher and lower] octaves should be drawn into tune.

The fifths $c^5/g^5$ and $F^3/d^5$ must be neither too out-of-tune nor too pure, but rather somewhere in the middle. They must not beat as much as the other fifths, so that they do not cause such harsh dissonances when the semitones are played in distant keys. Some hold, however, that the fifth $c^5/g^5$ must be completely pure, which is inappropriate in my opinion.

Our forebears labeled the interval $f^5/g^5$ the wolf, since these notes together produce a completely out-of-tune minor third (if perchance the second mode must be played a step lower on $f$, or if some other chromatic passage needs to be played using the semitones). To improve this fault in some measure, they made all the other intervals a bit smaller. They set the major third $e/g^5$ not completely pure, but somewhat wide, pushing the $g^5$ a little sharp in the direction of the $a$, and consequently further from the $f$. Thus the interval $f^5/g^5$, though not actually a minor third, could be used in that way if necessary.

Some want to transfer the wolf from $f^5/g^5$ to $d^5$, since testing this interval on any organ will prove that the interval $b^5/d^5$ cannot be pure. Some want to put the wolf between $d^5$ and $f^5$, others between $b^4$ and $c^5$. I say, "Each to his own;" best that the wolf with his unpleasant howling stay in the forest, and not bother our harmonic consonances.

One reason, among others, that $f^5$, $g^5$, and $c^5$ must be as they are is because of the cadences that are formed using these black keys or semitones. The pitches $f$, $g$, and $c$ are not leading tones to $f^5$, $g^5$, and $c^5$, as $a$ is to $b$ and $d$ is to $e$. On the other hand, the semitones $b^4$ and $d^5$ cannot function as leading tones, as $a$ and $d$ can. But if the black keys are divided, as depicted in Part 2, Num. 39, then these keys can function in both ways.

I intend, God willing, soon to publish a treatise on this matter (among others) from the standpoint of the monochord, *Tractat ex regulis proportionum fundamentali ter*.

For it is inappropriate here to describe this matter in any other way than in terms understandable to organbuilders and organists, so that the uneducated can also comprehend it.
The third method.

Some begin tuning from c', asserting that this is the most musical, since it begins with the basic pitch. For just as [stringed keyboard] instruments and organs mostly begin with C (and derive their name from this pitch's designation in feet), and this pitch is the fundamental one, not only on the bottom, but on the top as well, it is best and most appropriate to begin in the middle, with c' as mentioned above. The tempering procedure then goes as follows:

[step]  
1. c' c  
2. c g  
3. c c  
4. g d'  
5. g b  
6. c c  
7. d' d  
8. d a  
9. e' a  
10. a f  
11. b c  
12. g g  
13. c' c  
14. e g  
15. f f  
16. f b  
17. b a  
18. d' b  
19. d f  
20. g d  

In this connection I have thought it important to include Mr. Calvisius's opinion about tempering instruments, de Temp[eratura] Instrumentorum. He says: If consonances are to sound in proper tune, it is necessary that they

126. The standard organ manual compass until the 16th century was 4 octaves, C-ib.  
127. i.e., at that point the lower note must be tuned to beat sharp against the upper.  
128. This treatise appears not to have survived.
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129. i.e., the pure intervals in the system of just intonation.

130. Praetorius now proceeds to explain the mean-tone system of temperament.

be pure, i.e., in correct proportion one against the other. They must be neither too wide nor too narrow. The same holds true for the human voice, as well as trombones and other instruments whose pitch one can render either sharper or flatter by means of human breath. The human voice naturally tends to sing intervals pure, augmenting or diminishing them as the situation demands.

The matter is different, however, with [string keyboard] instruments and organs. These instruments have far too few keys, and thus some of their consonances must be contracted to prevent any single interval from bearing the entire discrepancy.

This is what the intervals are:

<table>
<thead>
<tr>
<th>Interval</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>c and d</td>
<td>large whole tone</td>
</tr>
<tr>
<td>d and e</td>
<td>small whole tone</td>
</tr>
<tr>
<td>e and f</td>
<td>major semitone</td>
</tr>
<tr>
<td>f and g</td>
<td>large whole tone</td>
</tr>
<tr>
<td>g and a</td>
<td>small whole tone</td>
</tr>
<tr>
<td>a and b♭</td>
<td>large whole tone</td>
</tr>
<tr>
<td>b♭ and c</td>
<td>large semitone</td>
</tr>
</tbody>
</table>

If [keyboard] instruments are tuned according to these proportions, then the interval d/f would immediately prove to be an imperfect minor third, since it is a minor whole tone plus a semitone, a whole comma too narrow. The fifth d/a will likewise be a comma too narrow, which is far too much; no one’s ears could bear it. Therefore there simply ought to be more keys, so that there could be two d’s, a comma apart.

But since the same thing happens with other intervals as well, there would end up being far too many keys, especially if the doubled semitones were to be included. This is why one must employ a temperament, which works as follows.

The major whole tone is reduced by half a comma; the minor whole tone, on the other hand, is increased by half a comma. Thus it is clear that the major third, which consists of a major and minor whole tone, will lack nothing; it remains pure.

The minor sixth, its counterpart in completing the octave, also remains pure. The major semitone, however, is increased by a quarter comma; this means that a fourth,
which contains a major and minor whole tone and a major semitone, is too wide, because the major semitone is increased by a quarter comma.

The fifth consists of two major whole tones, a minor [whole tone], and a semitone. Since a half comma is removed from each major whole tone, totaling a whole comma, and on the other hand only 3/4 of a comma is added to it, it follows that fifths in [keyboard] instruments cannot be pure.

Because a fourth and a fifth form an octave, which must remain pure, it inevitably follows that, if one part becomes greater, the other must become smaller; this requires no further demonstration: divide a whole into two parts, each of which has six equal units; given that the whole is to retain its integrity, and be neither increased or diminished, if one of the parts is increased to seven units, it is necessary that the other part have only five units.

When organbuilders say that the fourth d/g beats and the minor third g♭ beats as well, and thus the minor sixth d♭♭ is pure, that is their own way of expressing the matter, but not properly formulated according to scientific demonstration. If I want to demonstrate that the minor sixth is pure, I must state it this way:

A major third and a minor sixth form an octave. When tempering, however, the major third retains its proper proportion; thus it is necessary that the minor sixth retain its proper proportion as well, and be pure. If a fifth and a fourth form a duple, or octave, and tempering the quint reduces it by a quarter comma, then it is necessary that the fourth to which it is linked be increased by a quarter comma. The entire tempering process works in this same way. Every part must be determined according to the whole.

Chapter IV.

I would fill a great need to include here a detailed report as to how a new organ ought to look and sound: 1.) to note the difficult art of mastering the wind, that proceeds from the open air through the bellows and all the wind ducts, until it passes up through the pipes and out again into the air; 2.) to examine all the hidden faults of the wind chest, both ones that are already present and ones that may arise in the future; 3.) to describe with particular care the proper scales and voicing of flue and reed.
ranks; 4.) also to reveal what should be known about how the interior parts of the organ work, as well as hidden faults that ought rightly to be criticized, and that may perhaps be unknown to those who have never thought about them; 5.) and then [to explain] how an organ’s mechanical aspects, together with its reed stops, can be preserved from all the various faults that do not arise from fundamental defects.

It is a fact that churches nowadays, both in small as well as larger cities, are having organs built to the glory, honor, and praise of the exalted Name of God. These congregations spare no expense, and yet are deceived in all sorts of ways. The resulting instruments need so many repairs and so much patching up as the years go by, that they end up costing far more than they would have, had a reputable organ-builder been given the contract in the first place.

Whether out of greed, technical ignorance, lax oversight of apprentices, or poor quality of materials, some builders do not build substantially, but throw their organs together in a slapdash manner. In order to save time (and gain a reputation for finishing organs faster than anyone else), these builders cut corners. Then ciphers immediately appear in various places, due to faulty basic construction of the chest, or the linkage between pallets and keys rubbing or sticking, or wood swelling and shrinking. One stop draws too easily, another too stiffly; one pulls out halfway, another all the way. Sometimes the stops stick fast, break, and tear apart, causing great inconvenience. Sometimes pipes sag, due to weak construction and metal that is too thin and of poor quality. Sometimes they topple all over each other, because they are top-heavy and poorly anchored. Sometimes they stand lopsided and lean on each other, as if drunken peasants had done a carnival dance on the chest. Then they speak poorly, their tuning is ruined, and they sound dreadful. The wind escapes first at one place, then at another, getting weaker and weaker until it becomes completely insufficient; sometimes it is too strong in summer, or too weak in winter. Sometimes two or even three bellows-treaders are needed, either because the bellows are so difficult to tread, or because they must be trod so fast. There are all sorts of other faults that manifest themselves from time to time. Sometimes
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131. p. 158. The Duke died in 1613; however, this reference may have remained unaltered when "Syntagma musicum II" was finally published in 1619.


all the ills enumerated above cause decent organists so much frustration that they would rather go threshing in a barn than play such an organ.

Although humans are not capable of making things that last forever without repairs, experience confirms that some organs, if they are constructed by experienced and diligent practitioners of the art, can last up to 60, 70, or 80 years without any special attention. They turn out to be so well-built, without any basic faults in their chests, pipes, bellows, inner workings, and moving parts, that they are far superior to newly-built organs. Thus they are worthy to be praised, honored, and recorded as splendid divine creations, upon whose invention our forebears expended so much diligence.

To insure the greatest possible success in the undertaking, to keep churches from incurring exorbitant expense, and to spare many a good organist severe vexation, it is highly necessary that church officials, before they sign a contract to build an organ, seek the counsel of experienced organists who are above collision with organbuilders, and in their presence to specify and agree with the organ builder on the stoplist and other matters concerning the instrument. Beyond that, it would fill a great need, as mentioned above, to write and publish a specific little treatise about all these matters.

I have therefore prevailed upon the aforementioned Esaias Compenius, the official organbuilder for My Gracious Prince and Lord (who has afforded me much good counsel in writing the above report and instruction), to author such a little treatise to be made available to the public in print, for the benefit of organists and organbuilders.

I for my part consider it not only necessary, but also my duty, within my limited ability and understanding, to help and counsel him in any way possible.

Since it is not convenient to append such a little treatise here, it will soon be published [separately], God willing.

THE END.

131 p. 158.
132. Duke Heinrich Julius of Brunswick-Wolfenbüttel; see p. 159 above. The Duke died in 1613, however, this reference may have remained unaltered when "Syntagma musicum II" was finally published in 1619.
In the errata on p. 235, Praetorius states that the stoplist of the organ at St. Lambrecht should have been included among these stoplists. It is found on pp. 233-4.

Praetorius in fact gives seven additional stoplists.

Part Five of VOLUME TWO: Containing Stoplists of various Distinguished Organs in Germany, i.e.

I. Constance [Switzerland] XII. Halle, Marktkirche
II. Ulm XIII. Braunschweig Cathedral
III. Danzig XIV. Leipzig: Nicolaikirche
IV. Rostock XV. Thomaskirche
V. Lübeck: Marienkirche XVI. Torgau
VI. Stralsund XVII. Halberstadt: Martinikirche
VII. Hamburg XVIII. Franziskanerkirche
VIII. Lüneburg XIX. Freiheitskirche
IX. Breslau XX. +Martinskirche
X. Magdeburg XXI. Kassel: Brüderkirche
XI. Bernau XXII: Stralsund: Neuer Kirche

[Six additional stoplists are found on pp. 197-203:
I. Sondershausen; II. Sondershausen: a cabinet-organ; III. Hildesheim: St. Godehard; IV. Riddagshausen: Monastery; V. Another hypothetical stoplist for an organ of 34 or 35 stops, of the sort found in Dresden and Schöningen; VI. Yet another stoplist for a small instrument with a very gentle sound.

Finally, a stoplist of the organ at St. Lambrecht in Lüneburg is found on pp. 233-4.]

I. The Organ in Constance

In spite of my diligent efforts, at this time I have not been able to procure...
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II. The Organ at Ulm

This organ was built 30 years ago, and then renovated twelve years ago. The renovation cost 7000 Gulden.

The largest pipe holds 315 Ulmer Mass of wine; that is 157½ Stübchen, or almost 8 Eimer or 4 Ohms.

III. The large organ at Danzig

Built in St. Mary's Church in the year 1585 by Julius Antonius, contains 55 stops.

In the OberWerck there are

| Each of the | 13 stops |
| pipes. | |
| stops | |
| 1. Principal | 16' |
| 2. Halflöte | 16' |
| 3. Quintadehna | 16' |
| 4. Octava | 8' |
| 5. Spillpfeiffe | 4' |
| 6. Quintadehna | 4' |
| 7. Zimbel | 4' |

In the Brust- or VorPositiff there are

| 8 stops |

| Stops | |
| 1. Gedachte Stimm | 8' |
| 2. Main | 4' |
| 3. Gedacht | 4' |
| 4. Zimbel | 4' |
| 5. Dunecken | 3' |
| 6. Zimbel | 4' |
| 7. Regal singend | 8' |
| 8. Zimbel | 4' |
Both this stop and the one below it seem to be drawn from the Rückpositiv. If this is true, the number of pipes is misleading; the Zimbel seems to have 3 ranks, while the Mixtur has up to five.

This might also mean “for various divisions throughout the organ.”

Moreover there are three tremulants in the organ (in der gantzen Orgel), and one drum [operated by] the pedal.

Thus there is a total of 60 stops to be found [in this organ].

The instrument at Rostock, that was built by Heinrich Glovatz, a citizen of that city, and completed in the year [1593], has 39 stops. It cost 5000 Gulden to build. [It has] 39 stops, 14 bellows and 3 manuals, of which the top one belongs to the Oberwerk, the middle to the Brust, and the bottom to the Rückpositiv.
In the Ober Werck are 8 stops.
1. Weit Principal 16' 16
2. Giedact 16' 8
3. Octav 8' 3
4. Superoctav 4' 4
5. Mixtur 4' 8
6. Zimbel 8'

In the Rückpositiv are 12 stops.
1. Principal 8' 8
2. Quintadehnal 8' 3
3. Octav 8' 8
4. Waldhüt 5
5. Gedact 5
6. Offenflöit 5
7. Gemshorn 5
8. Superoctav 4'
9. Mixtur 4'
10. Zimbel 8'
11. Pommert 8'
12. Trommet 8'

In the Side Pedal on the left side there are 9 pedal stops.
1. Giedact 8'
2. Barem 8'
3. Octav 8'
4. Superoctav 4'
5. Bawerflöiten 4'
6. Posauen 4'
7. Schalimay 4'
8. Regal 4'
9. Cornett 4'

In Lübeck

I.

The organ at St. Peter's Church in Lübeck, built by Mr. Gottschald Burckart, a Netherlander, has 45 stops, 3 manuals from C to a', a Rückpositiv/Oberwerck coupler and a Rückpositiv/Pedal coupler. The pedal extends from C with the C♯ and D up to d'.

