MODI ANTICHI
MUSICHE NUOVE

A COLLECTION OF COMPOSITIONS
IN TEN MUSICAL GENERA
OF THE THIRD DEGREE

BY

MART. J. LURSEN

1947
DE ERVEN F. BOHN N.V. / HAARLEM

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EEN VERZAMELING COMPOSITIES
IN DE TIEN TOONGESLACHTEN
VAN DEN DERDEN GRAAD

DOOR

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These ten musical genera consist of perfect fifths, perfect major thirds and perfect harmonic sevenths.

The use of one or more of these sound ratio relations as a basis for a genus is not new. PYTHAGORAS worked on the perfect fifth, ZARLINO on the perfect fifth and the perfect major third; and scientists as well as musicians, including HUYGENS, EULER and TARTINI, advocated the use of the harmonic seventh.

What is new in the genera which gave rise to this essay is the limitation to a threefold application of these intervals, perfect fifths, perfect major thirds and perfect harmonic sevenths being used in any possible combination. The composer of the following pieces feels, however, that the use of these genera would in fact mean a return to the old 'modes'. It was for this reason that he chose '*Modi Antichi, Musiche Nuove*' as his motto.

In the detailed explanation of the different genera, suggestions for instrumentation will be found. It was specified in the rules governing the competition, that the pieces should be playable on the special organ in Teylers Stichting at Haarlem. This organ, however, has such a monochromatic timbre and is so incapable of any nuance that the author found it impossible to write twenty or more pieces solely for that instrument. He has therefore taken the liberty of interpreting the above mentioned requirement in the sense that the range and tone relation of the pieces would make their examination on the organ possible, yet that they might have been conceived for other instruments '*ad libitum*'.

It goes without saying that where wind, plucked or percussion instruments are referred to, these should necessarily be of such construction that the pieces can be produced in conformity with their peculiar interval relations.

In the detailed explanations to each genus one will find:

a. The physical formula of each individual genus[1],
b. Its tone lattice[2],
c. The compass of the organ in relation to the genus selected,
d. The physical tonic,
e. The 'guiding tone',
f. The musical tonic as chosen by the author,
g. The scales built up from these three centres (*d*, *e* and *f*).

The tone lattice as well as one of the three scales show the frequency ratio of the intervals.

The melodic and harmonic inversions applied in many of the pieces can be checked with the scales from the tonic and the guiding tone. For that reason these two scales have been printed one below the other.

(1) 2^n signifies the possibilities of changing the tones into other octaves. The number 3 indicates the perfect fifth, the number 5 the perfect major third and 7 stands for the perfect harmonic seventh. (These numbers of course indicate the place these intervals take in the series of overtones.)
(2) It should be noticed that the genera I, IV end X are one-dimensional, that the genus VI is three-dimensional, and that the other genera have a two-dimensional tone lattice.

The genera have been numbered in the order prescribed by the rules of the competition.

Lastly, the author wishes to point out that he has regarded the seventh harmonic as a consonant interval, which indeed it really is.

* * *

DETAILED EXPLANATION TO THE PIECES

GENUS PRIMUM.

Physical formula: $[2^n \cdot 3^3]$

Tone lattice:

F — C — G — D
8 12 18 27

Compass of the organ: f — d″ (inclusive)

Physical tonic: f
Scale (ascending): f — g — c — d — f
Physical guiding tone: d
Scale (descending): d — c — g — f — d

Musical centre: c

Scale:

8 : 9			8 : 9		3 : 4	
C	—	D	—	F	—	G	—	C
24		27		32		36		48

No. 1. *Intrada.*

A festive ouverture for *three trumpets* and *three bells*. The author has made full use (harmonically as well as melodically) of the perfect fourth, or, more accurately spoken, the inversion of the perfect fifth, this being the characteristic interval in this genus. The perfect fifth itself was repeatedly used and also the second and minor third intervals (with their inversions) which are obtained by piling fifths one upon another.

No. 2. *Gavotte et Musette.*

Instrumentation: *harpsichord* or *piano*.

