

A+0 (428-453)	430
A+1 (454-479)	466

Almost half of these instruments are at A-1, a quarter are at A-1½, about a fifth at A-2, and the rest are at higher pitches (mostly A+1).

It is unclear whether the 13 woodwind pitches from this period at 420 to 427 are simply high examples of A-1 (which has a theoretical range of 410-427), whether they are anomalies not meant to play at any standard, or whether they represent another pitch standard as yet unnoticed (they correspond, of course, to the English Q-2). They were made by Jacob Denner, Eichentopf, Gahn, Oberlender, David Denner, and Staub; all these makers except Eichentopf were from Nuremberg. All told, there are 28 German recorders in this range from all periods with an average pitch of 423, and there is evidence of this range in other countries as well.<sup>67</sup>

#### 5-4 Higher Pitches

##### 5-4a The Name *Chorton* Used as an Equivalent to *Cornet-ton*

At the time they were in use, the words "*Cornet-ton*" and "*Chorton*" sounded so similar, and the concepts they described coincided so closely, that it would be surprising if they had not sometimes been confused. But while *Cornet-ton* referred to a specific frequency based on an objective reference, *Chorton* was a general concept meaning "church-organ pitch," and was often comparable to "*Chormässig*," "suitable for singers." It was thus less specific in frequency than *Cornet-ton*; by the early 18<sup>th</sup> century, it was being used to mean A-1, A+0, A+1, and A+2.

Phrases like "*Cornett- oder Chor-Tono*" indicate that the two terms were sometimes considered identical, or at least overlapping. Since the pitch frequencies of a dozen original organs at *Cornet-ton* fall within a specific range that averages A-462 (see 1-8) and agree with the principal pitch of original cornetts, we can be fairly sure that when *Chorton* was used together with *Cornet-ton* it indicated A+1. In his *Gu-*

*tachten über die Freiburger Domorgel* (1714),<sup>68</sup> for instance, Johann Kuhnau wrote, "To hear if [the organ] was in proper *Cornet-* or *Chor-Tone*, some of the *Stadt-pfeiffer* came with their *Hautbois* and trumpets and played several tunes, and it was found that when the organ accompanied them, it was perfectly in tune with the instruments . . ." <sup>69</sup> Since the French name "*Hautbois*" implied an instrument in *Cammerton*, and it is known that the organ was at 467, the issue here was presumably whether this "*Cornet- oder Chor-Tone*" could accommodate *Cammerton* by means of transposition. The contract for this organ also specified that it was to be "*Chormässig gestimmt worden*." Silbermann's *Jacobikirche* organ in the same city, *Freiberg*, was also described as in "*richtigen Cornett- oder Chor-Tono*."

The organ at *St. Maximi*, *Merseburg*, was provided in 1722 with five "*Kammergedackte*" for use when playing with other instruments; the remaining registers were all at "*Chor- oder Cornetton*."<sup>70</sup>

The trial in 1727 for the Silbermann organ at *Rochlitz* stated:

Last of all, in order not to have forgotten the most important thing about this organ, namely, if it stood in proper *Cornett-* or *Chor-Thono*, it was compared with the instruments of the municipal musicians and found to be exactly at *Chorton*, or even a little sharp, so that it accompanied the instruments without problem.<sup>71</sup>

Finally, Johann Gottfried Walther, in his *Lexicon* (1732:130), wrote of "*Chor- oder Cornet-Tone*" as equivalent pitches.<sup>72</sup>

##### 5-4b A+1 (*Cornet-ton*, Often *Chorton*)

Whatever its name, A+1 was a significant presence in Germany in the early 18<sup>th</sup> century. It was the pitch of not only the majority of organs and brass, but not infrequently the strings as well. Kuhnau commented on one of his cantatas, "This piece is in *Chorton* for the violins, voices, and continuo in Bb."<sup>73</sup> Bach also notated his singers and strings in the key of the organ at *Weimar* (see 6-2).

In the case of strings, this is not surprising. Baroque string instruments had been invented and developed in a context of A+1 (see 2-2a); *Barcotto* wrote in 1652 that "organs that are high work well with lower

voices and violins, which are for this reason more spirited," and "lower and deeper voices have more troubles with [lower-pitched organs], and they do not work as well with violins as the high organs." By "high," as we have seen, Barcotto meant *mezzo punto*, or A+1. Thus, violins tuned down to A-1 or lower were as much a novelty in Germany as the new woodwinds at these pitches. Their sound was undoubtedly quite different; Muffat had said that for a lower pitch, violins used "somewhat thicker strings."