In the Ober Werck there are 13 stops.
1. Giedact 8'
2. Superoctav 4'
3. Octav 8'
4. Sniffhüt 3'
5. Waldhüt 3'
6. Nasuspfeife [?] 3'
7. Blockhüt 3'
8. Spillspfeife 3'
9. Zimbel 8'
10. Krumbhorn 4'
11. Regal 4'
12. Geigen Regal 4'

In the Rückpositiv are 12 stops.
1. Principal 8' 8
2. Quintadehnal 8' 3
3. Octav 8' 8
4. Waldhüt 5
5. Gedact 5
6. Waldhüt 5
7. Gemshorn 5
8. Superoctav 4'
9. Mixtur 4'
10. Zimbel 8'
11. Pommert 8'
12. Trommet 8'

V.

In Lübeck

I.

The organ at St. Peter's Church in Lübeck, built by Mr. Gottschald Burckart, a Netherlander, has 45 stops, 3 manuals from C to a', a Rückpositiv/Oberwerck coupler and a Rückpositiv/Pedal coupler. The pedal extends from C with the C♯ and D up to d'.

In the Ober Werck there are 13 stops.
1. Giedact 8'
2. Superoctav 4'
3. Octav 8'
4. Sniffhüt 3'
5. Waldhüt 3'
6. Nasuspfeife [?] 3'
7. Blockhüt 3'
8. Spillspfeife 3'
9. Zimbel 8'
10. Krumbhorn 4'
11. Regal 4'
12. Geigen Regal 4'

Side Pedal

9. Zimbel 8'
10. Krumbhorn 4'
11. Regal 4'
12. Geigen Regal 4'

In Lübeck

I.

The organ at St. Peter's Church in Lübeck, built by Mr. Gottschald Burckart, a Netherlander, has 45 stops, 3 manuals from C to a', a Rückpositiv/Oberwerck coupler and a Rückpositiv/Pedal coupler. The pedal extends from C with the C♯ and D up to d'.

In the Ober Werck there are 13 stops.
1. Giedact 8'
2. Superoctav 4'
3. Octav 8'
4. Sniffhüt 3'
5. Waldhüt 3'
6. Nasuspfeife [?] 3'
7. Blockhüt 3'
8. Spillspfeife 3'
9. Zimbel 8'
10. Krumbhorn 4'
11. Regal 4'
12. Geigen Regal 4'

V.

In Lübeck

I.

The organ at St. Peter's Church in Lübeck, built by Mr. Gottschald Burckart, a Netherlander, has 45 stops, 3 manuals from C to a', a Rückpositiv/Oberwerck coupler and a Rückpositiv/Pedal coupler. The pedal extends from C with the C♯ and D up to d'.
11. In his *Musica mechanica organœdi* (Berlin, 1768), Vol. I, p. 87-8 (§.135) and p. 147 (§.197), Jacob Adlung suggests this stop may be a 8' 3/5'.

12. See Adlung, op. cit., p. 92 (§.140). Because of its position in the stoplist as given by Praetorius, this stop is listed here among the reeds; no other circumstance, however, marks it either as a reed or flue stop.

13. i.e., the Marienkirche (Church of St. Mary).


15. i.e., the Hauptwerk, the division in the upper part of the main case.

16. Spilpipe 8'

17. Gedact 8'

18. Kleinocosta 4'

19. Klein Spilpipe 4'

20. Superoctava 4' (x2/3)

21. Rutschquinta 4' (x2)

22. Mixtura

23. Scharff Zimbel

24. Feld Trommeten

25. Dulcian

**In the Brust**

8 stops.

1. Gedact at 8'

2. Gedackt at 8'

3. Octava

4. Blockflöiten 4'

5. Quintadehne

6. Gemshorn

7. Querpipe

8. Feldpipe

9. Superoctava

10. Mixtura

11. Zimbel

12. Trommeten 8'

**In the Pedal**

10 stops.

1. Principal Bass 32'

2. Gedackt Bass 16'


4. Decem Bass

5. Super octaven B[ass] 4'


7. Pastuaten Bass 16'

8. Dusan B[ass] 4'

9. Cornett Bass 4'

10. Schallmeyen B[ass] 4'

**The 2nd Organ**

[in Lübeck]

In the [Church of] Our Dear Lady⁴, built by M[aster] Bartold N.⁴, comprises 46 stops [on] 3 manuals, of which the two upper ones [extend] from D up to a⁴. The lowest [extends] from C up to d⁴. The Pedal extends from C up to d⁴. There is also a Manual/Pedal coupler.

Above in the organ⁴ are 7 stops.

1. Principal with ventil

2. Grossocosta

3. Kleinocosta

4. Superoctava

5. Rutschquinta

6. Feldpipe

7. Schaalflute

8. Zimbel

9. Trommeten 8'

**In the Rückpositiv**

14 stops

1. Principal

2. Gedackt

3. Octava

4. Blockflöiten

5. Quintadehne

6. Gemshorn

7. Querpipe

8. Feldpipe

9. Superoctava

10. Mixtura

11. Zimbel

12. Trommeten

13. Krummhörner

14. Baerpipen

*11. In his *Musica notandi organum* (Berlin, 1785), Vol. I, p. 87-8 (§.135) and p. 147 (§.197), Jacob Adlung suggests this stop may be a 8' 3/5'.

12. See Adlung, op. cit., p. 92 (§.140). Because of its position in the stoplist as given by Praetorius, this stop is listed here among the reeds; no other circumstance, however, marks it either as a reed or flue stop.

13. i.e., the Marienkirche (Church of St. Mary).


15. i.e., the Hauptwerk, the division in the upper part of the main case.
### De Organographia

#### Im Achtpositiv
- 1. Gedact
- 2. Regal
- 3. Zink oder Cornett
- 4. Krummhorn
- 5. Barapfeife
- 6. Superodavar
- 7. Principale
- 8. Rechsparapfeife
- 9. Octava
- 10. Gross Principal UnterBass
- 11. UnterBass, doubled
- 12. Gross OctavBass in the Stuel
- 13. QuintadehnenBass in the "Stuel"
- 14. Detzehm Bass in the "Stuel"
- 15. Klein OctavBass
- 16. FeldpeifenBass in the "Stuel"
- 17. MisturBass in the "Stuel"
- 18. BasstenenBass
- 19. DulcianBass
- 20. TrommetenBass
- 21. SchallmeyenBass
- 22. CornettBass

A ventil for all the pedal reeds [placed] above in the organ, i.e. DulcianBass, SchallmeyenBass and CornettBass
A ventil for all manual and pedal stops in the "Stuel.
A ventil for the Basstenen- and Trommeten Bass in the "Stuel."

#### In the Brustwerk
1. Gedact
2. Regal
3. Zink oder Cornett
4. Krummhorn
5. Barapfeife

#### In the Rückpositiv
1. Principal
2. Principale
3. Bordun
4. Gedact
5. Offenflöit 8′
6. Octava
7. Blockpfiff
8. Queerpfeife
9. Offenflöit 4′
10. Octava
11. Superocotav
12. Superocotav
13. Gemshörner
14. Feldpeiffe
15. Mistur
16. Mistur [sic]
17. Zimbel
18. Dulcian or Fagott 16′
19. Trommeten
20. Dulcian or Fagott 8′

#### In the Pedal
1. Gross Principal UnterBass
2. UnterBass, doubled
3. UnterBass
4. Gross OctavBass in the Stuel
5. QuintadehnenBass in the "Stuel"
6. Detzehm Bass in the "Stuel"
7. Klein OctavBass
8. FeldpeifenBass in the "Stuel"
9. MisturBass in the "Stuel"
10. BasstenenBass
11. DulcianBass
12. TrommetenBass
13. SchallmeyenBass
14. CornettBass

#### The 3rd Organ
[In Lübeck],
in the Cathedral, was completed by by Master Jacob N. in the year 1606. In it are found 30 stops [with] two manuals [extending] from [F?] up to a′ and Pedal from C up to c′.

#### In the Oberwerk
1. Bordun or Gedact
2. Principal
3. Octava
4. Quint

#### In the Brustwerk
1. Gedact
2. Regal
3. Zink oder Cornett
4. Krummhorn
5. Barapfeife

#### In the Rückpositiv
1. Principal
2. Principale
3. Bordun
4. Gedact
5. Offenflöit 8′
6. Octava
7. Blockpfiff
8. Queerpfeife
9. Offenflöit 4′
10. Octava
11. Superocotav
12. Superocotav
13. Gemshörner
14. Feldpeiffe
15. Mistur
16. Mistur [sic]
17. Zimbel
18. Dulcian or Fagott 16′
19. Trommeten
20. Dulcian or Fagott 8′

#### In the Pedal
1. Gross Principal UnterBass
2. UnterBass, doubled
3. UnterBass
4. Gross OctavBass in the Stuel
5. QuintadehnenBass in the "Stuel"
6. Detzehm Bass in the "Stuel"
7. Klein OctavBass
8. FeldpeifenBass in the "Stuel"
9. MisturBass in the "Stuel"
10. BasstenenBass
11. DulcianBass
12. TrommetenBass
13. SchallmeyenBass
14. CornettBass

A ventil for all the pedal reeds [placed] above in the organ, i.e. DulcianBass, SchallmeyenBass and CornettBass
A ventil for all manual and pedal stops in the "Stuel.
A ventil for the Basstenen- and Trommeten Bass in the "Stuel."

---

16 i.e., two pipes per note.

17 The meaning of this word is uncertain. The most frequent interpretation of the word is “Rückpositiv” (i.e., "Stuhl" ("chair"), in the same sense that the corresponding division in England was sometimes called the “Chair organ.” But in his Orgelwörterbuch (3. Auflage. Mainz: Rheingold-Verlag [1949], p. 60) Carl Eis defines the word “Orgelstuhl” as follows: “The old term for the lower case (das untere Stockwerk) of the organ in which is located the mechanism, and where pipes, especially pedal pipes, may occasionally be placed.” This description suggests that “im Stuhl” (or “Stuel”) may also mean “in Brustwerk position” (cf.: J. F. van Os, “A 15th-century Organ reconstructed in Switzerland…” trans. James L. Wallmann. The American Organist, Vol. 24, No. 3 (March 1990), p. 62, note 13).

18 In his Musica mechanica organœdi (Berlin, 1768), Vol. I, p. 87-8 (§.135), Jacob Adlung interprets the word “Detzehm” to mean “compound third.”
### Stralsund

Built by master Nicolaus Maass, who later took up residence at the Danish royal court, has 43 stops.

**In the Rückpositiv**

<table>
<thead>
<tr>
<th>Stops</th>
<th>Organ</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>1. Principal 8'</td>
</tr>
<tr>
<td></td>
<td>2. Gedact 8'</td>
</tr>
<tr>
<td></td>
<td>3. Octava 4'</td>
</tr>
<tr>
<td></td>
<td>4. Querflöiten 4'</td>
</tr>
<tr>
<td></td>
<td>5. Superoctava 2'</td>
</tr>
<tr>
<td></td>
<td>6. Blockflöiten 3'</td>
</tr>
<tr>
<td></td>
<td>7. Gemshorn 8'</td>
</tr>
<tr>
<td></td>
<td>8. Offenbäck 4'</td>
</tr>
<tr>
<td></td>
<td>9. Nasätt 3'</td>
</tr>
<tr>
<td></td>
<td>10. Siffett 4'</td>
</tr>
<tr>
<td></td>
<td>11. Mixtur 4'</td>
</tr>
<tr>
<td></td>
<td>12. Zimbel 16'</td>
</tr>
<tr>
<td></td>
<td>13. Trommet 8'</td>
</tr>
<tr>
<td></td>
<td>14. Regal 8'</td>
</tr>
</tbody>
</table>

**In the OberWerck**

<table>
<thead>
<tr>
<th>Stops</th>
<th>Organ</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>1. Principal 16'</td>
</tr>
<tr>
<td></td>
<td>2. Quintadehna 16'</td>
</tr>
<tr>
<td></td>
<td>3. Octava 8'</td>
</tr>
<tr>
<td></td>
<td>4. Spillpfeiff 8'</td>
</tr>
<tr>
<td></td>
<td>5. Gross Gedact 8'</td>
</tr>
<tr>
<td></td>
<td>6. Octava 4'</td>
</tr>
<tr>
<td></td>
<td>7. Quint 3'</td>
</tr>
<tr>
<td></td>
<td>8. Mixtur XII</td>
</tr>
<tr>
<td></td>
<td>9. Zimbel III</td>
</tr>
<tr>
<td></td>
<td>10. Dolician 8'</td>
</tr>
</tbody>
</table>

**In the Pedal**

<table>
<thead>
<tr>
<th>Stops</th>
<th>Organ</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>1. Untersatz 16'</td>
</tr>
<tr>
<td></td>
<td>2. OctavenBass 8'</td>
</tr>
<tr>
<td></td>
<td>3. GedactBass 8'</td>
</tr>
<tr>
<td></td>
<td>4. OctavenBass 4'</td>
</tr>
<tr>
<td></td>
<td>5. QuintadehnaBass 4'</td>
</tr>
<tr>
<td></td>
<td>6. Bawrflöit 1'</td>
</tr>
<tr>
<td></td>
<td>7. Nachthorn 1'</td>
</tr>
<tr>
<td></td>
<td>8. Zimbel II</td>
</tr>
<tr>
<td></td>
<td>9. PosaunenBass 16'</td>
</tr>
<tr>
<td></td>
<td>10. TrommetBass 8'</td>
</tr>
<tr>
<td></td>
<td>11. CornettBass 4'</td>
</tr>
</tbody>
</table>

IV.

The instrument at
[St. Nicholas Church, Stralsund]
DE ORGANOGRAPHIA.

In the Rückpositiv
11 Stops.
1. Principal 12' comencing at F
2. Gedackt 8' comencing at C
3. Quintadehn 4' comencing at C
4. Octava 4'
5. Holpflöte 2' open, 18' long
6. Spillpfeiffe 6' comencing at C
7. Mixtur 8'
8. Zimbil 4'
9. Fagott 8'
10. Trommeten 8'

Above in the Brust
11 Stops.
1. Principal 4'
2. Gedackt 4'
3. Querpfeiffe in the treble 4'
4. Nasatt 2' 3'
5. Suiflöit 2'
6. Schweizerflöit 1'
7. Mixtur 8'
8. Zimbel 4'
9. Krumbhorn 8'
10. Regal 8'
11. Geigend Regal 4'

In the OberWerck
9 Stops.
1. Principal, commencing at F 12'
2. Gedackt 8'
3. Quintadehn 4'
4. Octava 4'
5. Holpflöte 2'
6. Qgerpfeiffe open, 12' long
7. Mixtur 8'
8. Rauspipe [i.e., Rauschpfeiffe]
9. Scharp 8'

In Hamburg
I.
Die im St. Jacob hat 53 Stimmen
1. Krumporn 8'
2. Quintadehn 4'

VII.

