

Schoenberg and the Radical Economies of *Harmonielehre*

By Murray Dineen

Abstract

This article examines Schoenberg's *Harmonielehre* as a text shaped by the influence of Central European science and politics. In accord with a severely economical approach to his subject, Schoenberg's critique of figured bass and chorale harmonization is compared with Ernst Mach's writings on scientific method. In support of this comparison, the article addresses the role played in Schoenberg's political development by the Leftist editor and organizer, David J. Bach, one of Schoenberg's closest childhood friends and a student of Mach. The comparison between Schoenberg and Mach, then, is drawn not only in terms of scientific method but also in light of the radical politics of the Austrian Left at the time, a politics for which both Mach and Schoenberg held sympathies. It should not be overlooked that later, however, they ceased to acknowledge these sympathies explicitly, and Schoenberg would appear to have abandoned them entirely.

Keywords: Musicology, Harmonielehre, Arnold Schoenberg, Ernst Mach.

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The father's death in 1890 was a severe blow for the Schoenberg family, a blow manifest not only in frequent changes of residence in the following years, but also the gifted student Arnold was taken from school only a few days after the father's death and according to the wishes of the mother began a banking career. The change of school for the banking world alongside material need made the theories of Marxism especially clear to him.

Albrecht Dümling

Common wisdom holds Schoenberg's radical stance toward music to be artistic in genesis and made manifest principally in compositions from about the time of the *Book of the Hanging Gardens* and the Three Pieces for Piano, op. 11, to the twelve-tone works of the mid-1920s.¹ According to another, less familiar point of view, however, Schoenberg's stance was born in part from radical shifts in science and politics during the course of the preceding half century, shifts that had a palpable effect upon Central European thought in general, Viennese thought about art in particular.² Seldom has either account been related to *Harmonielehre* – the study of harmony – in general, or to the opening chapters of Schoenberg's *Harmonielehre* – his treatise on harmony³ – despite the fact that its first edition, dated 1911, was written shortly after op. 11, and the introduction to the heavily revised third edition is dated 1921, appearing thus as the twelve-tone conception was congealing.⁴

This article addresses the polemics of the opening chapters of the *Harmonielehre* as a product of developments in Central European science, politics, and music theory between the *Fin-de-siècle* and 1921. Schoenberg's treatise is a complex, at times contradictory work, and the polemics of the opening chapters are transformed in complex and often contradictory ways in later chapters.⁵ The opening chapters, however, set the tone of the whole work by confronting accepted theoretical practices and their attendant conception in an aggressive manner. In both form and substance, Schoenberg's treatise is a consistently radical, not merely revisionary *Harmonielehre*.

Restricting itself largely to the polemic introduction to the *Harmonielehre*, the article begins by examining Schoenberg's rethinking of the study of harmony (in particular his criticisms of figured bass, chorale harmonization, and so-called "talent," as these imply a Leftist perspective) and his severely economical approach to the creation of chordal progressions. The article addresses the background to this shift in conception toward economy. It notes a similar severely economical conception found in writings about scientific method by the physicist Ernst Mach. One of Schoenberg's closest childhood friends, the socialist David J. Bach, a student of Mach, might have conveyed to Schoenberg this aspect of Mach's thought – the notion of economy in method. Bach would have done so in light of the radical politics of the Austrian Left in the decades around the *Fin-de-siècle*, a politics

which both Mach and the youthful Schoenberg found appealing. The comparison of Mach and Schoenberg, then, is twofold, based upon a common sympathy for economies and upon David Bach, with whom, no doubt, Schoenberg discussed Mach.

Neither Schoenberg's nor Mach's commitment to Leftist politics was unequivocal, however. This article concludes by considering symptoms of an ambivalence toward both science and politics in Schoenberg's later essays.

Figured Bass, Chorale Harmonization, and the Economies of Chordal Progression

Schoenberg circumscribes his subject narrowly in the opening chapters of *Harmonielehre*. Elusive, irrational, and mystical aspects of harmony, indicated by terms such as *beauty* and *nature*, are best avoided, since they cannot be taught in a course of logical and thus rational instruction. Instruction in harmony should concern itself only with the study of chordal progressions as these are put to some effect [*Wirkung*] or goal, such as the expression of a key.

The remainder of the *Harmonielehre* attests to these economies by jettisoning the realization of figured basses and the harmonization of chorale melodies (although Schoenberg rehabilitates the latter in limited form in Chapter 16). Even the notion of motive, which Schoenberg called the “*motor* that drives this movement of the voices” is “absent,” beyond consideration, in his *Harmonielehre* (Schoenberg 1978: 34).⁶

Circumscribing his subject thus, Schoenberg lays the responsibility for the chordal progression entirely upon the student's logical abilities. The student is taught to build a progression by combining a small group of chords in simple but effective progressions. Only by creating the entire progression itself – bass, soprano, alto, and tenor voices – in a logical manner can the student take complete charge of the process. This is Schoenbergian *Harmonielehre*.

Schoenberg's immediate reasons for excising figured bass and chorale harmonization are pedagogic. Neither teaches harmonic composition – the creation of chordal progressions in and of themselves, devoid of any predeterminations. In both, the chordal progression is determined “by someone else,” as Schoenberg puts it (1978: 14). The student assigned a given melody or bass is required in effect to second guess the composer's vision or counterfeit a reasonable facsimile. This is not the “primary matter” of *Harmonielehre*, “but rather a secondary matter” (1978: 14).