The tonic of the gavotte is c. The musette is in f. The author realises that the tone d in the musette has a slightly sharper pitch than the sixth from f in the ordinary diatonic major scale. In this piece, as in the previous composition, the intervals are used melodically as well as harmonically.

* * *

GENUS SECUNDUM.

Physical formula: $[2^n \cdot 3^2 \cdot 5]$

Tone lattice:

20 A — 30 E — 45 B
⋮ ⋮ ⋮
16 F — 24 C — 36 G

Compass of the organ: e′ — c‴ (inclusive)

Physical tonic: f
Scale (ascending): f — g — a — b — c — e — f
Physical guiding tone: b
Scale (descending): b — a — g — f — e — c — b

Musical centre: c

Scale:

4 : 5		15 : 16		8 : 9		9 : 10		8 : 9		15 : 16	
C	—	E	—	F	—	G	—	A	—	B	—	C
24		30		32		36		40		45		48

No. 3. *Bi-modal, perpetual, inverted canon.*

Instrumentation: *organ, piano* or *two wind* or *two string instruments.*

The higher voice has the physical tonic f as a central tone, and moves therefore in the *Lydian mode*. The imitating lower voice inverts that same melody, starting from the physical guiding tone b, and is thus written in the (descending) *Locrician mode*[1].

The bi-modal ending on b and f, creates a discord. As an alternative, a consonant ending has been added, resulting in the two voices making a Lydian cadence.

The use of the melodic and harmonic intervals in this 'classic' genus needs no further comment.

No. 4. *Sarabande.*

Instrumentation: *harpsichord* or *pianoforte* (alternatively *small string orchestra*).

Like the first genus, this 'classic' second genus induced the author to write an old dance in 17th—18th century style.

The central musical tone c was chosen as tonic. The absence of d (as second) involved limitations to the melody formation as well as to the harmonisation (d being the fifth of the dominant!).

A still greater difficulty proved to be the absence of the low tonic c (see compass of organ!) The piece was written in three parts at first. A version in four parts was added afterwards. 'Agréments' were added in the customary 17th—18th century fashion.

* * *

GENUS TERTIUM.

Physical formula: $[2^n \cdot 3 \cdot 5^2]$

Tone lattice:

50 E — 75 B
⋮ ⋮
40 C — 60 G
⋮ ⋮
32 A♭ — 48 E♭

(1) Should e be interpreted as the tonic, then the counterpointing voice should be regarded as moving in the Phrygian Mode.

Compass of the organ: b — a♭″ (inclusive)

Physical tonic: a♭
Scale (ascending): a♭—b —c—e♭—e —g—a♭
Physical guiding tone: b
Scale (descending): b —a♭—g—e —e♭—c—b

Musical centre: c

Scale: C (40) — E♭ (48) — E (50) — G (60) — A♭ (64) — B (75) — C (80)

5 : 6 | 5 : 6 | 64 : 75

24 : 25 | 15 : 16 | 15 : 16

4 : 5 | 25 : 32 | 4 : 5

The tone lattice and the scales show immediately the peculiar construction of this genus. It is built up quasi symmetrically of 1½ — ½ — 1½ — ½ — 1½ — ½ tone distances. Yet neither the steps of 1½ tones nor the ½-tone steps are mutually alike. Furthermore the genus wavers between major and minor (e and e♭) and hence shows a dual tonic triad (c—e♭/e—g.) This triad is enclosed by two classic minor seconds (b—c and a♭—g, minor seconds in the ratio of 15 : 16). The author made use of that circumstance in the conception of the basic *motif* for No. 5, Preludio.