Die im St. Jacob hat 53 Stimmen
1. Krumporn 8'
2. Quintadehn 4'

The organ at St. Jacob has 53 stops on three manuals, together with the tremulants and 18 small bellows.
In the Rückpositiv,
15 stops.
1. Principal (beginning) at C 8'
2. Gedackt 8'
3. Quintadeen 8'
4. Octava 8'
5. Blockflöte 4'
6. Blockflöte 4'
7. Gemshorn 2'
8. Zifflöte
9. Mixtur
10. Scharf
11. Klingende Zimbel
12. Bäpfiffe 8'
13. Regal 8'
14. Krumbhorn 8'
15. Schalmeyen 4'

in the Pedal
14 stops.
1. Principal, from F 24'
2. Mixtur, lowest pipe at 12'
3. Principal [from] C 16'
4. GrossBass 16'
5. Octava 6'
6. Spillpipe 4'
7. GemshornBass 3'
8. Spitzquinte
9. Mixtur
10. Zimbel
11. Bassaune 16'
12. Krumbhorn 16'
13. Trompete 8'
14. Cornett 2'

The Oberwerk on the middle keyboard has 9 stops.
1. Principal, beginning at F 12'
2. Mixtur [from] F 12'
3. Principal [from] C 16'
4. GrossBass 16'
5. Octava 6'
6. Spillpipe 4'
7. GemshornBass 3'
8. Spitzquinte
9. Mixtur
10. Zimbel
11. Bassaune 16'
12. Krumbhorn 16'
13. Trompete 8'
14. Cornett 2'
15. Zinken

The Brustpositiv above in the organ is played from the upper keyboard, and has 10 stops.
1. Principal [from] C 8'
2. Gedackt 8'
3. Holpfeife 4'
4. Nasart sounding the fifth 3'
5. Gemshorn 2'
6. Kleinflöte 2'
7. Zimbel III
8. Trompete 8'
9. Regal 8'
10. Zinke 8'
The church signed the contract for the organ in 1551 with Hendrik Niehoff and Jasper Johansen; it was completed in 1553.

The Rückpositiv beneath is connected to the upper Rückpositiv, and has only a 1. Krumbhorn.

The Rückpositiv is played from the bottom keyboard and has 11 stops:
1. Principal from E
2. Quintadehna
3. Gedact
4. Octava
5. Holloffotte
6. Silhof
7. Mixtur
8. Scharp
9. Baarpfeiffe
10. Regall
11. Krumbhorn

In the Pedal there are 11 stops:
1. Principal from F
2. Gross Bass or Untersatz from C
3. Octava
4. Gedact
5. GemshornBass
6. Mixtur
7. Scharp
8. Bassaune
9. Krumbhorn
10. Trompette
11. Cornett

[The stoplist of the organ at St. Lambrecht in Lüneburg should be inserted here; see pp. 233-4.]

The organ at St. Johannes in Lüneburg, an admirable instrument of 27 stops, quite brilliant and incisive and graced with spring chests, is reported to have been constructed about seventy years ago in the Netherlands (at 's Hertogenbosch, it is said), and brought over by ship. It has 1 tremulant, 2 ventils (one of which operates the top manual, the other the Rückpositiv, and 3 manuals.

The middle manual, the primary division, extends an entire octave lower in the bass than the other manuals do; that is, an octave lower than great C. The pedal is suspended from this [extra] octave, which provides the pedal [for this instrument.] Moreover the 3 Præstantes or Principals on the three manuals are all identical, none extending lower than 4' pitch.

The middle manual, the loudest/deepest division, has 8 stops:
1. Præstant
2. Octava
3. Mixtur
4. Scharp
5. NachthornBass
6. [AltaufsetzBass]
7. TrommetenBass
8. Untersatz: this stop extends over [the same] chest.
The new Organ at Breslau

Michael Hirschfelder did indeed begin [to build] the new organ in Breslau, but was unable to complete it due to his untimely death. If the instrument should ever be completed in the form recorded in the following stoplist, I certainly would like to see and hear it.

**IX. The RückPositiff, the lowest manual, has 11 stops.**

1. *Præstant*  
2. Small *Holpipe*  
3. Quintadehna  
4. Koppeldone or Octava  
5. *Siflöit*  
6. *Russpipe* ([Rauschpfeife])  
7. *Mixtur*  
8. *Scharp*  
9. *Schallmey*  
10. *Baarpipe*  
11. *Regal*

**IX. The new Organ at Breslau**

Michael Hirschfelder did indeed begin [to build] the new organ in Breslau, by an organbuilder from Hamburg by the name of Master Dirich.

The Positiv manual, on top, has 8 stops.

1. *Superoctava*  
2. *Nasatt*  
3. *Flöite*  
4. *Gemshorn*  
5. *Præstant*  
6. *Holpipe*  
7. *Zimbel*  
8. *Trommete*

**IX. The RückPositiff, the lowest manual, has 11 stops.**

1. *Præstant*  
2. Small *Holpipe*  
3. Quintadehna  
4. Koppeldone or Octava  
5. *Siflöit*  
6. *Russpipe* ([Rauschpfeife])  
7. *Mixtur*  
8. *Scharp*  
9. *Schallmey*  
10. *Baarpipe*  
11. *Regal*

---

24. presumably the lower half.  
25. In 1576.  
26. Dirck Hoyer (active c.1556-1582).  
27. Now Wroclaw, Poland.  
28. In St. Maria Magdalena.
DE ORGANOGRAPHIA.

By Heinrich Compenius, 1726.

A List of the Stops and Registers in the Organs at Magdeburg.

In the OberWerck:
1. Principal great Untersatz down to E 24'
2. Principal 16'
3. Quintadehn Untersatz 16'

In the Pedal:
1. GrossBass
2. Unter Chorbass
3. Chorbass
4. OctavBass
5. FlöitenBass unter Chormass
6. DulcianBass
7. Unter ChormassBass
8. MixturBass
9. Posaunen unter ChormassBass
10. Posaunen ChormassBass
11. Trommeten Bass Chormass

A total of 33 ranks and 11 stops.

1. Sedecima, open, of Principal scale
2. Super Sedecima, open, penetrating
3. Zimbel, penetrating
4. Spitzflöte or Gemshorn
5. Querpfeiffe
6. Very small Flöiten
7. Sedecima, open, of another type
8. Super Sedecima, open, of another type
9. Quint de tono Chormass
10. Gedacktflöite Octava
11. Quint ex Sedecima
12. Zimbel, penetrating
13. Gedacktflöite Chormass, loud
14. Mixtur Chormass
15. Schallmey, violin-like, Chormass
16. Harfen Principal
From these stops, single stops are brought to the lower keyboard, [those being:]
1. Gedacktflöite Octava
2. Gedacktflöite Sedecima
3. Quint de tono Chormass
4. Quint ex sedecima
5. Sedecima (open)
### Organ Specifications

**Rev. Octava 8'**

**Grob Gedact 8'**

**Large Quinta 6'**

**Small Octava 4'**

**Small Gedact 4'**

**Nachthorn 4'**

**Small Quint 3'**

**Nasatt 1 or 3'**

**Mixtur XIII-XV**

**Zimbel III**

**Principal Bass from the Oberwerk 16'**

**Quintadena Bass 3'**

**Grosse Octava Bass 16'**

**In the Bruß**

1. **Flachflöte 4'**
2. **Principal 2'**
3. **Mixtur VI 2'**
4. **Zimbel II**
5. **Grobregal of brass 8'**
6. **Singendregal of brass 4'**

**In the Rückpositiv**

1. **Flachflöte 4'**
2. **Principal 3'**
3. **Mixtur VI**
4. **Zimbel II**
5. **Grobregal of brass 8'**
6. **Singendregal of brass 4'**

**In the Pedal on both sides**

1. **Nachthorn Bass 4'**
2. **Bawrflöit Bass 1'**
3. **Zimbel III**
4. **Posaun Bass 16'**
5. **Small Posaun Bass 8'**
6. **Schalmey or Cornet 4'**
7. **Singend Cornett of brass 2'**

**The rear [Pedal] division stands on a separate chest.**

### The 2nd Organ, at St. Johannis

- **Præstanten 16'**
- **Quintadena 8'**
- **Octava 4'**
- **Rohrflöte 4'**
- **Schwegel 4'**
- **Gemshorn 4'**
- **Quinta 3'**
- **Gedact Quinta 3'**
- **Suiflöit 2'**
- **Small Gedact 2'**

**In the Pedal on both sides**

1. **Nachthorn Bass 4'**
2. **Bawrflöit Bass 1'**
3. **Zimbel III**
4. **Posaun Bass 16'**
5. **Small Posaun Bass 8'**
6. **Schalmey or Cornet 4'**
7. **Singend Cornett of brass 2'**

**The rear [Pedal] division stands on a separate chest.**

**In the OberWerk**

- **Præstanten 16'**
- **Quintadena 8'**
- **Octava 4'**
- **Rohrflöte 4'**
- **Schwegel 4'**
- **Gemshorn 4'**
- **Quinta 3'**
- **Gedact Quinta 3'**
- **Suiflöit 2'**
- **Small Gedact 2'**
DE ORGANOGRAPHIA.

29. A number of stops scattered throughout the various divisions of this organ are designated as "Bass," the common designation for a pedal rank. Since this stoplist does not specify an independent pedal division, it seems that the stops ending in "Bass" are pedal ranks housed in some way in the manual divisions.

8. Superoctava 4'
9. Quintaflöten 4'
10. Quinta 3'
11. Mixtur
12. Zimbeln
13. QuintBass [pedal] on one stop
14. ZimbelBass [pedal] into two stops
In the Brust[werk]
6 stops.
1. Quintadeen
2. Little Nachthorn
3. Little Zimbel
4. BawrflöitenBass [pedal]
5. BassunenBass [pedal]
6. CornettenBass [pedal]
In the Rückpositiv
12 stops.
1. Præstanten 16'
2. Principal 8'
3. GrossGedact 8'
4. Quinta 6'
5. Octav 4'
6. Quintadeen 4'
7. Holzschell 4'
8. Sedeiz 4'
9. Schiebel 4'
10. Mixtur Graphicalis [?] 10 pipes per note, 864 in total.
11. UntersatzBass 16'
174

At St. Ulrich's Church, there are 41 stops, of which some are halved [?]; those that are not halved have 43 pipes. There are 2 Tremulants and vents for the Ober[werk], Brust[Positiv], and Rück[Positiv], as well as Alteration[?] and Drum.

In the OberWerck
are 12 stops.
1. Præstanten 16'
2. Principal 8'
3. GrossGedact 8'
4. Quinta 6'
5. Octav 4'
6. Quintadeen 4'
7. Holzschell 4'
8. Sedeiz 4'
9. Schiebel 4'
10. Mixtur Graphicalis [?] 10 pipes per note, 864 in total.
11. UntersatzBass 16'
174

The third organ, at St. Ulrich's Church, has 41 stops, of which some are halved [?]; those that are not halved have 43 pipes. There are 2 Tremulants and vents for the Ober[werk],
DE ORGANOGRAPHIA.

In the Organ at St. Peter there is a total of 33 stops.

IV.

In the Rückpositiff there are 12 stops.

1. Quintadehna
2. Principal
3. Gemshorn
4. Gross Quintadeedah, manual
5. Octav
6. Quintflöiten
7. Zimbeln
8. Trommeten
9. Klein Regal

In the Manual Brust on either side.

1. Nachthorn
2. Quintflöiten or small Gedact
3. Zimbel
4. Regal

In the Pedal Brust on either side.

1. Stopped Untersatz
2. Gross Qunintadeedah
3. Quntflöiten
4. Holzflöiten
5. Barflöiten
6. Zimbeln

V.

The New Organ at St. Catharinen is furnished with 33 stops and 3 manuals: Oberwerk, Brust- and Rückpositiff.

1. Principal
2. Grobgedact, manual
3. Grob Gemshorn
4. Gross Quntadeedah, manual
5. Octav
6. Quntflöiten
7. Zimbeln
8. Trommeten
9. Klein Regal
In the Oberwerk
1. Quintadehna 16'
2. Principal 8'
3. Grobgedact 8'
4. Gemshorn 8'
5. Schweitserpfeiffe 8'
6. Quinta 6'
7. Octava 4'
8. Rohrflöite 4'
9. Sordunen 2'
10. Mixtur

BrustPositiff
1. Nachthorn 4'
2. Blockflöite 4'
3. Principal 2'
4. Kleingedact 2'
5. Krumbhorn
6. Zincken

RückPositiff
1. Principal 4'
2. Mittelgedact 4'
3. Quintadehna
4. Gemshorn 4'
5. Octava 2'
6. Kleingedact 2'
7. Rauschflöite 1'
8. Zimbel
9. Trommec 8'
10. Klein Regal 4'
11. PTR. [Pedal] in both Side Towers on either side of the Rückpositiff.
1. Præstanten 16'
2. Stopped Untersatz 16'
3. SchweitzerBass 2'
4. NachthornBass 2'
5. BawrflöitenBass 1'
6. MixturBass
7. PosaunenBass 16'
8. SordunenBass 16'
9. Dulician 8'
10. Cornett 1'

Mr. Hans Scherer [the Elder] erected an organ at Bernau in the Mark [Brandenburg] in the year 1714 (as also in St. Mary's Church at Stendahl in the year 1760) that has 29 stops, as described below.

In the Werck, for both manual and pedal
1. Untersatz throughout the entire keyboard 16'
2. Untersatz in the pedal 16'
3. Principal 8'
4. Grobgedact 8'
5. Gemshorn 8'
6. Octava 2'
7. Kleingedact 2'
8. Rauschflöite 1'
9. Zimbel
10. Trommec 8'
11. Little Regal 4'
12. PTR. [Pedal] in both Side Towers on either side of the Rückpositiff.
13. Præstanten 16'
14. Stopped Untersatz 16'
15. SchweitzerBass 2'
16. NachthornBass 2'
17. BawrflöitenBass 1'
18. MixturBass
19. PosaunenBass 16'
20. SordunenBass 16'
21. Dulician 8'
22. Cornett 1'

XI.
Mr. Hans Scherer [the Elder] erected an organ at Bernau in the Mark [Brandenburg] in the year 1714 (as also in St. Mary's Church at Stendahl in the year 1760) that has 29 stops, as described below.

In the Werck, for both manual and pedal
1. Untersatz throughout the entire keyboard 16'
2. Untersatz in the pedal 16'
3. Principal 8'
4. Grobgedact 8'
5. Gemshorn 8'
6. Octava 2'
7. Kleingedact 2'
8. Rauschflöite 1'
9. Zimbel
10. Trommec 8'
11. Little Regal 4'
12. PTR. [Pedal] in both Side Towers on either side of the Rückpositiff.
13. Præstanten 16'
14. Stopped Untersatz 16'
15. SchweitzerBass 2'
16. NachthornBass 2'
17. BawrflöitenBass 1'
18. MixturBass
19. PosaunenBass 16'
20. SordunenBass 16'
21. Dulician 8'
22. Cornett 1'

XI.