Understanding the place of figured bass and chorale harmonization in *Harmonielehre*, we are in a better position to understand Schoenberg's radically economical approach. The substance of this argument for economy sharpens from the first typescript of the *Harmonielehre* (preserved in a manuscript container in the

Schoenberg Center referred to hereafter as TBK2) through the first edition to the third.⁷ In TBK2, Schoenberg draws a distinction between *Harmonielehre* and what he calls “artistic” voice leading. By the adjective “artistic,” Schoenberg denotes a voice leading that gives individual voices their own expressive effect. Given his focus on chordal progression, he prefers that the student subvert the individuality of voices to the overall effect of the harmonic progression. Whatever voice leading takes place in *Harmonielehre* should arise simply and necessarily out of the creation of the chordal progression and should not be treated as a distinct entity in its own right. Accordingly, he says in TBK2 that neither counterpoint (which regulates voice leading quite apart from chordal progression) nor melody (which regulates voice leading according to “artistic” concerns or concerns of form in the sense of *Formenlehre*) plays a role in determining voice leading. Following his Viennese antecedents, Simon Sechter and Anton Bruckner, Schoenberg instructs the student of the *Harmonielehre* to move the voices from one harmony to another according to the “law of the shortest way,” which stipulates that a given voice be sustained on a common tone between any two harmonies or move by the smallest interval possible, while avoiding forbidden parallel perfect intervals.⁸ “Artistic” voice leading, if it is allowed at all, is held to the minimum as simply not beneficial to the sense of the whole progression and its effect:

It is not the business of harmonic instruction to teach artistic voice leading either in the sense of counterpoint or melodically in the sense of *Formenlehre*. Instead voice leading in harmonic instruction ought to be seen as only such movement of the voices that enables the most effective and the simplest connection of chords and thereby avoids errors. (Schoenberg TBK 2: 2)⁹

A blunt condemnation follows shortly thereafter: “The method that introduces the student to figured bass is impractical, since what they learn above all is voice leading...” (Schoenberg TBK 2:2).¹⁰ This depreciatory tone is sustained in the 1911 edition of the *Harmonielehre*:

In this sense, all harmony books that introduce the student to figured bass for the purpose of the placement of voices are impractical. There the student learns only voice leading,...and that is not the affair of harmonic instruction. (Schoenberg 1911: 9)¹¹

Seen in light of this pointed excision of figured bass and chorale harmonization from harmonic instruction over two decades and two editions, Schoenberg’s approach becomes clear. The study of harmony is governed by a strict economy. To admit luxury would be to threaten chaos:

It will surely benefit us here, in the study of harmony, to derive the nature of chord connections strictly from the nature of the chords themselves, putting aside rhythmic, melodic, and other such considerations. For the complexity that would arise, if all possibilities of harmonic functions were compounded with all rhythmic and motivic possibilities, would surely overwhelm the teacher as well as the pupil. (Schoenberg 1978: 13)¹²

And chaos is not a vehicle for the pedagogy of harmony. Schoenberg will teach only the “craft” of harmony, as a carpenter might teach their trade. So Schoenberg concludes his first chapter with the famous phrase: “I would be proud if, to adapt a familiar saying, I could say: ‘I have *taken* from composition pupils a bad *aesthetics* and have *given* them in return a good *course in handicraft*” (Schoenberg 1978: 12)¹³

Egalitarian Harmonielehre

As Schoenberg enumerates the faults of current instructional practice, we catch a glimpse of Schoenbergian politics, of what can be called his *egalitarian* approach to the study of harmony. The glimpse is had briefly in Chapter 2, entitled “Teaching Harmony.” Schoenberg says that to expect the pupil to acquire automatically the skills necessary for creating good chord progressions merely by realizing figured bass or even by studying masterworks is indefensible folly. Nothing is being acquired here, but instead:

The teacher is relying on the talent of the pupil, by all means the best thing to do, especially wherever the teacher is not able to influence the pupil’s awareness deliberately, wherever he cannot apply explicit methods to produce explicit, predictable knowledge and abilities in the pupil. (Schoenberg 1978: 14)¹⁴

This, of course, is a cutting critique, delivered tongue in cheek: a really good teacher should be able to influence the pupil deliberately, with explicit methods, producing explicit and predictable abilities in the student. But bad teachers rely instead upon a student’s extant talents—their familiarity with appropriate idioms. (For example, in harmonizing a chorale, a “talented” student familiar with a standard hymnal might know to put chords II and IV before the dominant V, and to follow V by I or by VI, as in the deceptive cadence.) Under the auspices of bad teachers, “talented” students can get by:

Of course gifted pupils may be able to do it moderately well; for these are already equipped, through listening to music and remembering it, with a certain instinct for the right harmonic progression.... The less gifted or those gifted in other ways are helpless, since their training [when limited to figure bass and chorale harmonization] dealt merely with voice leading; and they never learn to design a piece of music whose harmonic construction succeeds by virtue of logical progressions. (Schoenberg 1978: 14)¹⁵

But talent succeeds only superficially. And where the teacher relies inordinately upon talent, the real task of *Harmonielehre*—the logical construction of chordal progressions—will be overlooked.

Harmony taught thus develops a talented but superficial *ersatz* skill at “melodising [das gewisse Melodisieren],” as Schoenberg calls it (1978: 21), and this becomes pedagogically problematic: mistaking formulaic realization for composition, students gain a false sense of security, which deserts them once faced

with a real compositional task such as the creation of an effective harmonic progression appropriate to an unprecedented situation.