No. 5. *Preludio.*

Instrumentation: Because of the continuous 'voice crossing' polyphony in this piece and the fugue that follows it, it is necessary to choose three instruments of different timbre, such as: *oboe, clarinet in a* and *English horn*, alternatively: *oboe, clarinet in a* and *French horn.*

In the first phrase of six bars the basic *motif* is developed both normally and in inversion. A short intermediate phrase (of 2 bars) follows, showing particles of same *motif.* Then the lower voice enters with a variation of the basic *motif*, which already shows up the profile of the fugue theme. The dual (major-minor) character of the genus is now even more obvious than before. Fragments of the 'germ' are woven round this *motif.* From the eleventh bar onward, the 'major-minor' triad appears plainly in all three parts, the combined voices reaching a climax in the chordbreaking e—g—b—g—e—a♭—b, which seems a caricature of the dual idea. The last four bars show again a development of fragments of the principal *motif*, while in the last two bars the fugue theme (now in mature shape) is being stated by the treble part in an 'ochetus' technique. In the meantime the lowest part, rhythmically rocking on the notes b and c, prepares for the entrance of the fugue.

No. 6. *Thirds fugue a tre voci* (con alcune licenze).

As revealed in No. 5, the symmetrical construction of this genus offers the unsought-for chance to repeat a theme in quasi similar tone distances on different steps. In contrast with the execution in the equal temperament, such a theme now shows a surprisingly changed colour when

repeated. This is caused by the minute differences in tone vibrations between the corresponding intervals. As the possibility of such an effect was only present with thirds-transpositions of the theme, the composer was obliged to write a thirds-fugue instead of a more usual fifths-fugue. That is why the answer of the third voice did not come in analogy to the first one, but again a third higher than the second voice. In this way an exposition of the *dux* was involved, followed by the *two comites;* hence — con alcune licenze!

By listening carefully to the theme as given by the three parts, we notice that the first one gives the pure 'major-minor' triad, in pure major and minor thirds, which are enclosed by two 'classic' minor seconds (seconds in the ratio of 15 : 16); the second part (notice a♭ instead of g♯) has a distorted major third, underneath which we observe a chromatic semitone in the ratio of 24 : 25, yet above which lies another diatonic semitone in the ratio of 15 : 16. The third (treble) part, though having a perfect major third to its credit, has a caricature-like minor third (a♭—b). This voice gives, besides a classic minor second (15 : 16) underneath the triad, a semitone in the ratio of 24 : 25 above it.

Fragments of the theme in normal and inverted form make counterpoint in the exposition. Also the first divertimento (from the 6th to the 8th bar inclusive) shows particles of the theme (including both the enclosing semitone distances).

The *second exposition* begins with the inversion of the theme in the third part (the first two tones of which have been transposed to the lower octave for the sake of consonance and clarity). The treble part then answers in stretto, inverted and augmented, after which the middle part enters, again in stretto with the inverted version of the theme and beginning with c. During this last stretto the lowest part too gives the augmented inversion, while the highest part enters with the normal rhythmical inverted version against this augmentation, and the second part in the meantime exposes the normal form of the dux (both commencing tones transposed to the higher octave). The second divertimento (15th and 16th bars) shows 'delicatamente' both kernels of the theme (semitones, major and minor thirds).

The *third* and *last exposition* starts with the dux in normal form in the lowest part, followed by the highest part with one of the comites (in the narrowest possible stretto); then comes a three-part stretto, started by the middle part with the normal dux, instantly succeeded by the highest part in augmentation and the lowest part with the theme in exact cancrican. Against the tail of the augmentation of the highest part, we see again the second part with the inverted form starting from c, after which the *coda* enters. In this coda the two higher parts give the theme twice against the augmented version of the lowest parts; the first time in thirds normally, the second time with the treble part in inversion and with the second part normal. It is then (with e and e♭ sounding simultaneously) that the 'major-minor conflict' reaches its crisis.

* * *

GENUS QUARTUM.

Physical formula: $[2^n \cdot 5^3]$

Tone lattice: $\frac{C}{64}$ — $\frac{E}{80}$ — $\frac{G\sharp}{100}$ — $\frac{B\sharp}{125}$

Compass of the organ: g♯ — e″ (inclusive)

Physical tonic: c
Scale (ascending): c — e — g♯ — b♯ — c
Physical guiding tone: b♯
Scale (descending): b♯ — g♯ — e — c — b♯

Musical centre: e

Scale: $\frac{E}{80}$ — 4 : 5 — $\frac{G\sharp}{100}$ — 4 : 5 — $\frac{B\sharp}{125}$ — $\frac{C}{128}$ — 4 : 5 — $\frac{E}{160}$

The genus offers few possibilities for melodic development. Its possibilities are limited to chord figuration. The small difference between b♯ and c (ratio 125 : 128) can lead to surprisingly enharmonic 'short circuiting'. Both possibilities were exploited in:

No. 7. *Alarm fanfare*, and in

No. 8. *Toccata*.