Woodwinds were normally considered *Cammerton* instruments. Mattheson (1721:432 and 436) spoke of the "Frantzösische Blas-Instrumenten, als Hautbois, Flutes, Bassons" ("French wind instruments, such as Hautbois, Flutes, Bassons") as examples of instruments in *Cammerton*, and in his articles on "Flauto traverso," "Flûte à bec," and "Hautbois," Walther (1732) added to each entry "nach Cammer-Ton gerechnet"<sup>74</sup> (considered in *Cammerton*). In Weimar, Bach transposed only the "Oboe" part in his cantatas, keeping all the other parts in the organ key. In fact, Mattheson (1713:74) even suggested that "*Chorton* . . . [is] so much more difficult for singers and unsuitable for *Hautbois*, *Flutes*, and other new instruments than the low and comfortable *Cammer-Thon* and *Opern-Thon*."

There were exceptions, however. Some nine percent of the surviving woodwinds made in Germany in this period are at A+1, by among others Schuechbaur, Christoph Denner, Schell, Gahn, and Oberlender. These makers were located in southern Germany; there is similar evidence from the Habsburg Lands. There is also documentation of woodwinds in *Cornet-ton* in southern Germany. A list of instruments at the court at Stuttgart in 1718 included "2 *hautbois [sic]* von *Cornet-thon*" as well as three others<sup>75</sup> (presumably at another pitch). An inventory of instruments at Ulm in 1744 lists, among other instruments, a "Cornet Hautbois;" this name suggests an hautboy at *Cornet-ton*.<sup>76</sup> The Munich court also purchased a "Cornet Fagot und Hoboé" in 1750.<sup>77</sup> At least one such hautboy, MI 155 in Nuremberg, that apparently plays at A+1, is thought to have originally been used at St. Sebald-Kirche in Nuremberg;<sup>78</sup> many high-pitched woodwinds may thus have been supplied to churches to be used with organ.

Another use for woodwinds at A+1 was for export to the Habsburg Lands and Italy. Christoph Denner apparently supplied high-pitched hautboys to Prince Ferdinando de' Medici of Florence.<sup>79</sup> Denner re-

ceived an order from the Prince at the very end of his life, in 1707, and finished building and repairing a set of instruments (probably hautboys and bassoons) for Ferdinando only three days before his death. The Prince's agent in Nuremberg wrote "Instead of a single treble . . . the *maestro* has made me another in the same pitch as the consort, and two others that are *higher*."<sup>80</sup>

Having begun his career as a maker in the late 1670s, Christoph Denner was also a cornett maker, and as part of that same order, Ferdinando had requested cornetts. As it happened, Denner died before the cornetts were completed. The rest of the story suggests that by the early 18<sup>th</sup> century *Cornet-ton* on woodwinds had generally gone out of style. Later when one of Denner's two sons (who were also well-known makers) was asked to take over the order, he explained that the cornett was by then "in poco uso," and would be difficult "a farli in quei toni così differenti" ("to make it in this so different pitch"). The younger Denner eventually succeeded in producing satisfactory instruments, but it is clear from his comments that by 1708 this was an unusual order.

Brass instruments, by contrast, were normally in *Cornet-ton/Chorton* (A+1) in this period. Trumpeters thought of their instruments as in C, but in terms of *Cammerton* they were D instruments. Mattheson wrote (1713:267) "All trumpets are in *Chorton*, so that to make everything work properly a piece written in *Cammerton* that has accompanying trumpets must always be set in D, since D in *Cammer-ton* is C in *Chorton*."<sup>81</sup> Mattheson equated the terms *Chorton* and "*Trompeten-Ton*" in 1721:431-37.

The average pitch for German organs at A+1 in this period (see Graph 20c) is exactly 466. As in every other period, A+1 was the dominant level of organs; in 1700 to 1730 it accounts for 86 percent of the known organ pitches.

Bells in churches were often tuned purposely to the organ.<sup>82</sup> Linnemann (1935:111) described three bells in the Celle Stadtkirche that had been made in 1664, 1701, and 1723. They sounded the notes A#, C#, and D# at Linnemann's A-435, and were thus probably originally tuned in *Cornet-ton* as A, C, and D.