In the Werck, for both manual and pedal
1. Untersatz throughout the entire keyboard 16'
2. Untersatz in the pedal 16'
3. Principal 8'
4. Grobgedact 8'
5. Gemshorn 8'
6. Octava 2'
7. Kleingedact 2'
8. Rauschflöite 1'
9. Zimbel
10. Trommec 8'
11. Little Regal 4'
12. PTR. [Pedal] in both Side Towers on either side of the Rückpositiff.
13. Præstanten 16'
14. Stopped Untersatz 16'
15. SchweitzerBass 2'
16. NachthornBass 2'
17. BawrflöitenBass 1'
18. MixturBass
19. PosaunenBass 16'
20. SordunenBass 16'
21. Dulician 8'
22. Cornett 1'

XI.

In the Werck, for both manual and pedal
1. Untersatz throughout the entire keyboard 16'
2. Untersatz in the pedal 16'
3. Principal 8'
4. Grobgedact 8'
5. Gemshorn 8'
6. Octava 2'
7. Kleingedact 2'
8. Rauschflöite 1'
9. Zimbel
10. Trommec 8'
11. Little Regal 4'
12. PTR. [Pedal] in both Side Towers on either side of the Rückpositiff.
13. Præstanten 16'
14. Stopped Untersatz 16'
15. SchweitzerBass 2'
16. NachthornBass 2'
17. BawrflöitenBass 1'
18. MixturBass
19. PosaunenBass 16'
20. SordunenBass 16'
21. Dulician 8'
22. Cornett 1'

XI.

In the Werck, for both manual and pedal
1. Untersatz throughout the entire keyboard 16'
2. Untersatz in the pedal 16'
3. Principal 8'
4. Grobgedact 8'
5. Gemshorn 8'
6. Octava 2'
7. Kleingedact 2'
8. Rauschflöite 1'
9. Zimbel
10. Trommec 8'
11. Little Regal 4'
12. PTR. [Pedal] in both Side Towers on either side of the Rückpositiff.
13. Præstanten 16'
14. Stopped Untersatz 16'
15. SchweitzerBass 2'
16. NachthornBass 2'
17. BawrflöitenBass 1'
18. MixturBass
19. PosaunenBass 16'
20. SordunenBass 16'
21. Dulician 8'
22. Cornett 1'

XI.

In the Werck, for both manual and pedal
1. Untersatz throughout the entire keyboard 16'
2. Untersatz in the pedal 16'
3. Principal 8'
4. Grobgedact 8'
5. Gemshorn 8'
6. Octava 2'
7. Kleingedact 2'
8. Rauschflöite 1'
9. Zimbel
10. Trommec 8'
11. Little Regal 4'
12. PTR. [Pedal] in both Side Towers on either side of the Rückpositiff.
13. Præstanten 16'
14. Stopped Untersatz 16'
15. SchweitzerBass 2'
16. NachthornBass 2'
17. BawrflöitenBass 1'
18. MixturBass
19. PosaunenBass 16'
20. SordunenBass 16'
21. Dulician 8'
22. Cornett 1'
DE ORGANOGRAPHIA.

2. Jule ist die Quinta von dem großen Principal.
10. Rückpositiv oder Blockflöte.
11. Halb-Principal oder Octav 4';
12. Eine Pfeifere 4', oder Octav von
großen Gedackten.
13. Nachthorn 4', oder die Octav von
der Quintadeena.
14. Quinta mit dem Principal oder
Quintadeena im Manual.
15. Superoctav
16. Nachthorn oder klein offene Quire von
der Superoctav.
17. Gross Posaunen[Das].
18. Bawrpfeiffe[Das].

Im Ober-Werck

1. Principal
2. Holpfeiffe
3. Spillpfeiffe
4. Klingend Zimbel III
5. Quinta
6. Superoctav
7. Siflöit
8. Singend- oder GeigendRegal
9. Trommet
10. Gemshorn
11. Principal im Difcant.

In der Brust

1. Principal
2. Mixtur
3. Holpfeiffe
4. Regal
5. Nachthorn 4'
6. Gross Posaunen[Das].
7. Flachflötgen 4'
8. Waltflötgen 1'
9. Mixtur
10. Gemshorn
11. Principal im treble

Neben der Brust

4. QuintadehnBass
5. Nachthorn 4'
6. Heavy Posaunen Untersatz 16'
7. TrommetenBass 3'
8. SchallmeyenBass 4'
9. Trommet
10. Gemshorn
11. Principal in the treble

1. Tremulant
2. Coupler between the manuals
3. Rückpositiv to pedal coupler
4. Manual compass: 4 octaves C to c".
5. Pedal compass: C-d', with all semitones
6. except C'.
7. 16 keys.

XII.
The Instrument at
Hall[ec]
in the church of Our Dear Lady
[Marktkirche], has 31 stops.

In the Ober-Werck

1. Principal at 16' pitch in the pedal
2. Octava 4' only in the manual.
3. Superoctav
4. Nachthorn 4' only in the manual.
5. Mixtur
6. Holpfeiffe

In the Brust

1. Principal
2. Holpfeiffe
3. Spillpfeiffe
4. Klingend Zimbel
5. Mixtur
6. Regal
7. Zimbel

Beside the Brust

1. QuintadehnBass
2. ZimbelBass
3. TrommetenBass
4. SchallmeyenBass

At the side there have recently been added 3[pedal] stops.
1. QuintadehnBass
2. Nachthorn
3. Heavy Posaunen Untersatz

31. Literally "in 10 keyboards"; the meaning is obscure.
In the Rückpositiv
1. Quintadena 8'
2. Principal 4'
3. Gedächtes 4'
4. Quinta 9' (6')
5. Octava 4'
6. Kleingedächtes 4'
7. Spiesflöte 2'
8. Sißflöte 2'
9. Mixtur
10. Zimbel
11. Trompeten 8'
12. Singend Regal 4'

In the Rückpositiv
1. Holzflöte 8'
2. Quintadena 8'
3. Ergänzung 8'
4. Principal 4'
5. Octava 4' (2')
6. Blockpfeife 4'
7. Zimbel
8. Krümhorn 8'
9. Krümhorn 8'
10. Schallmeyen 4'
11. Zinken von b on up

In the Pedal
14 stops.
1. Great Untersatz stopped 32'
2. Principal 16'
3. Gedächtes 16'
4. Octava 8'
5. Zweiteinde 8'
6. Octava 8'
7. Tenor 8'
8. Superoctav 8'
9. Gemshorn 4'
10. Bawrfloite 2'
11. Rauschpfeifen

In the Pedal
9. Rauschpfeifen 4'
10. Mixtur 3' VII-XII
11. Zimbel III
12. Trompeten 8'
13. Dulcian 8'

These stops, just as those in the Rückpositiv, run complete from C, with D♯, F♯ and G♯, up to c''' with g'' and b♭''.

In the Oberwerck
13 stops.
1. Principal 16'
2. Quintadena 16'
3. Holzflöte 16'
4. Principal 8'
5. Holzflöte 8'
6. Octava 8'
7. Superoctav 4'
8. Gemshorn 4'

The organ at Braunschweig
in the Collegiate Church of St. Blasius in Braunschweig, which Master Hennig from Hildesheim built, has 35 stops.

In the Oberwerk
Are 13 stops.
1. Principal 16'
2. Quintadena 16'
3. Holzflöte 16'
4. Principal 8'
5. Holzflöte 8'
6. Octava 8' (4')
7. Coppelloflöte 4'
8. Quinta 4'
9. Gemshorn 4'
10. Mixtur 3' VII-XII
11. Zimbel III
12. Trompeten 8'
13. Dulcian 8'

In the Rückpositiv
11 stops.
1. Holzflöte 8'
2. Quintadena 8'
3. Ergänzung 8'
4. Principal 4'
5. Octava 4' (2')
6. Blockpfeife 4'
7. Sißflöte 2'
8. Zimbel II
9. Krümhorn 8'
10. Schallmeyen 4'
11. Zinken von b on up
DE ORGANOGRAPHIA.

34. pp. 107f.

35. cf. the comments accompanying Praetorius's stoplist for St. Gotthart, Hildesheim, on p. 199.

11. Posaunen 16'
12. Krunnhopf 16'
13. Trommeten 8'
14. Trummel II
Tremulant
A coupler to both keyboards.

Five Ventils:
1. For the OberWerck.
2. For the Pedal.
3. For the Rückpositiff.
4. For the Sunn.
5. For the [Cymbel] sterns.

The pedal stops are built so that each one of them can be used separately. They have their own chest, and all go down to low C, complete with D♯, F♯, and G♯, and up to d', complete with c'.

The chests are not of the usual sort, but are built in a different way, and are called spring chests, as alluded to in the third part of this Vol. II. Also to be found here are wedge bellows, eight in number, made in a special way, so that each of them is fully 9 feet long, with only a single fold. The bellows-boards are 2 strong, very durable oak boards, that fit tightly together so that not even a mouse can get between them.

The uppermost division has five flats: in the middle a space with pointed towers and a flat tower, and on both sides the pedal towers.

The Rückpositiff has a pointed tower in the middle, a space, a flat tower, and thus has 7 flats.

XIV.

Stoplist[s] of the organs in Leipzig.

The first, at St. Nicholas, has 29 stops, a Rückpositiff/Pedal coupler, a coupler between manuals, Birdsong, and 10 wedge bellows.

[Werck]
1. Grobgedact, manual only 16'
2. Principal 8'
3. Gedact 8'
4. Quintadeena 8'
5. Octava 4'
6. Gemshorn 2'
7. NasattQuinta 2'
8. Superoctava 3'
9. RauschQuinta 4'
10. Mixtur IV-VI-VIII
11. Zimbel III

In the Brust
1. Grob Sorduen Regal 16'
2. Regal 8'
3. Regal 4'

Tremulant for the reeds
### In the RückPositiff

1. Principal 8'
2. Quinte 5'
3. Holzflöte 4'
4. Spillpfiff 4'
5. Nachthorn 4'
6. Naturelli 4'
7. Siffet 3'
8. Klingend Zimbel      III
9. Trompet 8'
10. Krumbhörner 8'

### In the Pedal

1. Bariton 8'
2. Octava 8'
3. Gedact 8'
4. Supercrista 4'
5. Gemshorn 2'
6. Gemshorn 4'
7. Gemshorn 4'
8. Zimbeln III
9. Oktav 8'
10. Krumbhörner 8'

### In the OberWerck

9 stops.
1. Principal 16'
2. Octava 8'
3. Gedact 8'
4. Supercrista 4'
5. Offenflöte 4'
6. Quinta 5'
7. Sedetz 2'
8. Mixtur VI
9. Zimbels III

### In the Brust

2 stops.
1. Regal 8' pitch
2. Regal 4'

### In the Rückpositiff

12 stops
1. Principal 8'
2. Quinte 5'
3. Holzflöte 4'
4. Spillpfiff 4'
5. Nachthorn 4'
6. Naturelli 4'
7. Siffet 3'
8. Klingend Zimbel      III
9. Trompet 8'
10. Krumbhörner 8'

### In the Pedal

18 stops
1. Bariton 8'
2. Octava 8'
3. Gedact 8'
4. Supercrista 4'
5. Gemshorn 2'
6. Gemshorn 4'
7. Gemshorn 4'
8. Zimbeln III
9. Oktav 8'
10. Krumbhörner 8'

### In the OberWerck

9 stops.
1. Principal 16'
2. Octava 8'
3. Gedact 8'
4. Supercrista 4'
5. Offenflöte 4'
6. Quinta 5'
7. Sedetz 2'
8. Mixtur VI
9. Zimbels III

### Torgau

Stoplist of the organ at Torgau

11 stops.
1. Principal 16'
2. Octava 8'
3. Gedact 8'
4. Supercrista 4'
5. Offenflöte 4'
6. Quinta 5'
7. Sedetz 2'
8. Mixtur VI
9. Zimbels III

### XV.

Stoplist of the organ at Torgau having 26 stops.

In the OberWerck are

11 stops.
### DE ORGANOGRAPHIA.

<table>
<thead>
<tr>
<th>Register</th>
<th>Stops</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Grobgedackt</td>
<td>16'</td>
</tr>
<tr>
<td>2. Principal</td>
<td>8'</td>
</tr>
<tr>
<td>3. Gedactes</td>
<td>8'</td>
</tr>
<tr>
<td>4. Quintadehna</td>
<td>8'</td>
</tr>
<tr>
<td>5. Octava</td>
<td>4'</td>
</tr>
<tr>
<td>6. Gemshorn</td>
<td>4'</td>
</tr>
<tr>
<td>7. Quinta</td>
<td>[3']</td>
</tr>
<tr>
<td>8. Nasatt</td>
<td>[3']</td>
</tr>
<tr>
<td>9. Superoctava</td>
<td>3'</td>
</tr>
<tr>
<td>10. Mixtur</td>
<td>VI</td>
</tr>
<tr>
<td>11. Zimbeln</td>
<td></td>
</tr>
</tbody>
</table>

**In addition there are:**

- 1. Drum
- 2. Birdsong
- 3. Manual coupler
- 4. Pedal coupler
- 5. Ventil for the Rückpositiv
- 6. Tremulant

#### XVI.

A list of the registers and stops to be found in the organs at Halberstadt.

**In the Brust:**

<table>
<thead>
<tr>
<th>Register</th>
<th>Stops</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Regal</td>
<td>8'</td>
</tr>
<tr>
<td>2. Klein Regal</td>
<td>4'</td>
</tr>
</tbody>
</table>

**In the Rückpositiv:**

<table>
<thead>
<tr>
<th>Register</th>
<th>Stops</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gedactes</td>
<td>8'</td>
</tr>
<tr>
<td>2. Principal</td>
<td>4'</td>
</tr>
<tr>
<td>3. Holzflöte</td>
<td>2'</td>
</tr>
<tr>
<td>4. Gemshorn</td>
<td>1'</td>
</tr>
<tr>
<td>5. Sufiflöte</td>
<td>[1 1/3']</td>
</tr>
<tr>
<td>6. Sextet</td>
<td>[1']</td>
</tr>
<tr>
<td>7. Zimbeln</td>
<td></td>
</tr>
<tr>
<td>8. GrobgedacktRegal</td>
<td>16'</td>
</tr>
<tr>
<td>9. Trommelen</td>
<td>8'</td>
</tr>
</tbody>
</table>

**In the OberWerck:**

<table>
<thead>
<tr>
<th>Register</th>
<th>Stops</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quintadehna</td>
<td>16'</td>
</tr>
<tr>
<td>2. Principal</td>
<td>8'</td>
</tr>
<tr>
<td>3. Grobgedackt</td>
<td>8'</td>
</tr>
<tr>
<td>4. Gemshorn</td>
<td>4'</td>
</tr>
<tr>
<td>5. Oktava</td>
<td>4'</td>
</tr>
<tr>
<td>6. Sedecima</td>
<td>[1 1/3']</td>
</tr>
<tr>
<td>7. Zimbeln</td>
<td></td>
</tr>
<tr>
<td>8. GrobgedactRegal</td>
<td>16'</td>
</tr>
<tr>
<td>9. Trommelen</td>
<td>8'</td>
</tr>
</tbody>
</table>

**In the Pedal:**

<table>
<thead>
<tr>
<th>Register</th>
<th>Stops</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gedacter UnterBass</td>
<td>16'</td>
</tr>
<tr>
<td>2. Posaunen</td>
<td>16'</td>
</tr>
<tr>
<td>3. Schalmeyen</td>
<td>4'</td>
</tr>
</tbody>
</table>

**In the Brust:**

<table>
<thead>
<tr>
<th>Register</th>
<th>Stops</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Drum</td>
<td></td>
</tr>
<tr>
<td>2. Birdsong</td>
<td></td>
</tr>
<tr>
<td>3. Manual coupler</td>
<td></td>
</tr>
<tr>
<td>4. Pedal coupler</td>
<td></td>
</tr>
<tr>
<td>5. Ventil for the Rückpositiv</td>
<td></td>
</tr>
<tr>
<td>6. Tremulant</td>
<td></td>
</tr>
</tbody>
</table>

Mr. David Beck put the first instrument, with 39 stops and a tremulant in St. Martini Church. Although the tremulant produces no actual sound of its own, yet some still consider it a stop (since it can produce so much variety).