A good harmony teacher treats talented – privileged – students and those lacking such talents as essentially alike. They cultivate all those attributes of the student – any student – that a bad teacher cannot. In this sense, *Harmonielehre* is egalitarian, drawing no distinction according to talent stemming from background and privilege.

There may be an autobiographical thread running through this argument. In recollections published elsewhere, Schoenberg notes that he and his friends heard little music apart from that which they made themselves, and although a work such as the early D-major String Quartet is redolent of Dvorak and Brahms, one wonders if Schoenberg had an initial experience with harmonic instruction (prior to his studies with Zemlinsky) that revealed inadequacies in his “talent” and background. Coming from disadvantaged circumstances in terms of economic and thus class structure (the death of his father having left his family in severe straits in a *fin-de-siècle* climate of inordinate wealth and luxury), Schoenberg would have been sensitive to the privileges of fortunate background. Here lie suggestions of socialist tendencies to which we shall turn shortly.¹⁶

In truth, the lack of such an encumbering background might well have enabled Schoenberg to make the radical innovations that branded his own compositions as revolutionary. By setting talent to one side in the *Harmonielehre*, Schoenberg established a framework for radical harmonic innovation in his students, among them Berg, whose private lessons with Schoenberg became the basis for the harmony treatise.¹⁷

For Schoenberg, then, reliance upon talent should take second place to the deliberate influence of the pupil’s awareness. A *Harmonielehre* based upon talent caters to an innately conservative elite given to acting on a precedent. For a self-educated composer given to a radical rethinking of compositional practice, such a conservative and elitist approach to the study of harmony must have been repugnant.

While too extravagant a reading Schoenberg’s treatment of talent ought to be avoided (for indeed it appears only briefly in his treatise), its consequences are palpable (some of which will be addressed below under the rubric of *economy*). Above and beyond the polemics of the *Harmonielehre* itself, his egalitarian approach to the study of harmony can be equated with an egalitarian approach to education in general in Europe and particularly in Austria at the time, wherein all students – rich or poor, boys or girls, Catholic, Protestant, Jewish – take equal part in the process of learning. The fact that this approach evolved under Leftist auspices, during years when Schoenberg himself still felt the latter’s sway, may explain something of its presence in his treatise.¹⁸ As the *Harmonielehre* grew, so did Schoenberg’s family, with two small children – Gertrud, born in 1902, and

Georg, born in 1906 – and little or no financial resources to devote to their education. At the same time, Schoenberg felt no doubt the influence of Austro-Marxism in the guise of a childhood friend, the Leftist David J. Bach, who secured employment for Schoenberg as a chorus director in distinctly Leftist circumstances (discussed below). Berg's lessons with Schoenberg were given without fee and without a textbook, given (as Berg's three notebooks attest) in an astonishingly anarchistic manner – without appeal to “talent,” and radical in its extreme economy. And during these years, Schoenberg was employed at Eugenie Schwarzwald's school, wherein he met much the same egalitarian and distinctly liberal approach to education. Schwarzwald employed other radically innovative artists like Schoenberg—painters such as Oscar Kokoschka (1911-12),¹⁹ whose conception of education was distinctly egalitarian.

At the time of the *Harmonielehre*'s conception, the Leftist conception of an egalitarian education took concrete form in the plan for an *Einheitsschule*, a “unified school,” where predispositions, particularly class differences, were done away with:

[T]he socialists suggested strongly that all children should be kept in a unified school for all eight years of compulsory schooling.... [This increased] the likelihood of rich and poor children sharing the same schools where democratic values could be taught and social distinctions worn away. (Zeps 1987: 22)²⁰

The concept of an *Einheitsschule* is but one manifestation of a constant Austrian Leftist interest in education as a vehicle for class struggle, in particular as a vehicle to counterbalance the conservative sway of the Catholic Church. Another, earlier manifestation of concern was the Primary School Law of 1869 (enacted five years before Schoenberg's birth), which extended compulsory elementary education from six to eight years and allowed for the appointment of teachers without regard to religious affiliation. The Social Democratic Party, led by Victor Adler, from 1889 constituted the principal opposition to what Edward Timms calls the “hegemonic claims” of religious conservatives and budding fascist nationalists (2006: 38), and created an atmosphere auspicious to educational experiments such as those of Karl Seitz, a liberal educator (later the mayor of Vienna from 1923 to 1934) who, in 1895, founded the journal *Freie Lehrstimme* [*Voice of Free Teachers*] aimed at reforming conservative educational institutions, this growing out of what Timms calls “newly established workers' educational institutions” (2006: 38). In 1898, Seitz and perhaps the best known of modern Austrian educators, Otto Glöckel (born, like Schoenberg, in 1874), came into conflict with the Christian Socialist Mayor of Vienna, Karl Leuger, an anti-Semite with an anti-socialist bent, and were dismissed from positions as educators (Zepps 1987: 19). Thus began a period of conflict and radicalization in education and politics in general, one that Schoenberg was no doubt well apprised of by his friend David Bach and by the pages of the *Arbeiter-Zeitung*, a newly founded Leftist daily newspaper in which Bach played a considerable role, not the least as a cultural critic and re-

viewer. Marxist Leftist politics in Austria (Austro-Marxism, as it is often called) was less erstwhile revolutionary than devoted to practical revision. As Timms puts it, the “socialist movement in Vienna was unique in developing a conception of Austro-Marxism that gave priority to education and culture” (2006: 41). This conception gave rise in 1908 to an organization devoted to secular and democratic education—egalitarian education—the *Sozialdemokratischer Verein Kinderfreunde* [The Social Democratic Association of Children’s Friends], which might have appealed to Schoenberg as the father of young children. In this light, even Eugenie Schwarzwald’s *Lyzeum* school, originally for young women (when it opened in 1901), where Schoenberg taught in 1904 and again in 1917,²¹ can be seen as a product of Austro-Marxist influence. And ultimately it was to Schwarzwald’s school that Schoenberg sent his daughter, Gertrud. The lessons of a liberal, egalitarian education were surely not lost on him. This explains, if only in part, the well known phrase, cited above, about removing an aesthetics and replacing it with “a good *course in handicraft*” (Schoenberg 1978: 12). Presumably, having set aside elitist illusions such as the notion of “talent,” what remained was the equivalent of a solid proletarian handicraft.²²