5-4c A+2 (*Hoch Chorton*)

There were, as we have noted, mundane reasons for building organs at higher pitches. J.J. Seidel wrote in 1843 (10) "*Chorton* tuning was most commonly employed because the costs of such an organ were less than one tuned to *Cammerton*, as the latter required longer pipes on account of its low pitch, making it necessary to use more material." There are many similar remarks in sources of the time.<sup>83</sup>

Among the 10 organs where the original pitch is known and which were originally identified by the general concept of *Chorton* (see 1-8), pitch is in a range of nearly a whole-tone, from 437 to 487. No wonder a writer like Adlung, thinking of the pitches of organs, could comment,

Where do we look for the basis of tuning? How, in other words, do we decide how high to make the C? It is well known that organs are not all the same, so a musician needs always to carry a number of shanks in his pocket, besides his trumpet, if he has to play in different churches. It is the same for the horn. But how can it be made to work with flutes, hautboys, clarinets, and the like? Not without reason, one wishes that organ makers were agreed on this matter, and could have a common standard by which to arrive at the same level. So far, this has failed to happen, and Sauveur's proposal has yet to be implemented.<sup>84</sup>

Any source that reported a difference of a  $m_3$  between what appears to be normal *Cammerton* (at A-1) and *Chorton* was probably describing *Chorton* at A+2. An example is the chart Telemann gave in his *Harmonische Gottesdienst* (begun in 1725), showing how to transpose to either of two levels of *Chorton*. Telemann wrote in the introduction:

The pieces in this liturgical year are conceived at *Cammerton*, which means that it is always necessary for organists to transpose the continuo part in churches where the instruments are tuned at *Cammerton*. To this end, it is easiest to use the following chart, which includes most of the keys used in the present works.

The chart gave two different intervals, a  $M_2$  and a  $m_3$ , implying that these were the usual distances to *Chorton* from *Cammerton*.

Mattheson wrote in 1713:74 "Der Chor-Ton ist 9 bis 14 Commata höher als der Opern- und Cammer-Thon" ("*Chorton* is 9 to 14 commas [= a  $M_2$  to a  $m_3$ ] higher than opera-pitch and *Cammerton*").

How many pitches was he describing? He clarified things somewhat on page 1713:267 by adding "D in *Cammerton* is C in *Chorton*."<sup>85</sup> In this case, *Cammerton* was a  $M_2$  below *Chorton*. In 1721:431-37, Mattheson discussed at length the difference between the tuning of "*Chorton/Trompeten-Ton*" and the "*Kammer-Ton*" instruments (meaning, besides the "Waldhorn," hautboys, flutes, and bassoons),<sup>86</sup> and it is plain that the interval between *Chorton* and "*Kammer-Ton*" was a  $M_2$ . In 1731:110, Mattheson again discussed "*Kammer-ton*" and "*Chor-ton*" as pitches separated by a  $M_2$ . But what were the absolute frequencies?

Mattheson, like Telemann, was writing in Hamburg. We know the original pitches of eight Hamburg organs (all dating from 1670-93): three were at A+1 and five at A+2. In other words, Hamburg used two levels of *Chorton*. It therefore made sense to describe the distance to *Cammerton* as both a  $M_2$  and  $m_3$  lower.

5-5 A-1 as *Cammerton* on German Woodwinds

As we saw, A-1 was not a common pitch in France and England until at least 1715. But in Germany (as in Holland), woodwinds at A-1 were made early and often. Both Christoph Denner and Benedikt Gahn, who died in 1707 and 1711, respectively, left instruments at A-1. Christoph Denner is survived by 11 recorders pitched between 409 and 427 at an average of 414; Gahn is survived by 10 recorders in the same range that average 418. And of German woodwinds probably made before 1730, by far the largest number (46 percent) are at A-1 (even when their pitches are corrected downward to compensate for wood shrinkage). Thus considering these makers' working dates, A-1 was apparently in common use by the last decade of the 17<sup>th</sup> century.

It may also be this level, A-1 (rather than A-1½), that was used by Schnitger on organs at Hamburg Jacobi (1693) and Charlottenburg (1706), pitched at 408 and 410, respectively. The *Kammerregister* stop in the Jacobi organ was provided in order to make the organ playable with other instruments, presumably tuned at A-1.