**In addition there are:**

- 1. Drum
- 2. Birdsong
- 3. Manual coupler
- 4. Pedal coupler
- 5. Ventil for the Rückpositiv
- 6. Tremulant

**In the OberWerck:**

<table>
<thead>
<tr>
<th>Register</th>
<th>Stops</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Quintadehna</td>
<td>16'</td>
</tr>
<tr>
<td>2. Principal</td>
<td>[8']</td>
</tr>
<tr>
<td>3. Grobgedact</td>
<td>[8']</td>
</tr>
</tbody>
</table>

**In the Pedal:**

<table>
<thead>
<tr>
<th>Register</th>
<th>Stops</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gedacter UnterBass</td>
<td>16'</td>
</tr>
<tr>
<td>2. Posaunen</td>
<td>16'</td>
</tr>
<tr>
<td>3. Schalmeyen</td>
<td>4'</td>
</tr>
</tbody>
</table>

**In the Brust:**

<table>
<thead>
<tr>
<th>Register</th>
<th>Stops</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Drum</td>
<td></td>
</tr>
<tr>
<td>2. Birdsong</td>
<td></td>
</tr>
<tr>
<td>3. Manual coupler</td>
<td></td>
</tr>
<tr>
<td>4. Pedal coupler</td>
<td></td>
</tr>
<tr>
<td>5. Ventil for the Rückpositiv</td>
<td></td>
</tr>
<tr>
<td>6. Tremulant</td>
<td></td>
</tr>
</tbody>
</table>
The second [instrument] at the Barfüsserkirche, which is Mr. Elias Winnigstädt's [instrument], cost 700 Thaler without the painting. It has 27 stops, 1 tremulant and 8 bellows.

In the Werck
8 stops.
1. Principal 8'
2. Grobgedact 8'
3. Gross Gemshorn 8'
4. Octava 4'
5. Querflöit 4'
6. Superoctävlin 2'
7. Quinta
8. Mixtur VI in the bass, VII at c', VIII at e', XI at e''
9. Zimbel II
10. CornettenB[ass]

In the Brust,
5 manual stops.
1. Prin. 2'
2. Nachthorn 2'
3. Querflöit 4'
4. Mixtur III
5. Zimbel II
6. Cornett 4'

In the Pedal
12 stops.
1. Principal
2. Gedact
3. Nachthorn
4. Mixtur
5. Zimbel
6. Regal

In the Rückpositiff
12 stops.
1. Principal
2. Quinta
3. Octava
4. Quintadeena
5. Mixtur
6. Zimbel
7. Spitzflöte
8. Gemsshorn
9. Gedact
10. Suifflöit
11. Süffflöit
12. GeigendRegal

In the Pedal oben
8 Stimmen.
1. Quintadena
2. GedactBass
3. OctavenBass
4. GemsshornBass
5. Zimbel B[ass]
6. PosaunenB[ass]
7. TrommetenB[ass]
8. CornettenB[ass]
DE ORGANOGRAPHIA.

36. "im Pedal oben," perhaps signifying that these pedal stops are in the upper part of the case, with the stops of the Werck.


38. i.e., Martinskirche.


In the Rückpositiv
13 stops.
1. Quintadeena 8' 8
2. Principal 4' 4
3. Gedackt 4' 4
4. Gemshorn 4' 4
5. Quinta 8', 2', 3'/2', 8'/3', 1'
6. Octava 8' 8
7. Klein Gedackt 4'
8. Siffnet 8'
9. Mixtur IV 4
10. Zimbel III 3
11. Trommet 8' 8
12. Regal 8' 8
13. GeigendRegal 4'

In the upper Pedal
6 stops.
1. Untersatz 16' 16
2. Gross Quintadeen 16' 16
3. GedacktBass 8' 8
4. QuintadeenBass 8' 8
5. QuintBass 5'/2', 2'/3', 5'/3'
6. HolflöitenBass 2' 2
7. Bawrflöiten 1' 1
8. ZimbelBass XVII. at Cassel
At Cassel in Hesse three distinguished organs were built and erected within five years, [underwritten] by the Landgrave at great expense, by the "Hamburgers," as we call them.

Of these, the first is at the Freiheiterkirche; it has 33 stops, not counting the coupler and the tremulant.

In the OberWerck
8 stops.
1. Principal 16' 16
2. Octava 8' 8
3. Holpfeife 8'
4. Flöiten
5. Quintadeena 8'
6. RauschPfeife 8'
7. Mixtur 8'
8. Scharff

In the OberPositiv
8 stops.
1. Principal 16' 16
2. Holpfeife 8'
3. Gemshorn 4'
4. Waltflöiten 4'
5. Nasatt 8'
6. Zimbel 8'
7. Trommete 8'
8. Zincken XVII.

In the Rückpositiv
9 stops.
1. Principal 8' 8
2. Gedackt 8'
The second, in the Brüderkirche, has 29 stops, coupler and tremulant.

In the Werk

1. Principal 8'
2. Octava 4'
3. Octava 2'
4. Kleingedact 8'
5. Nasatt 8'
6. Mixtur 4'
7. Scharff 8'
8. Zimbel 8'
9. Trommeltone 8'
10. Zincke 8'

The third, in the Castle Church, has 20 stops, as well as a coupler and tremulant.

In the Werck

1. Principal 8'
2. Octava 4'
3. Octava 2'
4. Kleingedact 8'
5. Nasatt 8'
6. Scharff 8'
7. Zimbel 8'
8. Trommeltone 8'
9. Zincke 8'
10. Rauschpfeife 8'

In the RückPositiff

1. Principal 8'
2. Octava 4'
3. Octava 2'
4. Kleingedact 8'
5. Nasatt 8'
6. Mixtur 4'
7. Scharff 8'
8. Zimbel 8'
9. Trommeltone 8'
10. Zincke 8'

In the RückPositiff

1. Grohgedact 8'
2. Principal 4'
3. Querpfeife 4'
4. Weltflöte 8'
5. Octaviin 8'
6. Flöten 8'
7. Mixtur 8'
8. KleinRegal 8'
9. MessingRegal 8'

In the Pedal

1. Principal 32'
2. Untersatz 16'
3. Octava 8'
4. Gedakt 8'
5. Rauschpfeife 8'
6. PosaunenBass 8'
7. TrommetenBass 8'
8. CornettBass 8'
9. Coupler 8'
10. Tremulant 8'

In the two Pedal towers

7 stops.

1. Open Principal 8'
2. Untersatz 8'
3. Octava 8'
4. PosaunenBass 8'
5. TrommetenBass 8'
6. Cornett 8'
7. Coupler 8'
8. Tremulant 8'

In the Pedal in beynen Thoren


Die 2. in der Bruder Kirchen von

25 Stinnen Coppel und Tremulant.

In the Pedal

1. Principal 32'
2. Octava 16'
3. Octava 8'
4. Kleingedact 8'
5. Nasatt 8'
6. Mixtur 8'
7. Scharff 8'
8. Zimbel 8'
9. Trommeltone 8'
10. Zincke 8'

In the Werck

8 stops.

1. Principal 32'
2. Octava 16'
3. Octava 8'
4. Kleignedact 8'
5. Nasatt 8'
6. Mixtur 4'
7. Scharff 8'
8. Zimbel 8'
9. Trommeltone 8'
10. Zincke 8'

In the Pedal

1. Principal 4'
2. Octava 2'
3. Octava 16'
4. Kleinedact 8'
5. Nasatt 8'
6. Mixtur 4'
7. Scharff 8'
8. Zimbel 8'
9. Trommeltone 8'
10. Zincke 8'

In the Werck

8 stops.

1. Principal 32'
2. Octava 16'
3. Octava 8'
4. Kleignedact 8'
5. Nasatt 8'
6. Mixtur 4'
7. Scharff 8'
8. Zimbel 8'
9. Trommeltone 8'
10. Zincke 8'

In the RückPositiff

8 stops.

1. Grohgedact 8'
2. Principal 4'
3. Querpfeife 4'
4. Weltflöte 8'
5. Octaviin 8'
6. Flöten 8'
7. Mixtur 8'
8. KleinRegal 8'
9. MessingRegal 8'

In the Pedal

1. Principal 32'
2. Untersatz 16'
3. Octava 8'
4. Gedakt 8'
5. Rauschpfeife 8'
6. PosaunenBass 8'
7. TrommetenBass 8'
8. CornettBass 8'
9. Coupler 8'
10. Tremulant 8'

In the RückPositiff

1. Grohgedact 8'
2. Principal 4'
3. Querpfeife 4'
4. Weltflöte 8'
5. Octaviin 8'
6. Flöten 8'
7. Mixtur 8'
8. KleinRegal 8'
9. MessingRegal 8'

The second, in the Brüderkirche, has 29 stops, coupler and tremulant.
DE ORGANOGRAPHIA.

XVIII.
The large instrument at Bückeburg

As the noble count and Lord, Ernst, Count of Holstein, Schauenburg and Sternberg, Lord at Gehmen, had it built in the year 1615 by Esaias Compenius, M.A., organ and instrument builder to the ducal court at Braunschweig, as well as an organist. It has 48 stops and 3 manuals.

In the OberWerck
are 12 stops.

1. GrossPrincipal 16'
2. GrossQuintadehn 16'
3. GrossOctava 8'
4. Gemsshorn 8'
5. Stopped Blockpfeiffe 8'
6. Viol de Gamba 8'
7. Octava 4'
8. Querpfeiffe 4'
9. Little stopped Blockpfeiff 4'
10. Gemsshorn/Quinta 3'
11. Little Flachflöit 2'
12. Mixtur VIII-X-XII-XIV

In the Pedal
are 6 stops.

1. Untersatz 16'
2. Klein Gemsshorn 8'
3. Gedact 8'
4. PosaunenBass 8'
5. TrommtenBass 8'
6. CornettBass 8'

In the OberPositiff
are 8 stops.

1. Mixtur 8'
2. Krumbhorn 8'

In the Pedal
are 6 stops.

1. Principal of lead 8'
2. Gemsshorn 8'
3. Holpfieife 8'
4. NasattQuinta 5'
5. Zimbel 6'
6. Trommette [Coupler] [Tremulant]

In the Pedal
are 6 stops.

1. Untersatz 16'
2. Klein Gemsshorn 8'
3. Gedact 8'
4. PosaunenBass 8'
5. TrommtenBass 8'
6. CornettBass 8'

In the RückPositiff
are 12 stops.

1. Principal 8'
2. GrossNachthorn 8'
3. Gedactflöite of wood 8'
4. NasattPfeiffe of wood 4'
5. SpillPfeiff 4'
6. Klein Rohrflöit 4'

In the RückPositiff
are 12 stops.

1. Principal 8'
2. GrossNachthorn 8'
3. Gedactflöite of wood 8'
4. NasattPfeiffe of wood 4'
5. SpillPfeiff 4'
6. Klein Rohrflöit 4'
41. The meaning of this statement is unclear; this seems to be what Praetorius intends to say.

42. The “Palace Church” referred to here is the old court chapel in the palace, not to be confused with the Catholic Court Church, built from 1739-54. The title page of Christoph Bernhard’s Geistreiches Gesang-Buch (1676) has a copper engraving of the church, showing the organ as well as Heinrich Schütz in the company of his singers.

7. Klein Octava 2’
8. Klein Gedact 2’
9. Suiflöit 1’
10. Klingend Zimbel III
11. Rancnet of wood 16’
12. Krumbhorn 8’

In the Pedal are
13[sic] stops.
1. SubPrincipalBass 32’
4. HolpfeiffenB[ass] 8’
5. GrossNachthornB[ass] 8’
6. QuerflöitenB[ass] of wood 8’
7. OctavenB[ass] 4’
9. Posaun or BombardB[ass] 16’
10. TrommertzenB[ass] 8’

Pedal Stops in the Brust
11. Little Hornbass 3’
12. Little Basparpeiff 1’
13. ZimbelBass 8’
14. Sordunbass of wood 16’
15. Dolcianbass of wood 8’
16. CornettBass 2’

A coupler between the OberWerck and Brust keyboard.


9 wedge bellows, on top of the church vaulting, directly above the organ.

A stop that releases [the air from] the bellows simultaneously, while at the same time locking them so that the pumper can no longer pump them.

41. The meaning of this statement is unclear; this seems to be what Praetorius intends to say.

42. The “Palace Church” referred to here is the old court chapel in the palace, not to be confused with the Catholic Court Church, built from 1739-54. The title page of Christoph Bernhard’s Geistreiches Gesang-Buch (1676) has a copper engraving of the church, showing the organ as well as Heinrich Schütz in the company of his singers.
43. The term "Principalia" signifies ranks standing in the front of the case of each of the manual divisions. This is perhaps the most striking visual characteristic of Fritzsche's earlier work in middle Germany.

44. In his Appendix to F.E. Niedt's *Musicalische Handleitung* (Hamburg: Benjamin Schiller, 1710), p. 171, Johann Mattheson indicates that this division was played from the Oberwerk keyboard. The manuals extend from C to d''

\[
\begin{align*}
&\text{e} && \text{a} \\
&\text{b} && \text{f} \\
&\text{g} && \text{d} \\
&\text{c} && \text{G} \\
&\text{d} && \text{A} \\
&\text{e} && \text{B} \\
&\text{f} && \text{D} \\
&\text{g} && \text{C} \\
&\text{a} && \text{F} \\
&\text{b} && \text{E} \\
&\text{c} && \text{D} \\
\end{align*}
\]

up to e\(^{5}\) d\(^{3}\), [a total of] 53 keys.

The pedal extends from C to d':

\[
\begin{align*}
&\text{D} \\
&\text{E} \\
&\text{C} \\
&\text{F} \\
&\text{G} \\
&\text{A} \\
\end{align*}
\]

etc. up to d'.