The Economical Craft of Effective Harmony

The craft of *Harmonielehre* comes into sharper focus around Schoenberg’s use of the term *effect* to describe chordal progression as this changes from TBK2 to the first and third editions. Initially he speaks of *effect* as if it were the quality of a progression. In TBK2, he says that the task of instruction in harmony is to show the student the “best possibilities” for joining chords together so as to create “effective progressions”: “It is all the more the task of [harmonic study] to impart to [the student] the best possibilities at hand so that chords can follow one another in fully effective progressions.”²³ By 1911, however, *effect* denotes the object of a progression. The task of harmonic instruction is to impart the ability to construct logical progressions aimed at a certain effect. Schoenberg refines the definition of *effect* by means of the term *constructive meaning* [*constructive Bedeutung*] saying in essence that the principal goal of harmonic instruction is to make the student aware of the constructive meaning of harmonic progressions (Schoenberg 1911: 9). Unfortunately, the concept of constructive meaning is left ill defined in the 1911 *Harmonielehre*. Finally, in the 1922 edition he describes an effective progression as contextual, “suited to the task at hand.” Its constructive meaning is determined by the circumstances at hand—in expressing a key in a given context or in a modulation, for example—and not according to some stock preconceived notion:

...the principal goal of harmonic study [is] to connect chords in terms of their individual character or identity and to join them in such progressions that their effect [*Wirkung*] is suited to the task at hand.... (Schoenberg 1922: 9)²⁴

According to the evolving usage of *effect*, Schoenbergian harmonic effects are neither predetermined nor formulaic; they are individual – calculated to a specific individual end. A catalogue of good effects – preconceived formulae giving rise to stock impressions – would be as irrelevant to Schoenberg’s method as figured bass and chorale harmonization. Instead the craft of harmonic effect is to be applied afresh with every new progression as determined by its context.

No doubt there are stock effects common to many progressions. Schoenberg, however, forbids their use, for they give a false sense of mastery. The student must forgo repetition in particular: “We must forego for the present the advantage of using repetition to attain effects...” (Schoenberg 1978: 122).²⁵ Repetition (apart from beginning and ending with the tonic chord) will not impart a sense of constructive meaning to a given progression.

Schoenbergian effect arises from the particular combination of chords in a progression, when this combination is seen in the context of a system of similar combinations and progressions.²⁶ In other words, the context that shapes effect is not a literature of good harmonic progressions derived from extant works of music, nor is it formed of predetermined figured basses or chorale melodies, nor formed from any stock or common effects (such as cadential closure). The context in which Schoenbergian effect operates is a severely limited field of progressions determined logically according to a small set of guidelines introduced in the *Harmonielehre*. Each progression is effective according to its particular identity as determined in logical relation to other progressions. We can speak of this as the *space* of Schoenberg’s *Harmonielehre*: its guidelines prescribe a limited set of paths through harmonic space, and the identity of each path is determined by its relationship to the other paths in that space.

In the first exercises then, Schoenberg establishes a set of “guidelines [*Richtlinien*]” as he calls them. These guidelines severely limit the number of progressions possible (in keeping with Schoenberg’s economies). Eight such guidelines cover the connection of two chords (Schoenberg 1978: 36-42):

1. No interval greater than an octave is allowed between adjacent soprano, alto, and tenor voices.
2. Only the root may be doubled, and this only at the octave.
3. Move the voices as little as possible (the “law of the shortest way”), and keep all tones common to two successive chords in the same voice.
4. Connect in direct succession only chords that have at least one common tone.
5. The fundamental (or root) always goes in the bass, [thus all chords are used in root position].
6. No voice crossing is allowed.
7. Write the exercises in whole notes without bar lines.
8. VII is not to be used in the initial set of exercises; use only I, II, III, IV, V, and VI.

Of these eight conditions, nos. 4 and 8 (no. 4 in particular) reduce the number of connections possible between two chords to a group easily manageable by a student. That is to say, after eliminating the VII chord and connecting only chords

with at least one common tone, only twenty progressions of two chords each are possible (whereas without these restrictions, forty-two progressions are possible).²⁷ These twenty progressions are set forth in Figure 1.

I--III	II--IV	III--I	IV—I	V—I	VI--I
I--IV	II--V	III--V	IV—II	V—II	VI--II
I--V	II--VI	III--VI	IV--VI	V—III	VI--III
I--VI	-	-	-	-	VI--IV

Figure 1. Twenty Progressions Derived from Schoenberg's Guidelines.

