

PER NØRGÅRD'S "CANON"

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Two preliminary facts must be stated to establish the relevance of what follows. And that which follows concerns a landmark in contemporary musical composition and publishing.

Per Nørgård is one of Denmark's leading composers. The Wilhelm Hansen Musik Forlag is one of Europe's most prestigious music publishers. These two forces have produced a musical composition that might well mark the beginning of a new era of music writing.

The composition under consideration for the moment is Per Nørgård's CANON for organ. It is based entirely and to the minutest detail on the Fibonacci numbers. These proportions are carried out with such precision that the composer found it necessary to invent a new system of notation. Conventional notation could not express the fluid rhythms generated by the Golden Mean. It is mainly this aspect of the composition that is being discussed herewith.

Actually CANON is not a canon in the usual sense of the term. Rather, it signifies music written according to "law." It is a series of truncated multiple augmentation canons in three-part texture. These fall into seven sections comprising 62 "stages," eight in each of the first six sections and fourteen in the last. Some of the "stages" are subdivided into smaller units in order to exploit further the proportions therein in varying time dimensions. The simple 1 : 1 and 1 : 2 time relationships occupy the two ends of the 25-minute composition with the higher ratios spiralling inward palindromically to 8 : 13 : 8 to form the peak of rhythmic complexity at the middle. The complete rhythmic scheme as it operates within the composition's seven principal sections has been tabulated by the composer as follows:

1 : 1 : 1 : 1 : 1 : 1 : 1 : 1 in I,
1 : 2 / 2 : 1 / 1 : 2 / 2 : 1 in II,
2 : 3 : 5 : 3 / 3 : 5 : 3 : 2 in III,
3 : 5 : 8 : 5 : 8 : 13 : 8 : 5 in IV,
3 : 3 / 5 : 5 / 8 : 8 / 5 : 5 in V,
3 : 3 : 3 : 3 / 5 : 5 : 5 : 5 in VI, and
3 : 3 : 3 : 3 : 3 : 3 : 3 : 3
(3 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1 : 1) in VII.

All of the above relationships indicate note values. For instance, 1 : 1 means notes of equal value, while 1 : 2 could mean a quarter-note followed by a half-note, and so on. As the augmentation ratios become higher, such as 5 : 8 and 8 : 13, it is at once obvious that the notation becomes cumbersome.

The notational problem encountered by Nørgård was to express accurately his augmentation proportions. In conventional notation absolute accuracy is not possible since this is fundamentally a duple system in which a whole-note is progressively divided into *two* half-notes, *four* quarter-notes, *eight* eighth-notes, *sixteen* sixteenth-notes, and so on. In terms of Fibonacci numbers it is possible. But, the composer required precision of 1 : 1.618 refinement. And this is absolutely impossible in conventional notation. So in order to express his intentions he invented a new kind of spatial notation wherein one cm. represents one second. In other words, the distance that comes *between* notes visually on the printed page is as important as the notes themselves. This presents a totally new and probably unwelcome problem for music engravers. In the case of the Wilhelm Hansen edition the new notation was not engraved, but merely a reproduction of the manuscript. The latter, however, is beautiful.

The following quotations show in both notations stage 2 of Section III, in which the 1 : 2, 2 : 1 proportions operate simultaneously in three dimensions.

The image contains two musical excerpts. The first excerpt consists of three staves. The top staff is marked with a circled '2' and '8va' and contains a few notes with a flat. Below it are two staves with a continuous melodic line. The first two staves are labeled 'legato sempre' and the third is labeled 'leg. sempre'. The second excerpt also consists of three staves. The top staff is marked with a circled '2' and 'gra' and contains a few notes with a flat. Below it are two staves with a continuous melodic line. The first two staves are labeled '2 gra' and the third is labeled 'leg. sempre'.

The ingeniously contrived excerpt quoted above consists of an Augmentation Canon in *exact* Contrary Motion in the two lower parts, calculated in the theoretical key of E-flat major, while the uppermost part imitates the middle part at the octave above in quadruple augmentation and the bass part in double augmentation and in *exact* contrary motion. That is to say, the three strands of the contrapuntal fabric comprises three canons: bass + alto, bass + soprano, and alto + soprano. This is likewise true of the entire composition.

The complete proportion scheme of the three parts in relation to each other has been tabulated by the composer as shown on the following page.

Per Nørgård, in composing his CANON, and the Wilhelm Hansen Musik Forlag, in publishing it, have done something of far greater significance in the development of music than either of them may be presently aware. First, conventional notation has for a long time become increasingly inadequate to express accurately the musical thought of the contemporary composer. Experimentation is going on continuously in many quarters, but without much public notice. But, Nørgård's CANON is the first instance of a major music publisher investing heavily in a large serious work scored in a completely new notation that is likely to baffle the traditionally trained performer. It is to be hoped that still other publishers will become as venturesome. Would that the music industry in the United States would catch at least partially the pioneering spirit currently extant in Copenhagen!