In the Oberwerk there are 13 stops.

1. Completely gilded Trom[meten] 8'
2. Beautiful tin Octava [4']
3. Beautiful tin Principal [8']
4. Gross Quintadeena 16'
5. Quintadeena 8'
6. Wooden Principal 8'
7. CoppelOctava 4'
8. Quinta above the Octava 2'
9. Stopped Nasatt 3'
10. Gemshorn 6' [2']
11. SuperQuinta 1 ½'
12. Zimbel II
13. Mixtur IV

Tremulant

The Positiff on both sides, in place of a Rückpositiff 7 stops.

1. Krummhorn, completely gilded 8'
2. Beautiful tin Superoctav 4'
3. Beautiful tin Principal 8'
4. Gentle Flöiten or Flauten 8'
5. OctavQuint \(\text{?} \frac{3}{4} \text{'}\)
6. SpitzFlöffen or QueerFlöiten of wood 4'
7. Zimbel II

Tremulant

In the Pedal 8 stops.

1. Large open SubBass of wood, open 16'
2. Stopped SubBass 16'
3. Large Quintadeena 16'
4. Open Principa[1] 8'
5. SpitzFlöthein 3'
6. SubBass Posaunen 16'
7. Cornett 2'
8. Birdsong through the entire pedal.

49. The term "Principalia" signifies ranks standing in the front of the case of each of the manual divisions. This is perhaps the most striking visual characteristic of Fritzsche’s earlier work in middle Germany.

44. In his Appendix to E. E. Niedt’s *Musicalische Hand-Regeln* (Hamburg: Benjamin Schiller, 1710), p. 171, Johann Mattheson indicates that this division was played from the Oberwerk keyboard.
In der Schlesischen zu Grönningen


Im Oberwerck Manual
12 Stimmen.
1. Gross Quintadenh 16'
2. Principal 8'
3. Gross Querflöte 8'
4. Quinta 6'
5. Octava 4'
6. Nachthorn 4'
7. Small Querflöte 4'
8. Mixtur 8\[VIII\]
9. Zimbel doppelt 3\[III\]
10. Untersatz Bass 8'
11. Bassflöte 4'
12. Bassflöte 8'
13. Bassflöte 4'
14. Small Regal 4'

In the Rückpositiv, 14 Stimmen.
1. Quintadenh 4'
2. Principal 4'
3. Gedackt 4'
4. Gemshorn 4'
5. Octave 2'
6. Spitzflöte 2'
7. Quinta 1½'
8. Mixtur 4\[IV\]
9. Zimbel 3\[III\]
10. Trompet 8'
11. Sordinen 16'
12. Trompet 8'
13. Krumbhorn 8'
14. Small Regal 4'

In the Oberwerck Manual
12 Stimmen.
1. Large Quintadenh 16'
2. Principal 8'
3. Large Querflöte 8'
4. Holflöiten 8'
5. Grobgedackt 8'
6. Gemshorn 8'
7. Quinta 6'
8. Octava 4'
9. Nachthorn 4'
10. Small Querflöte 4'
11. Mixtur 8\[VIII\]
12. Zimbel doppelt 3\[III\]

In the Pedal on the Upper Chest
10 Stimmen.
1. Untersatz Bass 16'
2. Quintadenh Bass 16'
3. Octave Bass 8'
4. Small Querflöte Bass 4'
5. Small Quintadenh Bass 16'
6. Nachthorn Bass 4'
7. Holflöte Bass 2'
8. Mixtur 4\[IV\]
9. Zimbel 3\[III\]
10. Schallmeyen Bass 4'

In the Brust, on both sides, for the Pedal: 5 Stimmen.
1. Quintadenh Bass 16'
2. Bassflöte Bass 4'
3. Zimbel Bass 3\[III\]
4. Rancket Bass 4'
5. Krumbhorn Bass 4'
6. Klein Regal Bass 4'

4. A village northeast of Halberstadt; not to be confused with the city in Holland.
46. Esaias Compenius built this organ in 1610 for the Duke of Braunschweig, at the Hessen Palace (near Wolfenbüttel). In the year 1617 it was presented as a gift to King Christian IV of Denmark; Compenius re-erected it in the Frederiksborg Palace Church in Hillerød. The instrument still exists, minimally altered from its original state.

<table>
<thead>
<tr>
<th>Stop</th>
<th>Kind</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stop 1</td>
<td>Principal</td>
<td>8'</td>
</tr>
<tr>
<td>Stop 2</td>
<td>Gedachtflöte</td>
<td>8'</td>
</tr>
<tr>
<td>Stop 3</td>
<td>Small Principal of ivory and ebony</td>
<td>4'</td>
</tr>
<tr>
<td>Stop 4</td>
<td>Gemshorn or small Violin</td>
<td>4'</td>
</tr>
<tr>
<td>Stop 5</td>
<td>Nachthorn</td>
<td>2'</td>
</tr>
<tr>
<td>Stop 6</td>
<td>Blockpfeifen</td>
<td>4'</td>
</tr>
<tr>
<td>Stop 7</td>
<td>Large Gedachtflöiten Bass</td>
<td>16'</td>
</tr>
<tr>
<td>Stop 8</td>
<td>Gemshorn Bass</td>
<td>8'</td>
</tr>
<tr>
<td>Stop 9</td>
<td>Quintadehna</td>
<td>8'</td>
</tr>
<tr>
<td>Stop 10</td>
<td>Principal treble</td>
<td>4'</td>
</tr>
<tr>
<td>Stop 11</td>
<td>Blockpfeifen</td>
<td>4'</td>
</tr>
<tr>
<td>Stop 12</td>
<td>Gedachtflöite</td>
<td>8'</td>
</tr>
<tr>
<td>Stop 13</td>
<td>Supergedachtflöitlin</td>
<td>2'</td>
</tr>
<tr>
<td>Stop 14</td>
<td>Nasatt</td>
<td>1½'</td>
</tr>
<tr>
<td>Stop 15</td>
<td>Small repeating Zimbel</td>
<td>1'</td>
</tr>
<tr>
<td>Stop 16</td>
<td>Krummbhorn</td>
<td>8'</td>
</tr>
<tr>
<td>Stop 17</td>
<td>GeigendRegal</td>
<td>4'</td>
</tr>
</tbody>
</table>

**XXI.**

At Hessen in the Palace.

The wooden, yet very magnificent organ built by Mr. Esaias Compenius in the year 1612, now presented to the King of Denmark, however, and placed in the church at Frederiksborg in that country in the year 1616. Its stops are in number, [together with] a coupler between manuals, a tremulant, and Grosser Bock, Sackpfeife and Kleinhümlichen.

On the Upper Manual 9 stops.

| Stop 1   | Principal                       | 8'                         |
| Stop 2   | Gedachtflöte                   | 8'                         |
| Stop 3   | Small Principal of ivory and ebony | 4'                 |
| Stop 4   | Gemshorn or small Violin        | 4'                         |
| Stop 5   | Nachthorn                      | 2'                         |
| Stop 6   | Blockpfeifen                   | 4'                         |


| Stop 1   | Large Gedachtflöiten Bass       | 16'                        |
| Stop 2   | Gemshorn Bass                  | 8'                         |
| Stop 3   | Quintadehna                    | 8'                         |
| Stop 4   | Sackpfeifen                    | 4'                         |
| Stop 5   | Nachthorn Bass                 | 2'                         |
| Stop 6   | Barwürften Basslein            | 1'                         |
| Stop 7   | Sordunen Bass                  | 1½'                        |
| Stop 8   | Dolzian Bass                   | 8'                         |
| Stop 9   | Jungfrauen Regal Bass          | 4'                         |

**XXII.**

[Schöningen]

At the present time the widow of the Prince of Braunschweig and Lüneburg is having an organ of veneered wood.

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46. Esaias Compenius built this organ in 1610 for the Duke of Braunschweig, at the Hessen Palace near Wolfenbüttel. In the year 1617 it was presented as a gift to King Christian IV of Denmark; Compenius re-erected it in the Frederiksborg Palace Church in Hillerød. The instrument still exists, minimally altered from its original state.

47. Tremulant doux.

48. Tremulant fort.

49. Bagpipe (drone): three octaves of reed pipes sounding C & F.

50. small bagpipe (drone): regal pipes.

51. incorrectly numbered "XXIII."

52. See p. 161 above.

53. i.e., 1619.
In the Brust

1. Blockflöte
2. Nasartflöte
3. Siebflöte oder Schwiegelpfeife
4. Zimbeln
5. Geigentisch

In the Rückpositiff

6. Trompete oder Posaune
7. Octavflöte
8. Zimbelstern
9. Birdsong

The manual keyboards: C F G A up to c'''' d''', with doubled d's/y

The pedal keyboard: C F G A up to c'' d'
There follows here a list of a number of organs whose stoplists I myself have drafted according to my modest abilities.

### 1. An organ to be built with 27 stops.

<table>
<thead>
<tr>
<th>Stop List</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tin Principal</td>
<td>8'</td>
</tr>
<tr>
<td>2. Grob Gedackflöte</td>
<td>8'</td>
</tr>
<tr>
<td>3. Octava</td>
<td>4'</td>
</tr>
<tr>
<td>4. Gemshorn</td>
<td>4'</td>
</tr>
<tr>
<td>5. Stopped Holflöte</td>
<td>4'</td>
</tr>
<tr>
<td>6. Nasatt</td>
<td>3'</td>
</tr>
<tr>
<td>7. ScharffQuinta</td>
<td>4'</td>
</tr>
<tr>
<td>8. Superoctava</td>
<td>2'</td>
</tr>
<tr>
<td>9. Mixtur II</td>
<td>3'</td>
</tr>
<tr>
<td>10. Wooden Krumbhorn</td>
<td>16'</td>
</tr>
<tr>
<td>11. Quintettz</td>
<td>1½'</td>
</tr>
<tr>
<td>12. Zimbel</td>
<td>2'</td>
</tr>
<tr>
<td>13. Sufflöit</td>
<td>1'</td>
</tr>
<tr>
<td>14. Open Untersatz</td>
<td>16'</td>
</tr>
<tr>
<td>15. Bawrflöitlein</td>
<td>1'</td>
</tr>
<tr>
<td>16. Posaune, like a Sordun</td>
<td>16'</td>
</tr>
<tr>
<td>17. Loud Dulcian</td>
<td>8'</td>
</tr>
<tr>
<td>18. SingendCornett</td>
<td>2'</td>
</tr>
</tbody>
</table>

In addition are provided:
- Two tremulants, one for the Oberwerk only, one for the RückPositiff only.
- A coupler between the two manuals.
- A Positiff/Pedal coupler.
- Good, durable bellows.

### 2. A design for a second organ, of 19 stops, a coupler between the two manuals, and a RückPositiff/Pedal coupler, as well as Zimbelstern with little bells, Birdsong, and drum.

<table>
<thead>
<tr>
<th>Stop List</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Principal</td>
<td>8'</td>
</tr>
<tr>
<td>2. Loud stopped Rohrflöte</td>
<td>8'</td>
</tr>
<tr>
<td>3. Octava</td>
<td>4'</td>
</tr>
<tr>
<td>4. Nachthorn</td>
<td>4'</td>
</tr>
<tr>
<td>5. Schwiegelpiff</td>
<td>4'</td>
</tr>
<tr>
<td>6. Mixtur with Octave</td>
<td>4'</td>
</tr>
<tr>
<td>7. Ramcket or quiet Posaun</td>
<td>16'</td>
</tr>
</tbody>
</table>

---

7: This indicates that the stops of the RückPositiff were played on the Oberwerk manual.
DE ORGANOGRAPHIA.

5. i.e., the stops in the Brust are played from the Werck.
8. Rückpositiv
9. Quintadeena
10. Blockflöte
11. Spitz- or Spillflöte
12. Little Gemshorn
13. Krumbhorn
14. Baerpfeiff
15. GeigendRegal
16. Little gentle stopped Rohrflöte

For the Pedal
17. Powerful Untersatz
18. PosaunenBass
19. Cornett

A Proposal for an Instrument of 15 stops.

[Werck]
1. Gentle Gedact
2. Principal
3. Blockflöte
4. Gentle Octave
5. Gentle Schwiegel or Schweizterflöte
6. Very high Zimbel, containing a little Quint

In the Brust
7. Sordun or Rancket
8. Geigend Regal

Stoplist for a very small organ: 10 or 11 stops.

1. Rohrflöte or Gedact with bass in the Pedal by transmission
2. Principal
3. Blockflöte
4. Nachthorn
5. Octava
6. Octava

4. Rückpositiv/Pedal coupler
5. Drum
6. Tremulant for entire organ
7. Tremulant fort for Rückpos.
8. Birdsong
9. Rückpositiv/Pedal coupler
10. Drum
11. Tremulant for entire organ
12. Tremulant fort for Rückpos.
13. Birdsong
14. Pedal
15. PosaunBass
16. or 8'
17. Rückpositiv/Pedal coupler
18. Coupler for both manuals
19. Drum
20. Tremulant for entire organ
22. Birdsong

4. Disposition einer von kleinen Or
7. In die Brust.
8. Sordun oder Rancket

Little Side-Positiff
9. Krumbhorn
10. Nachthorn
11. Spitzflöte
12. Nasatt
13. Zimbel

Pedal
14. Wooden Untersatz
15. PosaunBass
16. or 8'
17. Rückpositiv/Pedal coupler
18. Coupler for both manuals
19. Drum
20. Tremulant for entire organ
22. Birdsong

Stoplist for a very small organ: 10 or 11 stops.

1. Rohrflöte or Gedact with bass in the Pedal by transmission
2. Principal
3. Blockflöte
4. Nachthorn
5. Octava
6. Octava


[Werck]
1. Gentle Gedact
2. Principal
3. Blockflöte
4. Gentle Octave
5. Gentle Schwiegel or Schweizterflöte
6. Very high Zimbel, containing a little Quint

In the Brust
7. Sordun or Rancket
8. Geigend Regal

Stoplist for a very small organ: 10 or 11 stops.

1. Rohrflöte or Gedact with bass in the Pedal by transmission
2. Principal
3. Blockflöte
4. Nachthorn
5. Octava
6. Octava

Rückpositiv/Pedal coupler
Coupler for both manuals
Drum
Tremulant for entire organ
Tremulant fort for Rückpos.
Birdsong
Although Praetorius does not expressly state it, the presence of three strong 16' stops suggests that the same sixteen stops are intended to appear in the pedal as well, producing (together with the OberPositiff) a total of 48 stops. Praetorius's title suggests that he envisions 16 basic stops with transmissions to create an Oberpositiff and Pedal.

The same number of stops appears in the OberPositiff, each of them speaking an octave higher.