Schoenberg introduces two more guidelines, nos. 9 and 10, to cover the connection of diatonic chords in short phrases (Schoenberg 1978: 42):

9. *Do not repeat a chord, except I, which should begin and end the exercise.*
10. *Phrases should be from four to six chords in length. The fewer the better, so as to avoid repetitions.*

These have the principal result of enforcing brevity. With six chords at the student's disposal, only one of which can be repeated, the length of a given phrase can be at most seven chords, (although curiously Schoenberg restricts this, in condition no.10, to a maximum of six chords in length).

It follows that the choice of a given chord has an immediate logical effect on the subsequent shape of the progression – *effect* in the sense of both immediate outcome and constructive meaning. Compare, for example, the effect produced by following a III chord by a I, or by a V, or by a VI. Following a III by a I will end the progression (since a I chord can only come at the beginning or the end). Following III by a V will allow for only two immediate continuations, II or I. Following III by VI, however, will allow for three immediate continuations, to IV, II, or I. The circumstances – the spatial field of progressions possible under Schoenberg's guidelines – are determined directly by the choice of a given chord, since choosing one chord will have the effect of opening up the field to new possibilities (as in the case of V and VI) or curtailing the possibilities (as in the case of I). The “effects,” then, of following III by I, V, and VI are both readily apparent and logical, given Schoenberg's guidelines.

Working solely with these conditions (and setting to side externals such as beauty and talent), the student assesses every prospective chordal connection in terms of immediate logical effect: how will it shape the field of subsequent possibilities; how will it shape the space of the harmony? The result is a strict reductionism in method and aim; beauty and aesthetics are removed from consideration. Economy, clarity, logic—these are the qualities Schoenberg lauds as truly “organic” (Schoenberg 1978: 270) and sets the student to attaining in the *Harmo-*

nielehre. Anything else is redundant, contrived, and artificial, and has no business in the study of harmony.

From this logical reductive approach, Schoenberg posits a psychology of artistic effect: every work of art seems as a relationship between cause and effect, a “cause” from which “effects visibly proceed.” We cannot conceive of a work of art unless we see it as an arrangement of cause and effect:

[Our musical logic] cannot imagine that there are causes without effects. Consequently, it wants to see effects from every cause, and in its works of art it arranges the causes in such a way that the effects visibly proceed from them. (Schoenberg 1978: 164)²⁸

Thus Schoenberg replaces an aesthetics of beauty with an aesthetics of economy, which he calls “artistic economy”: “only such means are to be used as are absolutely necessary for producing a certain effect” (Schoenberg 1978: 164).²⁹

System and Presentation in *Harmonielehre*

Schoenberg’s notion of artistic economy is the driving force behind the polemic first chapter to his treatise, entitled “Theory or System of Presentation [Theorie oder Darstellungssystem]?” Therein, Schoenberg takes pains to delimit what is admissible as music theory. In doing so he eliminates a phony aesthetics of beauty as a basis for theory in much the same way as he disqualifies talent as a basis for the instruction of harmony.³⁰ Neither are amenable to logic, and thus neither are acceptable in a truly systematic course of harmony.

At the heart of Schoenberg’s polemic lies tonality. While common wisdom holds that Schoenberg rejected, obviated, or destroyed tonality outright,³¹ in truth he rejected only the uneconomical notion that tonality is an eternal verity in music, “a natural law of music, eternally valid,” and thus must always be present. He rejects this notion as merely a “prejudice,” something logically indefensible, and claims to refute it in the *Harmonielehre*:

In this book I believe I have succeeded in refuting some old prejudices of musical aesthetics. That these prejudices have remained with us right up to the present would in itself be proof enough of my contention. But when I say what it is that I do not consider a necessity of art; when I say: tonality is no natural law of music, eternally valid – then it is plain for everyone to see how the theorists spring up in indignation to cast their veto against my integrity. Who today would want to admit that [my statement about tonality is true] even if I proved it still more incisively than I shall do here? (Schoenberg 1978: 9)³²

It is an unnecessary extravagance to claim that tonality is indispensable to all musical form. By means of aesthetics, music theory has set its sights erroneously on eternal verities:

The power that the theorist has to have to fortify an untenable position comes from his alliance with aesthetics. Now aesthetics deals only with the eternal things....One of the most gratifying means for producing musical form is tonality. What a differ-

ent impression it makes, though, if [the theorist] speaks of the principle of tonality, as [an eternal thing] a law – ‘Thou shalt’...’–adherence to which shall be indispensable to all musical form. (Schoenberg 1978: 9)³³

Tonality is just a vehicle, not a precondition.

A real aesthetics would limit itself to genuine, not illusory artistic questions. A real aesthetic could suffice solely with inferences drawn from observing artistic effects (*Kunstwirkungen*). It would suffice to say merely that tonality is a “gratifying means for producing musical form.” Tongue firmly in cheek, Schoenberg notes that everyone knows this, but “hardly anyone takes it into consideration”

Someone could declare that I am going too far, that nowadays, as everybody knows, aesthetics does not prescribe laws of Beauty but merely attempts to infer their existence from the effects of art. Quite correct: almost everyone knows that nowadays. Yet hardly anyone takes it into consideration. (Schoenberg 1978: 9)³⁴

Like empty formulae (and thus like talent without understanding), the extravagant claims of theorists lack logical coherence. The theorist’s intent – to sanction beauty – is clear and laudable, but faulty. Aesthetic judgement should flow from first principles (much as the effects produced in the student’s progressions flow from the strict conditions Schoenberg sets upon the succession of harmonies). No such logic obtains with an aesthetics of beauty based upon apodictic assertions. The frivolous judgements it produces, being devoid of logic and coherence, are thus “entirely gratuitous”:

Their theories are intended to influence the sense of beauty in such a way that it will produce, for example, harmonic progressions whose effect can be regarded as beautiful; they are intended to justify the exclusion of those sounds and progressions that are esteemed not beautiful. But these theories are not so constructed that the aesthetic judgment follows as a consequence of their first principles, of the logical development of these principles! On the contrary there is no coherence, absolutely no coherence. These judgments, ‘beautiful’ or ‘not beautiful’, are entirely gratuitous excursions into aesthetics and have nothing to do with the logic of the whole. (Schoenberg 1978: 10)³⁵

In his discussion of this spurious musical aesthetics, Schoenberg introduces the term *system*, a term with implications for both his thought proper and its relation to his Viennese milieu. The power of a false aesthetics of beauty allows theorists to speak of *systems*.³⁶ Devoid of logic, however, these systems are merely prejudices carried out systematically. As Schoenberg puts it, “Where in the system can we find logically, mutually consistent answers...? In the sense of beauty? What is that? How is the sense of beauty otherwise related to this system? To this *system* – if you please!!” (Schoenberg 1978: 10)³⁷

Having dismissed these systematic prejudices, Schoenberg offers a valid definition of the term. A system should be a method of coherent organization and classification derived from principles that assure a consistent logic—a *system of presentation* [*Darstellung*] as he calls it:³⁸

These systems! Elsewhere I will show how they have really never been just what they still could be: namely, systems of presentation. Methods by which a body of musical material is coherently organized and lucidly classified, methods derived from principles which will assure an unbroken logic. (Schoenberg 1978: 10)³⁹

Figure 1 above is a simple system derived logically from ten principled guidelines. Schoenberg says he has aspired to develop just such a system of presentation here, and “nothing more; I do not know whether I have succeeded or not....” Schoenberg’s aim was to relieve theory of an extravagance, a “responsibility that it could never have fulfilled,” so that it “can restrict itself to that which is really its task: to help the pupil attain such skills as will enable him to produce something of *established effectiveness*” (Schoenberg 1978: 11).⁴⁰ This economic manoeuvre explains, at least in part, the sentiment expressed in the last paragraph of the first chapter to the treatise, the comparison with a carpenter (which follows the passage on bad aesthetics and good handicraft, cited above). Schoenberg’s task is “not to set up new eternal laws.” Instead he seeks only to teach an economical handicraft, like carpentry, unburdened by any pretence at teaching aesthetics: “If I should succeed in teaching the pupil the handicraft of our art as completely as a carpenter can teach his, then I shall be satisfied” (Schoenberg 1978: 12).⁴¹

Schoenberg’s approach to instruction in harmony is *empiricist*, avoiding any appeal to a cause (in particular to talent or to an aesthetics of beauty) not immediately and rationally apparent to the student. The results may be modest, but they mark a dramatic reshaping of *Harmonielehre*, when compared with, for example, the *Harmonielehre* of Rudolf Louis and Ludwig Thuile, or of Schoenberg’s friend Heinrich Schenker.⁴² In the former case, the authors’ avowed aim is to “lead the student to a living understanding of harmonic progressions in concrete musical artworks through close and genuine analysis of countless examples drawn from the literature.”⁴³ Thus, in lieu of Schoenberg’s emphasis on a highly constrained set of logical guidelines, Louis and Thuile teach a set of paradigms – formulae in effect – by which the student learns to compose harmony. Schenker’s treatise cannot be compared synoptically with Schoenberg’s in a few sentences, but let it suffice to cite Schoenberg’s appreciation of the treatise in his own *Harmonielehre*, in particular his polemical disparagement of Schenker’s “mysterious number five,” which, according to Schoenberg, “shows up everywhere in music as a kind of boundary” (Schoenberg 1978: 318), as an upper limit to the practical use of the overtone series, for example. Schenker makes appeals to higher authority, and such appeal would have been out of place in Schoenberg’s treatise on harmony (although not in later writings, as we shall see). Schoenberg leaves unsaid a principal difference with Schenker: the latter’s *Harmonielehre* is avowedly historical in the terms of musical style, for it seeks to demonstrate the historical development of a category of masterwork and makes ample use of examples from the canonic musical literatures to demonstrate this. Schoenberg, on the other hand, makes little use of musical examples and restricts any consideration of historical

style to the final chapters of his treatise. (And yet it would be incorrect to call Schoenberg's treatise *dehistoricizing*, concerned as the opening chapters are with the historical state of music theory.)

Against these and other treatises like them, Schoenberg's work appears radical in its economy. Measured against contemporary developments in science, however, Schoenberg's economy is quite in keeping.

Ernst Mach and the Economy of Modern Science

Schoenberg's critique of figured bass and chorale harmonization, his notion of a system of presentation, and in particular his economical approach to theory lend themselves to comparison with the Viennese world of science at the *Fin-de-siècle* and to one of the most influential thinkers of the period, the scientist Ernst Mach.⁴⁴ Born in 1838 and thus Schoenberg's elder, Mach exerted an important critical force upon Schoenberg's generation, validating their attempts to examine and challenge the legacy passed to them by Hapsburg Vienna.⁴⁵ Mach's thought has been criticized, correctly or otherwise,⁴⁶ as a kind of severe positivism – our knowledge of the world is limited to the outward appearance of things, to sensation in other words: “Mach and Comte were both presentationalists in identifying the physical world with what could be immediately sensed, and were phenomenologists in rejecting causes as agents or forces in favor of describing conscious referents in terms of mathematical functions or equations” (Blackmore 1972: 164).⁴⁷ His thought has also been characterized, again correctly or otherwise, as empiricism, that is to say relying on observation – principally experimental observation – rather than intuition and speculation.⁴⁸