A mass by Zelenka (ZWV 3) written ca.1719 for the Hofkirche has an organ part transposed down a step, suggesting that the organ involved was at A+1. There is a record that in 1722 Zelenka had the organ at the chapel tuned to *Cammerton*; his later works for the Hofkirche do not have transposed organ parts,<sup>130</sup> suggesting that the organ was indeed at *Cammerton*.

Some of Heinichen's cantatas preserved at Dresden have parts in differing keys.<sup>131</sup> These pieces were not necessarily written for performance in Dresden, however. *Gelobet sei der Herr* (E-509) is in F for all parts except the Organo/Violone, which is in E $\flat$ . *Lobe den Herrn, meine Seele* (E-506) is in B $\flat$  except two "Hautbois" and a "Basson" in C. Another cantata, *Gelobet sei der Herr* (1707 and 1724; E-504) is in F with two "Hautbois" and "Bassoun" in G. Here the difference between the woodwinds and the organ was a M2, with the strings tuning either up or down depending on the key.

Heinichen's *Herr, nun lässest du deiner Diener* (E-500), written for Grimma and performed in 1714, 1720, 1723, and 1729, is more complicated. It is in A, but Heinichen provided parts for two "Hautbois," "Bassone," and a "Continuo transpos." in C. These instruments, notated at a distance of a m3, were probably at *tief-Cammerton*, since a "Fagotto" part in A (the *Chorton* key) also survives ("Fagotto" normally designated a dulcian at *Chorton*).<sup>132</sup> Here, evidently, two bassoon-type instruments were used in the same piece, one in "French" and the other in "German" pitch.

### 5-9b Leipzig

Next to Dresden, Leipzig was the largest city in Saxony, and it used the Dresden foot. It was therefore logical that pitch levels between the two cities were related. The Leipzig Opera, for instance, was originally established in 1693 as a possible training school for musicians who could subsequently be employed by the Dresden court.<sup>133</sup>

Kuhnau's description of the tonalities of the various parts to one of his cantatas, quoted at the beginning of this chapter, had the violins, voices, and continuo in B $\flat$  at *Chorton*, the trumpets written in C $\natural$  to be crooked down a tone to B $\flat$ , and the woodwinds in *Cammerton* transposed up a step. Kuhnau was here describing a *Chorton* at Leipzig

a whole-step above *Cammerton*. As quoted in 5-6a, he wrote that he had begun notating his church music in *Cammerton* rather than *Cornet-ton*, and he described *Cammerton* as a M2 or m3 lower than *Cornet-ton*, "depending on which is most convenient."<sup>134</sup> In comparing *Cammerton* to *Cornet-Ton* instead of *Chorton*, Kuhnau was apparently using the terms *Chorton* and *Cornet-ton* interchangeably (Kuhnau had equated the two pitches in his *Gutachten über die Freiburger Domorgel*, 1714, quoted in 5-4a). *Cornet-ton* is of course a whole-step above *Cammerton* in the organs listed in Appendix 1.

Thus in 1722 Kuhnau provided a specific pitch reference for the Leipzig organs. *Cornet-ton*, as we have determined, was consistently A+1. The small organ at the Thomaskirche had been rebuilt by Compenius in 1630 (Compenius had built the famous Frederiksborg organ at A-470). We know that the organs at the Thomas- and Nicolai-kirchen on which Kuhnau (and later Bach) alternated Sunday performances were both pitched at the same level;<sup>135</sup> in 1741 J.A. Silbermann confirmed that the pitch of the Nicolai organ was "Cornetthon, wie Erfurt."<sup>136</sup>

Organ pitch at Leipzig was interconnected to other musical activities in the city through the *Stadtpfeiffer* and *Kunstgeiger*. These municipal musicians made up the core of Kuhnau's and Bach's instrumental forces for performances at the Thomas- and Nicolaikirchen. By ancient and jealously guarded right, they also provided most other forms of professional music in the city, including the Opera and the *Collegia musica*.<sup>137</sup>

It is clear that Kuhnau used two levels of *Cammerton*, choosing the tonality that was most practical for different key combinations. Like Kuhnau, Bach used *tief-Cammerton* several times when he first arrived in Leipzig (see 6-4). It is quite possible that *tief-Cammerton* (since it was sometimes called *Operathon*) was also used at the Opera in Leipzig.

Leipzig is survived by only a few woodwinds, which represent A-2 (average 391), A-1½ (405), and A-1 (413).