A total of 48 stops, as well as:

1. Tremulant
2. Zimbelstern
3. Cuckoo
4. Birdsong

5. Bagpipe (drone)
6. Tremulant fort
7. Drum

Stoplist of an Organ with 16 and 48 stops.59

1. UnterBass of thick firwood 16'
2. Gedacktflöte 16'
3. Principal 8'
4. Gemshorn 8'
5. Quintadeen 8'
6. Octave, open 4'
7. Little Blockflöte 4'
8. Gemshorn 4'
9. Nachthorn 4'
10. Quinta 3'
11. Superoctava 2'
12. Little Zimbel
13. Mixtur IV, V, VI or more ranks
14. Sordin or Posaun 16'
15. Krumbhorn 8'
16. Trommet or loud Regal 8'

The same number of stops appears in the OberPositiff:

1. Untersatz 8'
2. Gedacktflöte 8'
3. Principal 4'
4. Gemshorn 4'
5. Quintadeena 4'
6. Superoctava 2'
7. SuperBlockflöte 2'
8. SuperGemshörnlein 2'
9. SuperNachthornlein 2'
10. Nasatt 1½'
11. Sieffloit 1'
12. Little Zimbel
13. Mixtur
14. Sordin or Posaun 16'
15. Krumbhorn 8'
16. Trommet or loud Regal 8'

5. Bagpipe (drone)
6. Tremulant fort
7. Drum

Although Praetorius does not expressly state it, the presence of three strong 16' stops suggests that the same sixteen stops are intended to appear in the pedal as well, producing (together with the OberPositiff) a total of 48 stops. Praetorius's title suggests that he envisions 16 basic stops with transmissions to create an OberPositiff and Pedal.
60. The number of ranks is missing.
62. played from the Oberwerk.

---

Disposition einer Orgel von 18 Stimmen.

1. Principal 8', 13/16, 1/4, 1/8, 1/16
2. Koppelflöte, oder leichsam Orchesteur 8', 1/2, 1/4, 1/8, 1/16
3. Nachhorn 4'
4. Oktava 4'
5. Gemshorn 4'
6. Querflöte oder scheiben 1/4, 1/8, 1/16
7. Mixtur 4/4
8. Gedeckt 4'
9. Zimbeln 1/4, 1/8, 1/16

---

Disposition einer Orgel von 18 Stimmen.

Oberwerk zum Manual.

1. Principal 8', 13/16, 1/4, 1/8, 1/16
2. Koppelflöte, oder leichsam Orchesteur 8', 1/2, 1/4, 1/8, 1/16
3. Nachhorn 4'
4. Oktava 4'
5. Gemshorn 4'
6. Querflöte oder scheiben 1/4, 1/8, 1/16
7. Mixtur 4/4
8. Gedeckt 4'
9. Zimbeln 1/4, 1/8, 1/16

---

Stoplist of a管风琴 with 18 stops.

In the Oberwerk

1. Untersatz of wood at 16'
2. Principal at 8'
3. Koppelflöte or gentle Gedackt at 8'
4. Octava at 8'
5. Nachhorn at 8'
6. Gentle Gemshorn at 4'
7. Quinta at 4'
8. Mixture at 2'
9. Trommet at 8', 4', and 2'

---

Stoplist of an organ with 22 stops.

Oberwerk: [the primary] manual

1. Large Quintadeena, in the manual
2. and in the pedal
3. by transmission
4. Principal
5. Stoppe Flöte, or gentle Rohrflöte
6. Octava, narrow scale
7. Nachhorn or Quintadeena
8. Nasart Querflöte
9. Mixture IV-V-VI-VII, from which one might also make a stop by transmission for a two-rank Zimbel.

For the Pedal only, housed in the Oberwerk

9. Powerful stopped Untersatz at 16', 8', and 4'
10. PosaunenBass at 16'

---

N.B.

If no diligent organists are available, many Regals and [other] reed stops are worthless, especially at 4', since such stops need a willing organist who does not become annoyed by having to tune all the reeds every week and keep them in good condition. I have likewise devoted no small amount of effort to the thankless task of keeping the fourteen reed stops in the organ at Gröningen in tune.
If one wanted to omit the Brust entirely, one might bring the little Blockflöte 3' into the Oberwerk and the little Siffloß 1' into the Rückpositiv.

Rückpositiv
1. Quintadeena 5'
2. SchweizerPfeiff as the Principal, in the façade 4'
3. Gemshorn or Spitzflöit 4'

N. B.
Since various other matters have been discussed in Volume Three, which is now at the Printer, as indicated in the recently issued General Index of the Syntagma musicum; I consider it useful to insert here a notice concerning Volume Three.

VOLUME THREE contains three parts.

In the first part may be found an explanation of the meaning of the names as well as a description of almost all the Latin, Italian, English, and French songs such as madrigals, canzonas, villanelles, etc., as well as those now in use in Germany at the present time.

The second [part] explains everything necessary to know about: 1) ligatures; 2) notes; 3) flats, naturals and sharps; 4) numbers below the rests; 5) Virgulis; 6) modes; 7) time [signatures] and note values; 8) upbeats and downbeats; 9) also how to transpose compositions; 10) how to label parts and voices properly; 11) the correct differentiation of choirs; 12) how to use unisons and octaves.

In the third [part] may be found an explanation and interpretation of: 1, 2. & 3. many Latin and Italian terms that frequently occur in today's music.

63. small strokes near the notes.
DE ORGANOGRAPHIA.

brief classification of all musical instruments, 5) and their true meaning; 6) figured
bass or continuo; 7) how easily to arrange all sorts of concertos, 8) and those in my
Polyphony, in various ways; 8) how to train boy (choristers) and others in the current Italian manner of
singing.

THE END.
DE ORGANOGRAPHIA.

I have decided to append a number of other organ stoplists here, namely:

1. At Sondershausen: [the organ] the high- and nobly-born Lord, the Count of Schwartzenburg [had built] by the Electoral Saxon Organbuilder, Master Gottfried Fritzsche of Dresden, in the year 1616. It has 36 stops.

In the Oberwerck
11 stops
1. Quintadehn Sub Bass 64 16’
2. Beautiful Principal 8’
3. Wooden Principal, narrow [scale] and gentle 8’
4. Quintadenna 8’
5. Scharff Octav 4’
6. Nachthorn, open, wide-scale; it is very gentle 4’
7. Quinta 3’
8. Nasatt, gentle 3’
9. Mixtur 16’
10. Zimbeln
11. Dolcian or Rancket, wooden 16’

Pedal Stops in the [side] Towers
12. Principal Sub Bass of pure tin, at 16’. Its 3 lowest pipes, C, D & E, are doubled (both speaking), thus the large Principal pipes on both sides correspond precisely in size and height.
13. Wooden Sub Bass 16’
14. Rohrflöt-Bass 16’
15. Zimbel Bass
16. Posattra 16’
17. Trommet 8’
18. Singend Cornett [4’ 2’3’]
19. Various Birdsongs

BrustPositiff 65 4 stops
20. Gemshorn 4’
21. Octav 2’
22. Blockflöt 2’
23. Quintadecz [4’ 2’3’]
24. Schwiegelpflötz 4’
25. GeigenRegal 4’

RückPositiff 7 stops
26. GrobGedacktflyt 4’
27. Principal 4’
28. Little Gedackt 4’
29. Qgerflyt 4’
30. Little Octave 2’
31. Little Quint [1½’]
32. Zimbels
33. Rancket or BärPfieffe 4’
34. Revolving [Cymbel]Ster 4’
35. Genuine military drums

Two tremulants
Twelve bellows
[Manual compass: C = ℓ mm3] and doubled semitones for G6

64 “Bass” suggests that this stop was made available separately in the pedal, by transmission.
65 presumably played from the Oberwerk.
67 i.e., one for G♯, the other for A♭.
ORGANOPHAGIA.

II.

At the same place [i.e., Sondershausen] I also saw a very fine little organ fashioned very cunningly, neatly and painstakingly in the form of a small chest, so that no one would ever imagine that so many stops would fit inside it. It was constructed some seventy years ago by a monk, and has fourteen stops, manuals and pedal. The pedal pipes lie underneath, while those of both manuals lie above.

For the upper keyboard,

1. Gedact, gentle 4'
2. Principal 2'
3. Octav 1'
4. Zimbel
5. Regal 8'

Birdsong

For the lower keyboard,

6. Quintadehn or Nacht horn, very gentle 4'
7. Little Gedact 2'
8. Octavin
9. Zimbel

In the Pedal

10. SubBass of wood stopped 8'
11. Gedact 4'
12. Principal 2'
13. Little Schweitzer Bass, repeating at the octave
14. Posauen

Drum, Tremulant and other supplementary stops.

III.

The stoplist of the organ at St. Gotthart in Hildesheim, [built] by Master Henning. He was at first a carpenter, but by the grace of God has progressed so far that he has built, in addition to the great 32' organ in the Stiftskirche of St. Blasius in Braunschweig (under no. XIII above), many other magnificent, lovely and fine-sounding organs as well.

OberWerk—manual and pedal. 12 stops
1. Gross præstant 16'
2. Gedact [flöit in manual and pedal 16'
3. Untersatz, stopped, in pedal 16'
4. Octav 8'
5. Holflöit 8'
6. Octav 4'
7. Coppelflöt 4'
8. Quint 3'
9. Gemshorn 2'
10. Mixtur in the treble XII
11. Dolcian in the manual 16'
12. Trommet in the manual 8'

In the RückPositiff 11 stops
13. Principal 8'
14. Holflöit 8'
15. Quintadehn 8'
16. Octava 4'
17. Holflöit 4'
18. Mixtur in the treble XII
19. Dolcian in the manual 16'
20. Trommet in the manual 8'

i.e., before the Lutheran Reformation.
ii. Master Henning Hencke (c. 1550-c. 1620) built three new organs in Hildesheim: St. Lambert (1590), St. Michael (1599), and St. Godehard (1612-1617).
DE ORGANOGRAPHIA.

18. Querflöit 4'
19. Quintflöit 3'
20. Astat 3' 30'
21. Zimbel II
22. Krummhorn 8'
23. Cornet 4'

Birdsong
Cuckoo
Drum
5 bellows

NB.

This Master Henning is using a very special type of bellows that far surpasses other wedge-bellows, to say nothing of leather bellows. It has only a single fold that rises about a foot (i.e., a half an ell) high. And when it is closed down between two heavy oak planks (three finger-widths thick), none of it is visible. Then it is impervious to damage by either weather or mice. It is ordinarily 8 or 8½ feet wide; in large organs, however, it is 9 feet long and 5 or 5½ feet wide. (There are also those who make only a fold in bellows; that is also very good.)

IV.
The organ in the Monastery at Riddagshausen,72 which the present Lord Abbot, Heinricus, had built by the organbuilder to the Prince-Archbishop of Magdeburg, Heinrich Compenius, has 31 stops.

In the Oberwerk, 11 stops73

1. Large Rohrflöit in the manual, full-compass
2. The abovementioned Rohrflöit, as a separate stop in the pedal alone
3. Principal of pure tin, rather wide scale
4. Stopped Rohrflöit, gentle
5. Large Gemshorn
6. Octava 4'
7. Spitzflöit or Flachflöit 4'
8. Qnerflöit74 3'
9. Mixtur 4', 5 ranks in the bass, 6 ranks in the middle, 8 ranks in the treble

In the Brust
4 stops with a pull-down75
11. Nachhorn 4'
12. Little Blockflöit 3'
13. Rancket or Krummhorn 8'
15. Little Geigend Regal 4'

Rück Positiff, 12 stops
16. Large wooden Gedact 8'
17. Quintadehna 8'
18. Principal 4'
19. Little Rohrflöit 4'
20. Little Gemshorn 2'
21. Nasath76 2½'
22. Silfoit 1'
23. Very little Zimbel 1
24. Sorduen of wood, like a Dolcian 2'
25. Trommelen, muted 8'

70. Probably a misspelling (or fanciful spelling) of "Nasath"; see: Jacob Adlung, Musica mechanica organœdi (Ber- lin: Hogref, 1736), Vol. I, p. 73, "Assat.
71. Perhaps Praetorius is speaking of ordinary kitchen bellows.
72. Riddagshausen was incorporated into the City of Braunschweig in 1934.
73. Praetorius lists only 11; however, thus the specification as is stands has 11 stops, not 11.
74. The Errata, p. 296, correct the original "Nasath lieblich" to "Qnerflöit"; it is thus possible that "3'" should read "4'.
75. I.e., played from the Oberwerk keyboard; as with other instrument described by Praetorius that have Brustwerks, this one had only 1 manuals.
76. The Errata, p. 216, correct "Hollquintlin" to "Nasath."
DE ORGANOGRAPHIA.

77. Another hypothetical stoplist for an organ of 34 or 35 stops, similar to those at Dresden and Schönening. The Electoral Saxony Organbuilder Gottfried Ertischke will perhaps finish building [an organ] of this sort this summer at Bayreuth in the Vogtland.

Oberwerk
13 stops
1. Posaune of wood, completely gilt. Like a trumpet in its tone, at 8' pitch. It is the first of the Principia.

Three ranks of Principia that are visible.
2. The second of the Principia [is an] open Octav of tin, at 4' pitch.
3. The third of the Principia is a tin Principal at 8' pitch.

Pedal, 6 stops
26. A powerful open Untersatz-
Subbass of wood 16'
27. Jula 8'
28. Nachthorn or Bawrbässlein 4' or 1'
29. Powerful PosaunenBass 16'
30. Posaun or Trommet 8'
31. Little singing Cornetbass 3'

In addition to which are:
1. Cymbelstern with a [revolving] star
2. Drum
3. Birdsong

Four vents
1. For the OberWerck;
2. For the Brust;
3. For the Rückpositiv;
4. For the Pedal.

1. Tremulant for the entire organ.
2. Tremblant fort for the Rückpositiv alone, and so that the Regals and the reed stops may also be used with a tremulant.
3. Rückpositiv/Pedal coupler
4. Wedge bellows, strong and stoutly bound.

With a double windchest of a new type, in which the pallets are independent from each other, so that one can easily see directly into and reach into all the compartments.

The Pedal Keyboard
F# G2
D E Bb C6 d6 f# g# b6 C6 f6 C6 G A B c6 d6 e6 f6 g a b c6 d6 e6 f6

Gottfried Praetorius's correction (p. 236); the original is not fully legible. His correction makes sense only if it indicates the compass of the manuals, not the pedal.
DE ORGANOGRAPHIA.

78. The organs at the Predigerkirche in Erfurt (Compenius, 1649) and Wenzelskirche in Naumburg (Hildebrandt, 1746) are examples of this arrangement.

79. i.e., Tremblant fort.

11. Mixtur VI
12. Zimbel II
13. Rancket or Sorduen 16′

Little BrustPositiff
6 stops

14. Wooden Geigend Re-
gal, completely gilt 4′
15. Beautiful tin Schiawel-
or Hollflöten 3′
16. quiet Gemshorn or little Gedact, also of
beautiful tin 4′
17. Penetrating little Superc\-tava 2′
18. Little Blockflött 2′
19. Little Quintadetz in place of the
Zimbel.