The exact nature of Mach's strict positivism and empiricism, however, is of less importance for us than his espousal of a radical reduction in method (and his Leftist politics, to which we turn shortly): he treated the evidence of sensory data by means of the most economical theoretical framework and in doing so rejected any superfluous influences upon science, the influence of theology in particular, much as Schoenberg rejected an aesthetic of beauty and the natural justification of tonality as an eternal verity.⁴⁹ As Mach's principal English-language biographer, John T. Blackmore, speaking of scientific laws, puts it, Mach “was sharply critical of the belief in their ‘causal power’ or ‘aesthetic beauty,’ and denied them existence ‘outside,’ ‘prior to,’ or as ‘intrinsic’ within nature” (1972: 177). Blackmore describes Mach's thought as follows:

Natural laws are a product of our psychological needs....The grand universal laws of physics...are not essentially different from descriptions....Laws cannot be ascribed to nature. We find only as much ‘lawfulness’ [*Gesetzmässigkeit*] in nature as we ourselves have assumed in simplified external experience. (Blackmore 1972: 177)⁵⁰

For Mach, there were no ultimate and absolute laws or designs to the world that could be known with the science of his day. He held theology at best to be irrele-

vant to science, in both its ends (the affirmation of a totally governing force or design) and its method (appeal to a totality as a means of explanation). Mach did not rule out the possibility that the tools of some future science might enable the investigation of absolutes and total designs. Such inquiries, however, were at present impossible without first succumbing to dogma, and dogma was anathema to enlightened science. Mach's strict emphasis upon empirical data proved particularly useful in this regard: empiricism eliminated the vestiges of dogma that had hindered scientific investigation and explanation. (Mach's empiricism did, however, run up against strong opposition, notably a theory referred to as "atomism" that was of consequence for Einstein.)⁵¹

Limiting the immediate grounds for a comparison with Schoenberg to economy in method, we shall examine a selection of Mach's arguments as set forth in the treatises *The Science of Mechanics* (Mach 1919) and *Knowledge and Error* (Mach 1976), in particular his treatment of theology in science, which equates with Schoenberg's treatment of the aesthetics of beauty in the theory of harmony. Like Schoenberg, Mach concerned himself with utility. Theories were descriptions of sensory data, and their utility lay in the ability to simplify and organize such data. For Mach, it was better to speak of theories as more or less useful rather than true or false, or as eternal verities.

Eternal verity is the subject matter of theology. Mach describes the role theology played in the history of physical science by listing scientists of note who were at one and the same time devoted theologians: Napier, the inventor of logarithms, Blaise Pascal, Otto von Guericke, the inventor of the air-pump, Newton, Leibnitz, and Euler (Mach 1919: 447-50). Despite such strong allegiances to religious beliefs on the part of its principal exponents, science engaged theology in a lengthy battle to rid itself of theological prejudices. It took the scientific revolutionary Joseph-Louis Lagrange (1736-1813) in a receptive age to make the "final promulgation" of the idea that "theology and physics are two distinct branches of knowledge": "Lagrange...declared his intention of utterly disregarding theological and metaphysical speculations, as in their nature precarious and foreign to science..." (Mach 1919: 457).

As the influence of the church waned, scientists had to contend with the residue of theological thought, to "struggle with their own preconceived ideas, and especially with the notion that philosophy and science must be founded on theology" (Mach 1919: 447). Mach is adamant: theology is not science, and theological scientists should have seen this fact: "These men should at least have seen that the questions they discussed did not belong under the heads where they put them, that they were not questions of science." (Mach 1919: 451) Theology is a luxury, a distraction, the stuff of private confession:

The theological proclivities which these men followed, belong wholly to their innermost private life. They tell us openly things which they are not compelled to tell us, things about which they might have remained silent. (Mach 1919: 450)

In terms of the comprehensive view of the world, Mach draws an important distinction between theology and modern science. Theology believes in the possibility of a “final explanation of the world,” which Mach calls a “mythology” (Mach 1919: 463-4). Mach does not rule out the possibility of a final explanation, but asserts instead that, given the present state of science, final explanations are impossible and can be seen as no more than myths: “To anticipate [a final view], or even to attempt to introduce it into any scientific investigations of the day, would be mythology, not science” (Mach 1919: 464). Along these lines he severely circumscribes the legitimate claims of science:

Physical science does not pretend to be a *complete* view of the world; it simply claims that it is working toward such a complete view in the future. The highest philosophy of the scientific investigator is precisely this *toleration* of an incomplete conception of the world and the preference for it rather than an apparently perfect, but inadequate conception.... (Mach 1919: 464-5)

In doing so he rules out theology and other explanatory models aimed at a definite *telos*. The science of physics ought to eschew finality, at least until finality becomes susceptible to exact research.

Having set final and complete world views aside, Mach dips briefly into aesthetics in a manner Schoenberg would have found sympathetic. Beauty is readily apparent in nature, but inadmissible in scientific method. The task of science is investigation, “not mere admiration.” Again Mach cites a revolutionary, Darwin, the first to replace mere admiration of organic nature with serious inquiry:

The forms of bones, feathers, stalks, and other organic structures, adapted, as they are, in their minutest details to the purposes they serve, are highly calculated to make a profound impression on the thinking beholder, and this fact has again and again been adduced in proof of a supreme wisdom, ruling in nature.... We should not forget, however, that investigation, and not mere admiration, is the office of science.... there can be no question that [Darwin’s] theory is the first serious attempt to replace mere admiration of the adaptations of organic nature by serious inquiry into the mode of their origin. (Mach 1919: 452-3)

Thus Mach circumscribes science. In essence, theology and aesthetics are as irrelevant to scientific endeavour as an aesthetics of musical beauty espoused theologically is irrelevant to Schoenberg’s *Harmonielehre*.