The *alarm fanfare* is meant to be played by a *group* of *signal trumpets* (with valves). The *toccata* should sound well on a *piano*.

Both pieces have the musical tonic e as a centre. The second phrase of the toccata, howeve, is based on the physical tonic c. A modulation from this physical tonic c back to the musical tonic e takes place in the third phrase.

* * *

GENUS QUINTUM.

Physical formula: $[2^n \cdot 3^2 \cdot 7]$

Tone lattice: 28 B♭⁻ — 42 F⁻ — 63 C⁻
16 C — 24 G — 36 D

Compass of the organ: g — f⁻″ (inclusive)

Physical tonic: c
Scale (ascending): c — d — f⁻ — g — b♭⁻ — c⁻ — c
Physical guiding tone: c⁻
Scale (descending): c⁻ — b♭⁻ — g — f⁻ — d — c — c⁻

Musical centre: g

Scale: 7 : 8; 6 : 7, 8 : 9, 8 : 9, 6 : 7, 7 : 8; 7 : 8

$\frac{G}{48}$ — $\frac{B\flat^-}{56}$ — $\frac{C^-}{63}$ — $\frac{C}{64}$ — $\frac{D}{72}$ — $\frac{F^-}{84}$ — $\frac{G}{96}$

The genus possesses two kinds of seconds, namely:
Two normal major seconds (of the 8 : 9 type): c—d and b♭⁻—c⁻, and three superseconds (ratio 7 : 8 type): b♭⁻—c; c⁻—d; f⁻—g.

Furthermore one notices:
Two small 1½-tone distances (in the ratio of 6 : 7) namely: g—b♭⁻; and d—f⁻; four perfect fifths with their inversions, the perfect fourths g—d; c—g; b♭⁻—f⁻; f⁻—c⁻.

In addition, there are the discordant fifths (and fourths) c⁻—g, (g—c⁻) and f⁻—c, (c—f⁻); and the very small tone distance between c⁻—c (ratio 63—64).

The triad g—b♭⁻—d and its inversion f⁻—d—b♭⁻ appear to be surprisingly harmonious (the vibration ratios are 6 : 7 : 9, and 14 : 18 : 21 respectively, otherwise expressed $\frac{1}{6} : \frac{1}{7} : \frac{1}{9}$); the same applies to the chords of the seventh (g—(b♭⁻)—d—f⁻; d—f⁻—c; c—g—b♭⁻) with their inversions.

The composer made use of these peculiar intervals and chord-breakings in:

No. 9. *Perpetual Inverted Canon*.

The commencing part springs from the musical centre g; the inverting and imitating one from its 'antipode' f⁻.

No. 10. *Inventionetta*.

This is a simple piece with the rhythmical motive ♪ ♩♩ | ♩, in which we meet the same intervals and chord-breakings that were used in No. 9, this time, however, utilized not only melodically but also harmonically.

In both Nos 9 and 10 the notes c⁻ and c are sounded simultaneously. The small difference in frequency causes beats. This effect can be compared with the vibrato of the vox celestis and unda maris organ stops.

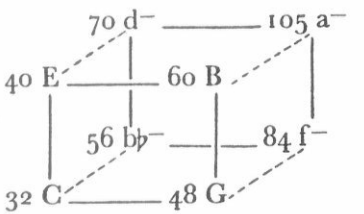
Both pieces can be produced quite satisfactorily on the organ of Teylers Stichting. The Inventionetta would also go very well on a *piano*.

* * *

GENUS SEXTUM.