RückPositiff
11 stops

20. a little Trommeten
of wood, entirely gilt.
The pipes would have to
be dummies, however,
since they could not be
reached from the front
to tune them, unless
there were a [elevated]
choir or balcony beneath
the organ from which
the façade pipes of the
Rückpositiv would be
accessible.

21. Beautiful tin Superc-
tava, like a Querpfeiffe 2′
22. Beautiful tin Princip-
alia.
23. Large Coppel[flöte], or gentle
flute 8′
24. Little Quintadetz 4′
25. Querflöten 4′
26. Little Gemshorn or little stopped
flute 2′
27. Nasatt Quinta, gentle 16′
28. Little Zimbel 1′
29. Rancket or BäerPfeiffen 8′
30. Krumbhörner 8′

Pedal Basses
3 stops.

31. Large Passagen Bass 16′
32. Powerful stopped
SubBass of tin 16′
33. Heavy Principal Bass,
of tin 16′
34. Little Cornet Bass [4′ 2′]
35. Birdsong throughout the entire
Pedal

Auxiliary Stops
36. Revolving star with little bells
37. Cuckoo: Nightingale

[Couplers]
1. Coupler between both manuals
2. RückPositiff/Pedal coupler
If three manuals are desired, it would be
possible to make one for the
Brustpositiff.

[Tremulants]
1. A tremulant for the entire organ
2. A separate tremulant for the Rück-
positiff alone, otherwise called the
“Bock”.79
DE ORGANOGRAPHIA.

Either 9 or 11 bellows.

Manual Keyboard

\[
\begin{array}{ccccccc}
F^\# & G & D & E & B & \text{(C\#)} & d^\# \\
\text{D} & \text{E} & \text{B} & \text{G} & \text{A} & \text{C} & \text{F} & \text{G} & \text{B} & \text{C} & \text{d} & \text{e} & \text{f} & \text{etc.} \\
\end{array}
\]

up to \(d''\) or \(f''\)

For the Pedal

\[
\begin{array}{ccccccc}
D^\# & F^\# & G & B & \text{(C\#)} & d & f^\# \\
\text{C} & \text{D} & \text{E} & \text{F} & \text{G} & \text{A} & \text{B} & \text{C} & \text{d} & \text{e} & \text{f} & \text{etc.} \\
\end{array}
\]

up to \(c'\), \(d'\), \(e'\)

It also pleases me very much when a separate ventil is made for each chest, so that: 1. not everyone who jumps on the organ bench will be able to make the organ sound, even if he pulls the stops. 2. the wind does not immediately fill all the chests if one does not want to play on all the manuals.

VI.

Another Stoplist

For a little Instrument designed in a very lovely way, with 13 stops.

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>1. Gentle Rohrflöte 8'</td>
<td>6. Quintadehna 8'</td>
</tr>
<tr>
<td>2. Nachthorn 4'</td>
<td>7. Blockflöte 4'</td>
</tr>
<tr>
<td>3. Gemshorn Spitzflöte 4'</td>
<td>8. keen Zimbel, very little II</td>
</tr>
<tr>
<td>4. Little Octave, keen 2'</td>
<td>9. Nasatquint 1½'</td>
</tr>
<tr>
<td>5. Krumbhorn 8'</td>
<td>10. Ranckett 16'</td>
</tr>
<tr>
<td></td>
<td>or BaerPfeiff 8'</td>
</tr>
<tr>
<td>11. Little Regal</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pedal

12. Untersatz 16' |
13. Sorduen, or a very quiet, gentle Posaunen 16'

A manual coupler

Other things to be mentioned about other organs

If a more penetrating tone is desired, a
gentle Principal 4' may be added. All the stops, however, must be of narrow scale, and very gently voiced.

[See pp. 233-4 for the stoplist of the organ at St. Lambrecht in Lüneburg]

Nota bene

Matters that have not been mentioned here will perhaps be explained in the little treatise on Contracting for organs, construction and delivery. 

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2. This entry appears to be a mistake.
3. Yellow because it is made of unstained wood.

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Drum (Trumpel)

Marine Trumpet (Trumscheid)

Tuba (trumpet)

Tuba Hieronymi

its meaning

Moorish instruments

How to make a small pipe to set
correct pitch

Change and increase of stops in old organs

Extension of keyboards in the clavichord

Stringed instruments going out of tune

Why reeds go out of tune in winter and summer

Why pipes go out of tune

Vestiges of ancient harmony

Violino

Viol di Gamba

whence the name

How many varieties

have 6 strings

how tuned

there are three kinds

some with 3, 4, and 5 strings

tone is pleasant

sub-bass viols

suitable to the chromatic genus

Viola, Viola di brasco

whence the name

how many kinds, and how to tune

Violiino da Brazo

Viola da Braçada

Violetta piccola

Viola de Bastarda

Various ways of tuning

has six ordinary strings and

eight of steel

Violoncino

Violetta

polyphonic instrument

Virginale

originated from the psaltery

the English name

Universal musicians in Italy

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Tambour de Biscaye

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The subject of correct pitch has often been mentioned
lither and yon in this second volume. I have discovered that, even in
splendid organs found in large and distinguished cities, the proper
standard pitch adopted by both human voices and instruments is
incorrect; their pitch is either too high or too low. This is one of the
primary shortcomings in organs. Thus I have pondered all the ways and means
by which this can be rectified; how to make the correct pitch known to one and all, both
organbuilders as well as organists; how an organbuilder may be guided in setting the
pitch of new organs, as well as renovating and correcting old ones. Therefore I
have decided to place below an accurate sketch that provides organbuilders with the
correct measurement for c'''[1], the six-inch-long pipe above an 8' C.

\[ C = 8' \quad c = 4' \quad c' = 2' \quad c'' = 1' \quad c''' = \frac{1}{2}' \]

Following these measurements, an entire octave of pipes may be produced quite
precisely and accurately at the correct pitch. This is to be used not only by
organbuilders, but also by organists and cantors, for the purpose of tuning.

Furthermore, the treatise to follow concerning Contracting for organs,
construction and delivery[2] will indicate how, with little effort or excessive cost, to
shift an organ, harpsichord or Instrument[3] either a whole- or half-step higher or
lower to the correct pitch.

I trust that all organbuilders (whom I greatly prize and admire for their art,
and for whom I have nothing but the very best wishes) will accept all this in good
faith and without resentment.

For what I have noted here and there, in particular on pp. 159-60, applies not
to decent organbuilders, but rather only to bunglers and amateurs who have never
learned how to produce a proper pipe, and merely want to play at mastery. Indeed,
I know very well what to expect from this art, which is truly to be considered among
the fine arts; perhaps I will treat this matter elsewhere in greater detail, should the
opportunity arise.

---

[1] The original print reads c"; the context suggests this is either a mistake or a fault in the type.
[2] This treatise survives as a manuscript, entitled "Kurtzer Bericht," now in the Herzog August Bibliothek, Wolfenbüttel, Germany. For an English translation
of the treatise, see Vincent Panetta, "An Early Handbook for Organ Inspection: the 'Kurtzer Bericht' of Michael Praetorius and Esaias Compenius," in:
The Organ Yearbook, 1990, pp. 5-33. See also Vincent J. Panetta, Jr., "'Prätorius, Compenius, and Werckmeister: A Tale of Two Treatises," in: Church, Stage, and Studio: Music and
[3] A virginal; see Syntagma musicum II, p. 64, as well as Theorion Instrumentorum, Part XIV.
A small pipe at the correct pitch

- **b** is the length of the pipes at the proper pitch, **multiplied by two**
- **a** is the width in metal, **round**

<table>
<thead>
<tr>
<th>Note</th>
<th>In wood, rectangular</th>
</tr>
</thead>
<tbody>
<tr>
<td>c'</td>
<td>b♭ a g g♭ f e d c♭ c ♭</td>
</tr>
</tbody>
</table>

In all modesty, I consider that there is no better instrument from which to determine the proper pitch than a trombone made in Nuremberg, both at present as well as in the past. Drawing out the slide two finger-widths from the end will produce tenor la-mi-re, at just the proper pitch.

Since cornets in particular but also flutes, overblow easily, and bassoons and dolcians sound sharp or flat, depending on what fingerings are used, one cannot depend on them. Therefore I have also had a small pipe installed in the regals that have come into my hands, to sound the correct pitch for c or f or g. Regals and the various plucked stringed instruments can then always be tuned according to such a small pipe. For purposes of tuning, no pipe winded by human breath can ever be as precise as the bellows of a regal, which can supply steady wind **without wavering**.
The stoplist of the following organ should be inserted at p. 170.

The Organ at St. Lambrecht in Lüneburg has 60 stops and three manual keyboards. Middle- or Great-Werck, on the Middle Manual, has 13 stops.

<table>
<thead>
<tr>
<th>Stop</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal</td>
<td>8'</td>
</tr>
<tr>
<td>Hellpfeiff</td>
<td>8'</td>
</tr>
<tr>
<td>Quintadehna</td>
<td>8'</td>
</tr>
<tr>
<td>Gedact</td>
<td>8'</td>
</tr>
<tr>
<td>Blockflöit</td>
<td>8'</td>
</tr>
<tr>
<td>Holflöit</td>
<td>8'</td>
</tr>
<tr>
<td>Regal</td>
<td>8'</td>
</tr>
<tr>
<td>Schalmey</td>
<td>8'</td>
</tr>
<tr>
<td>Baarpfeiff</td>
<td>8'</td>
</tr>
<tr>
<td>SedetzenQuint</td>
<td>1½'</td>
</tr>
<tr>
<td>Sciflöit [i.e., Sifflöit]</td>
<td>1'</td>
</tr>
<tr>
<td>Repeating Zimbel</td>
<td>8'</td>
</tr>
<tr>
<td>Scharp</td>
<td>8'</td>
</tr>
<tr>
<td>Mixtur</td>
<td>8'</td>
</tr>
<tr>
<td>Little Waldflöte</td>
<td>8'</td>
</tr>
<tr>
<td>Big 8' Pedal</td>
<td></td>
</tr>
</tbody>
</table>

Rückpositief has 15 stops.

<table>
<thead>
<tr>
<th>Stop</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal</td>
<td>8'</td>
</tr>
<tr>
<td>Hellpfeiff</td>
<td>8'</td>
</tr>
<tr>
<td>Querpfeiff, half-compass</td>
<td>8'</td>
</tr>
<tr>
<td>Gedact</td>
<td>8'</td>
</tr>
<tr>
<td>Blockflöit</td>
<td>8'</td>
</tr>
<tr>
<td>Holflöit</td>
<td>8'</td>
</tr>
<tr>
<td>Quintflöit</td>
<td>8'</td>
</tr>
<tr>
<td>Octava</td>
<td>2'</td>
</tr>
<tr>
<td>SedetzenQuint</td>
<td>1½'</td>
</tr>
<tr>
<td>Repeating Zimbel</td>
<td>8'</td>
</tr>
<tr>
<td>Schalmey</td>
<td>8'</td>
</tr>
<tr>
<td>Baarpfeiff</td>
<td>8'</td>
</tr>
</tbody>
</table>

1. Praetorius, however, lists only 59 stops; he gives no 4' stops on the Oberwerck. The Lambertikirche was torn down in 1859, together with this organ, built by Christian Bockelmann in 1610, of its time one of the largest instruments in Germany.
## Low stops in the Pedal

<table>
<thead>
<tr>
<th>Number</th>
<th>Stop</th>
<th>Pitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>43</td>
<td>Principal-Bass</td>
<td>16'</td>
</tr>
<tr>
<td>44</td>
<td>Untersatz</td>
<td>16'</td>
</tr>
<tr>
<td>45</td>
<td>Octava</td>
<td>8'</td>
</tr>
<tr>
<td>46</td>
<td>Gedackt</td>
<td>8'</td>
</tr>
<tr>
<td>47</td>
<td>Super-Octava</td>
<td>4'</td>
</tr>
<tr>
<td>48</td>
<td>Nachthorn</td>
<td>4'</td>
</tr>
<tr>
<td>49</td>
<td>Spitz-Quint</td>
<td>3'</td>
</tr>
<tr>
<td>50</td>
<td>Gemshorn</td>
<td>2'</td>
</tr>
<tr>
<td>51</td>
<td>BawrFlöit</td>
<td>1'</td>
</tr>
<tr>
<td>52</td>
<td>Rauschpfeif</td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>Zimbel</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>Mixtur</td>
<td>16'</td>
</tr>
<tr>
<td>55</td>
<td>Posaunen</td>
<td>16'</td>
</tr>
<tr>
<td>56</td>
<td>Trommetten</td>
<td>8'</td>
</tr>
<tr>
<td>57</td>
<td>Schalmei</td>
<td>4'</td>
</tr>
<tr>
<td>58</td>
<td>Cornet</td>
<td>2'</td>
</tr>
</tbody>
</table>

## Tremulant

<table>
<thead>
<tr>
<th>Number</th>
<th>Stop</th>
<th>Pitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ventil (Oberwerk)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>for (Middle-Werk)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>the Pedal</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Rückpositif/Pedal Coupler</td>
<td></td>
</tr>
</tbody>
</table>

### ERRATA IN VOL. II

Praetorius's corrections and additions have been entered at the appropriate places in the text.
Praetorius’s corrections and additions have been entered at the appropriate places in the text.
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Hereupon follows Part Six, in which is to be found an accurate sketch and depiction, drawn according to the scale provided, of all musical instruments, both those of our present time as well as a limited number of old instruments, to provide some report about them, in particular their size, length, and width.
Display of Instruments or SCIAGRAPHIA
by Michael Praetorius
[of] Creuzberg,
in which [there is]
A true sketch and illustration of almost all those musical instruments that are in present current and available in Italy, England, Germany and other places; as well as a number of ancient and Indian instruments, correctly and accurately depicted and classified according to scale.
Wolfenbüttel, in the year 1620.
This is the precise length and measure of a half Schuh or foot, according to the ruler; [a Schuh] is a fourth of a Brunswick Ell. All of the subsequent depictions of instruments have been prepared in conformity with this small ruler.

---

1. The rough equivalent of a modern "yard."

---

Plate I. An old positiv with a number of pipes and three different registers, producing three independent voices, at 3', 1½' and 1' pitch.
Plate II. Organ
(at the bottom of the page) “Here is where the Rückpositiv should be glued on.”
Plate IV: 1. Positiv. 2. Regal.

Plate XXXIV: Manual keyboard on the old organ in the Cathedral at Halberstadt.
Plate XXV. (from top to bottom of page):
The first and second treble keyboards
The third keyboard
The fourth, for the pedal
These are the manual and pedal keyboards, as they lie one atop the other in the very large organ in the Cathedral at Halberstadt.

Plate XXVI. Bellows and bellows treaders as they were employed at the time of this organ [i.e., Halberstadt].
Plate XXVII. Keys of the Werck manual in the old organ at St. Aegidius in the city of Braunschweig.

Plate XXVIII. Keys of the Rückpositiv in the same organ, St. Aegidius in Braunschweig.
Plate XXXV. The large keyboard in Magdeburg Cathedral.