

## Abstract

**Title:** "A Passable and Good Temperament" – A New Methodology for Studying Tuning and Temperament in Organ Music.

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**Keywords:** tuning and temperament, sampling, MIDI, interpretation, mean-tone, well-tempered, equal temperament, Johann Sebastian Bach, Michael Praetorius, Wolfgang Caspar Printz,, Andreas Werckmeister, Johann Philipp Bendeler, Johann Georg Neidhardt, Johann Gottfried Walther, Johann Mattheson, Jakob Adlung, Lorenz Christoph Mizler, Carl Philipp Emanuel Bach, Johann Friedrich Besser, Joachim Richborn, Christoph Contius, Gottfried Silbermann, Heinrich Gottfried Trost, Zacharias Hildebrandt, O Lamm Gottes, unschuldig (BWV 656), Canzona (BWV 588), Prelude in B Minor (BWV 544), Toccata in F Major (BWV 540), Prelude in Eb Major (BWV 552), Fantasia in G Minor (BWV 542).

Playing Johann Sebastian Bach's organ chorale *O Lamm Gottes, unschuldig* (BWV 656) on an organ tuned according to a historic temperament raises questions about the role of temperament in organ music. From the interpreters point of view it would be desirable to be able to compare different temperaments effect on the music, and based on that draw conclusions about the temperaments role in the interpretative process.

Since a historical instrument cannot be retuned, a new methodology, based on digital technology and MIDI was developed, to enable the comparison of several temperaments in a musical context. An investigation of relevant contemporary theoretical sources and information available about temperaments used in "Bach organs" form the basis for choosing relevant temperaments to compare. Out of twenty-six discussed temperaments, eight were selected: 1/4 syntonic comma mean-tone, Harald Vogel's reconstruction of Heinrich Scheidemann and Jacob Praetorius recommendation in Bremen 1641 (modified mean-tone); Georg Andreas Sorge's 1748 description of Gottfried Silbermann's temperament (1/6 Pythagorean comma mean-tone); Andreas Werckmeister's third temperament (1681/1691); Johann Georg Neidhardt "Für ein Dorf" (1732); Johann Georg Neidhardt "Für eine kleine Stadt" (1732); Johann Georg Neidhardt "Für eine grosse Stadt" (1732); Johann Georg Neidhardt "Für den Hof" (1724/1732, Equal temperament).

The organ in Abbenrode (close to Goslar, Germany), built by Christoph Contius in 1708, was recorded and sampled. A digital instrument was created, and sound examples of excerpts from *O Lamm Gottes, unschuldig* (BWV 656), Canzona (BWV 588), the Prelude in B Minor (BWV 544), the Toccata in F Major (BWV 540), the Prelude in E<sup>b</sup> Major (BWV 552), and the Fantasia in G Minor (BWV 542) in all temperaments were prepared and discussed.

Based on the discussion a style sheet for integrating the aspect of temperament in interpretation was proposed. 1) A thorough understanding of the construction of temperament, for example: How are the fifths tempered? Is there a wolf? Which intervals and keys have the best and poorest intonation respectively? 2) Observing the historical context of the music with regard to both written sources and instruments. For example, investigating what historical temperaments are described in the sources, and what historical temperaments were used in organs? 3) Analyzing the composition from the perspective of temperament. For example: Does the music exceed the tonal content of the temperament? Is any harmonic or melodic material affected by the temperament? 4) Making interpretative decisions with regard to articulation, phrasing, choice of tempo, registration, etc. Decisions made by the interpreter (organist) can mitigate or emphasize the effect of the temperament through articulation, phrasing, choice of tempo and registration.