Physical formula: $[2^n \cdot 3 \cdot 5 \cdot 7]$

Tone lattice:



Compass of the organ: a⁻—c″ (inclusive)

Physical tonic: c
Scale (ascending): c —d⁻—e —f⁻—g—a⁻—b♭⁻—b⁻ — c
Physical guiding tone: a⁻
Scale (descending): a⁻—g — f⁻—e —d⁻—c — b — b♭⁻—a⁻

Musical centre: c
Scale:

32 : 35	7 : 8	20 : 21	7 : 8	32 : 35	15 : 16	14 : 15	15:16
C —	D⁻ —	E —	F⁻ —	G —	A⁻ —	B♭⁻ —	B — C
64	70	80	84	96	105	112	120 128

This genus is the only one out of the ten that has 8 tones within its octave. Consequently it offers more melodic possibilities than the other genera. Because of the small compass of the organ, however, it presents more difficulties in matters of harmony and counterpoint. There are surprising possibilities, however, as regards melodic inversions. One can commence for instance on either of the opposite 'corner tones' of the lattice (namely c and a⁻).

No. 11. *Three experiments in Melodic inversion.*

The first two pieces both show simple melodies in the folksong style. They really are a chain of phrases of three times four bars. Each time, the voices are being inverted in the second group of four bars; in the last group inversion takes place every two bars.

In the last piece too (11 c), melody inversion is applied, the rhythm being considerably changed in the process. This rhythmical variation makes the aural recognition of the theme almost impossible, though in the bars 5 to 8 (in both parts) and in the bars 9 to 12 (in the higher part), a strict repetition of intervals in the opposite direction can be observed. In the last four bars, the lower part (without inversion this time) imitates the higher part.

No. 12. *Hommage à deux grands Compositeurs.*

In this composition too, plenty of melody inversions are available. One finds them in the figurations of the first, second and the first half of the third bar, and again from the second half of the fourth bar to the first half of the seventh bar (inclusive). The *motif* then appears in the top part which springs from the arabesques of the previous bar, again inverted in the ninth bar where metrical alteration takes place to the first beat of every bar. The counterpoint in the lower part also provides inversions, and from the 4th beat of the tenth bar to the twelfth bar, the top and lower parts reflect each other.

The '*germ motif*' for this piece consists of the four tones B.A.C.H., as the listener will observe. Anyone who knows the pieces 'Le vent dans la plaine' and 'Feux d'artifice' will soon be reminded of those.

No. 12 is undoubtedly suitable for playing on the *piano*. No. 11 a, b and c can also be performed on that instrument, though their 'voice crossing' passages could be coped with more easily by *two string* or *wind instruments* (e.g. violins, oboes or clarinets).

* * *

Physical formula: $[2^n \cdot 5^2 \cdot 7]$

Tone lattice:

112G♭⁻	— 140B♭⁻	— 175D⁻
64A♭	— 80C	— 100E

Compass of the organ: g♭⁻ — e″ (inclusive)

Physical tonic: a♭
Scale (ascending): a♭— b♭⁻—c —d⁻— e —g♭⁻—a♭
Physical guiding tone: d⁻
Scale (descending): d⁻—c — b♭⁻—a♭ —g♭⁻—e — d⁻

Musical centre: c
Scale:

32 : 35	7 : 8	25 : 28	7 : 8	32 : 35	7 : 8
C —	D⁻ —	E —	G♭⁻ —	A♭ —	B♭⁻ — C — [d⁻]
160	175	200	224	256	280 320

4 : 5 4 : 5 4 : 5 4 : 5

This is a genus with a quasi whole-tone sequence. The qualification 'quasi' is deserved, because if one looks at the relations of the tone frequencies as shown above the scale from the musical centre, one will see that there are three different kinds of whole tones to be found; namely the 7 : 8 type, the 25 : 28 type, and the 32 : 35. Thanks to these differences, this genus offers great possibilities to rich melody formation along adjacent degrees of the scale.

No. 13. *Adagio espressivo.*

The perfect major third in downward direction was chosen as a '*kernel motif*' ('*germ*' *motif*, if preferred), the first tone of which (c) is harmonically accompanied by another perfect major third (c—e), while the second tone a♭, which is the inversion of the perfect major third was given the help of the perfect minor sixth (c) and the inversion of the perfect harmonic seventh (a♭—g♭⁻). Therefore all the peculiarities of this genus are exposed in this kernel motif itself. The downward third (c—a♭) is developed in the second and third bar, after which the germ motif repeats itself in the tones of the perfect major third (d⁻—b♭⁻). These too develop rhythmically and melodically, and in the 6th bar the fourth perfect major third in this genus appears on the scene (in ascending direction g♭⁻—b♭⁻). With that development the first phrase comes to an end.

This same descending third again forms the foundation for the second phrase, being counterpointed and imitated by another third c—e. The quasi major third (d⁻—g♭⁻, a discord) now increases gradually the tension, which reaches its climax in the 9th and 10th bars, b♭⁻—e, where a jump occurs in the melody. The tension relaxes in the eleventh bar, through the return of the perfect third in the accompaniment;

in the 12th bar the first melody (a variation of it, actually) reappears. A short coda of 3 bars, again based on the repleted germ-motif c—a♭, accompanied by quasi major thirds and one perfect major third g♭⁻—b♭⁻ brings the piece to its conclusion.

The final chord gives the seventh harmonic as a consonant interval.

The instrumentation of this composition could be: *solo violin*, accompanied by *two oboi d'amore*. If desired, it can be played on a *pianoforte* especially tuned for this genus.

No. 14. *Scherzo*.

Unlike the previous Adagio espressivo which had the musical centre c as tonic, this piece has the physical tonic a♭ as its base. In the first phrase it modulates to the tonic c. In the second phrase an immediate return to the tonic a♭ is made, and in the ninth bar of this phrase it is shown quite clearly how the antipode of a♭—c, which is b♭⁻—d⁻, plays the part of dominant.

Through the contraction of the two basic motifs of the piece, the third phrase becomes an abbreviated form of the first. The penultimate bar gives the quasi whole-tone scale over the whole compass of the organ. In the strong discord formed by the final chord, all the tones of the genus are piled on the tonic a♭.

In this piece too, the major thirds, so peculiar to this genus, were generously applied (in figurated form), and one finds inversions in several bars (5/6—9—10—20).

The scherzo is composed as a *pianoforte* piece.

* * *

GENUS OCTAVUM.

Physical formula: $[2^n \cdot 3 \cdot 7^2]$

Tone lattice:

98 G⁺ — 147 D⁺
56 B♭⁻ — 84 F⁻
32 C — 48 G

Compass of the organ: g⁺ — g″

Physical tonic: c
Scale (ascending): c — d⁺ — f⁻ — g — g⁺ — b♭⁻ — c
Physical guiding tone: d⁺
Scale (descending): d⁺ — c — b♭⁻ — g⁺ — g — f⁻ — d⁺

Musical centre: b♭⁻

Scale:

	7 : 8	128 : 147	7 : 8	7 : 8	48 : 49	7 : 8
B♭⁻ —	C —	D⁺ —	F⁻ —	G —	G⁺ —	B♭⁻
112	128	147	168	192	196	224

One would be justified to write a♭♭ and e♭♭ instead of g⁺ and d⁺ respectively.

This genus is characterised by supermajor seconds with a vibration ratio of 7 : 8. One finds this interval at four of the six steps of the scale, and moreover there is the distance c—d⁺ (128 : 147) which is a very similar interval (it is a very little larger). Only between g and g⁺ does a smaller distance exist (a very small one indeed in the ratio of 48 : 49).

The second peculiarity of this genus is the division of the perfect fifth into three, instead of four, intervals, each of one supersecond.

No. 15. *Elegie*.

Here this striking quality is manifested in the ascending and descending fifths in the accompaniment. Fifths are constantly alternated with the inversion of the pure seventh harmonic. The genus is therefore immediately revealed in these ostinato accompaniment figures. The melody is made by supermajor seconds (7 : 8 ratio) which run widely spaced right through the scale.

In the second phrase (poco agitato), the accompaniment is figurated with these supermajor seconds. The penultimate bar of this phrase makes use of the beats, which are brought about by the sounding of g and g⁺ simultaneously.

The third sentence is a figurated repetition of the first.

Instrumentation: *solo flute* (or *oboe*) with accompaniment of 2 *viole da gamba*.

No. 16. *Passacaglia*.

The ostinato bass makes use of two supermajor whole tones of the 7 : 8 type. Also the counterpointing theme which encounters the bass figure in the fifth and following bars uses these intervals (during the course of three bars, and in figurated form in the last of these three). The fourth bar shows the descending interval b♭⁻—g with the vibration ratio of 7 : 6. This theme is varied no less than four times, after which the ostinato bass theme appears in the soprano, accompanied by those intervals which are so characteristic of this genus: the seventh harmonic (and its inversion) and the perfect fifth. In ever increasing tone volume, the harmonic bass theme is accompanied at first with chords piled on top of it, and afterwards, more massively and even in rhythmical stride, with the theme underneath it. The bass theme, modified rhythmically, appears once more against the final long-sustained tone c. The final chord brings complete relaxation with the perfect fifth c—g. The piece is written for organ with stops.

The physical fundamental tone was chosen as the musical tonic in Nos. 15 and 16.

* * *

Physical formula: $[2^n \cdot 5 \cdot 7^2]$

Tone lattice:

196 G+ — 245 B+
112 B♭− — 140 D−
64 C — 80 E

Compass of the organ: g+—e″ (inclusive)

Physical tonic: c
Scale (ascending): c — d− — e — g+ — b♭− — b+ — c
Physical guiding tone: b+
Scale (descending): b+ — b♭− — g+ — e — d− — c — b+

Musical centre: b♭−

Scale:

4 : 5

4 : 5 5 : 7 4 : 5

B♭− — B+ — C — D− — E — G+ — B♭− — (B+)
224 245 256 280 320 392 448

7 : 8 7 : 8 7 : 8

7 : 8 5 : 7

Here too one should prefer to write a♭♭ and c♭ in stead of g+ and b+.

This genus has a capricious tone sequense, in which e.g. the perfect fifth is lacking. The most interesting intervals are the pure major thirds and the pure harmonic sevenths which are actually the main elements of the genus. Attention is also drawn to the small tone distances around the physical tonic and the guiding tone (b+ and d−, c and b♭−). The alternation of the tones b♭− and b+ produces curious effects. The genus lends itself readily to inversions, as is shown in No. 17.

No. 17. *Andante pastorale.*

An amorous duet for *two oboi d'amore.*

The first phrase develops a motif formed out of the pure major third and the pure harmonic seventh (from the physical tonic). In the second bar, one finds the peculiarly small tone distances surrounding this tonic. The third, fourth and fifth bars bring figurations of the major third c—e in descending and ascending direction, and also the seventh harmonic of the tonic c. The sixth bar in a rocking movement of chord-breakings leads up to the climax of the tension. The melody lands with a few big leaps on g+, the seventh harmonic of the musical tonic. This g+ acts as dominant; on the sixth beat of the last bar of the first phrase the first motif re-enters. The melody is repeated in a very freely varied form, though this time the second part answers with the same motifs perfectly inverted from the physical guiding tone; the rhythm

is now rather more agitated. The tension increases gradually until, after a short fermate, it recedes in chord-breakings.

In the coda one will find canonic inversions of both basic motifs, the treble part again starting from the physical tonic, the lower part commencing on the physical guiding tone. The finish comes with both harmonic sevenths of these tones (the higher part giving the ascending harmonic seventh, the lower one the descending harmonic seventh). Together they form the concord d−—b♭− (a perfect minor sixth).

No. 18. *Polichinelle.*

A burlesque piece for 2 *clarinets.*

The structure and build-up of the motif is very simple. The high part immediately introduces the three pure major thirds of this genus. The low part adds a figuration from the seventh harmonic of c. The whole piece is constructed on these two 'kernel' ideas. It has the musical guiding tone b♭− as its central tone.

No. 19. *Chorale.*

This short piece, which is intended to demonstrate the harmonic possibilities of this genus, can without any difficulty be played on the *Organ* in Teylers Stichting. The seventh harmonic is, of course, again treated as a concord. The moments of greatest tension arise at the chord on the third beat of the ninth bar, the chord in the 12th bar, and the chords on the first beats of the 14th and 15th bars. Looking at the tone lattice one will notice that these chords are not found there in either horizontal (·——·) position, or in the perpendicular one (¦), neither are they to be found in triangle formation, ⌐; ⌊; ¬; ⌋ as was the case for the tones in all the other chords.

Of the chords consisting of notes which follow each other in the tone lattice (either horizontally or perpendicularly), those which have the tone at the bottom ¦ (alternatively at the left *—·) as a lowest centre, harmonize best. *

Of the chords having tones which are lying in a triangle, it is the one that has its corner point at the left hand bottom side ¦ *—· that gives the best concord. In all these chords one is dealing with a certain fundamental tone and its higher harmonics.

Still referring to chords of the triangle formation it can be observed that chords which have their centre in the right top corner ·—* ¦ also possess a high degree of consonancy too.

A fairly high degree of consonancy is produced by chords the tones of which are found in a perpendicular line whenever the high centre of the chord lies at the top of that line *¦; also by chords formed from a horizontal row if the high centre tone lies at the right hand side of that line ·—*. In the last three cases there is a guiding tone with lower sub-harmonics.

In the other cases when we have a chord formed by a perpendicular line in the lattice with its central tone in the middle and in the

case of a triangle with its central tone either at the left top corner or at the right bottom corner the discord is much greater. These are the chords with centres which have the function of fundamental base tone and guiding tone at the same time.

When one of the tones is displaced over an octave, the tension of the chord is changed.

* * *

GENUS DECIMUM.

Physical formula: $[2^n \cdot 7^3]$

Tone lattice: $\frac{C}{64}$ — $\frac{B\flat^-}{112}$ — $\frac{G^+}{196}$ — $\frac{F}{343}$

Compass of the organ: f—c''' (inclusive)

Physical tonic: c
Scale (ascending): c — f — g+ — b♭− — c
Physical guiding tone: f
Scale (descending): f — c — b♭− — g+ — f

Musical centre: b♭−

Scale: $\overbrace{\frac{B^-}{224} - \frac{C}{256}}^{7:8} - \overbrace{\frac{F}{343} - \frac{G^+}{392} - \frac{B\flat^-}{448}}^{7:8 \;\; 7:8}$

Here again one ought to write a♭♭ in stead of g+ and even g♭♭− in stead of f.

The so called f is a little higher than the perfect fourth from c. The ratio of these two f's is 1024 : 1029.

This genus lacks all affinity with our well-known 'classic' diatonic scales. It has neither perfect fifths nor perfect fourths; it has no perfect major or minor third or sixth, and also the normal second is absent. All the same the genus has a bright and cheerful character, and it runs in four big steps (three of which are the known supermajor whole tones (7 : 8)), right through the octave.

Evidence of this brightness and cheerfulness is given by pieces Nos. 20 and 21. The supersecond is used quite frequently, and also the other intervals, the quasi fifths and fourths, play their part.

No. 20. *Exotic dance.*

This piece could be played on an oboe (perhaps the Eastern flute '*suling*') and *xylophone* (alternatively the Eastern percussion instrument the '*gambang*').

No. 21. *Rondino* ('*Wachterliedje*'). This is really an *orchestral piece*, but can be played on a *piano*.

The form of the Rondino is A—B—A'—C—B'—A''. The part B develops its accompanying motif from the main motif of A. The main motif of the phrase C too is derived from the previous part A'.

For small orchestra the following instruments should be employed:

A. High brass wind instruments (trumpets).
B. Strings.
C. Woodwinds.

On the last return of A, the brass should be supported by the other instruments of the ensemble.

In case the piece should be rendered by small orchestra, a proper arrangement would have to be made in which the polyphony is worked out in greater detail, and the compass of the parts should be enlarged.

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