Not content merely to denigrate theological science, Mach turns to a description of a science unencumbered by the superfluous. He begins with his famous emphasis on empirical observation and then proceeds to an important distinction drawn between on the one hand a deductive moment, when facts are distinguishable from observations and can be held in the mind’s eye without “constant recourse to observation,” and on the other hand a formal moment when all the facts thus deduced are held together in the mind’s eye with the “least intellectual effort.” The latter is reductive, a moment of “greatest possible *uniformity*,” by which Mach means the casting aside of those facts and deductions that do not agree with uniformity. Mach calls the formal residue that remains a “system.” Purged of distract-

tions and irrelevancies, such a system would be readily comprehensible, “easy of acquisition”:

When the chief facts of a physical science have once been fixed by observation, a new period of its development begins—the *deductive*,.... In this period, the facts are reproducible in the mind without constant recourse to observation....The deductive development of the science is followed by its *formal* development. Here it is sought to put in a clear compendious form, or *system*, the fact to be reproduced, so that each can be reached and mentally pictured with the *least intellectual effort*. Into our rules for the mental reconstruction of facts we strive to incorporate the greatest possible *uniformity*, so that these rules shall be easy of acquisition. (Mach 1919: 421)

This is strongly reminiscent of Schoenberg’s simple and readily comprehensible harmonic handiwork devoid of extravagances and recalls to mind his notion of a “system of presentation.” Schoenberg’s system is both uniform and economical, and thus comparable to Mach’s:

Methods by which a body of material is coherently organized and lucidly classified, methods derived from principles which will assure an unbroken logic....A real system should have, above all, principles that embrace all the facts. Ideally, just as many facts as there actually are, no more, no less. (Schoenberg 1978: 10)⁵²

Reducing the number of progressions faced by the student by means of a small set of guidelines, Schoenberg adheres to Mach’s injunctions – “the least intellectual effort”, “the greatest possible uniformity”, rules “easy of acquisition.” As Figure 1 above attests, for Schoenberg the student was best served by a principal of severe economy in theory and in practice.

Mach, like Schoenberg, describes the notion of immutable laws of nature as an extravagance. He says that a distinction is customarily drawn between civil (or human) and natural law: it is commonly held that the former can be broken, while the latter cannot. But in truth natural laws are regularly broken, under the auspices of scientific progress. Natural laws, like their civil counterparts, are merely our attempts at reading natural process; they are nothing more than fictions drawn from intuition and conception. Indeed, natural law may be nothing more than informed expectation. Mach explains matters thus:

The usual opinion will be that the laws of nature are rules, which processes in nature must obey, similarly to civil laws, which the actions of citizens ought to obey. A difference is usually seen in that civil laws can be broken while deviations from natural processes are regarded as impossible. However, this view of the laws of nature is shaken by the reflection that we read off and abstract these laws from those processes themselves, and that in doing this we are by no means immune to error. Of course in that case any breaking of the laws of nature may be explained by our mistaken view, and the idea that these laws are unbreakable loses all sense and value. If once we emphasize the subjective side of our view of nature, we easily reach the extreme opinion that our intuition and our concepts alone prescribe laws to nature....in origin, the ‘laws of nature’ are restrictions that under the guidance of our experience we prescribe to our expectations. (Mach 1976: 351)

Schoenberg too questions the ultimate validity of natural laws in music. Being exceptional, art barely lends itself to systematization based on a natural uniformity:

And only such principles [as natural principles], which are not qualified by exceptions, would have the right to be regarded as generally valid. Such principles would share with natural laws this characteristic of unconditional validity. The laws of art, however, consist mainly of exceptions! (Schoenberg 1978: 10)⁵³

Schoenberg does not denigrate honest attempts to discover laws of art. These are valid, but only as good comparisons. As such they can have a beneficial influence empirically upon the “sense organ” of the observer: “Efforts to discover laws of art can then, at best, produce results something like those of a good comparison: that is, they can influence the way in which the sense organ of the subject, the observer, orients itself to the attributes of the object observed (Schoenberg 1978: 11).⁵⁴ But under no circumstances ought these be taken as immutable natural laws. A good comparison is merely a thought experiment, not an eternal verity:

But no one should claim that such wretched results are to be regarded as eternal laws, as something similar to natural laws. For, once again, the laws of nature admit no exceptions, whereas theories of art consist mainly of exceptions. (Schoenberg 1978: 10)⁵⁵

Eternal verities ought to be sacrificed for utility, the utility of a clear and coherent presentation:

What we do achieve can be enough, if it is given as a method of teaching, as a system of presentation – a system whose organization may aim, sensibly and practically, towards the goals of instruction; a system whose clarity is simply clarity of presentation, a system that does not pretend to clarify the ultimate nature of the things presented. (Schoenberg 1978: 10)⁵⁶

At the heart of Schoenberg’s modesty lies a Machian economy: reduce what is inessential, retain only the useful.

The common ground between Schoenberg and Mach is at its firmest near the beginning of the first chapter of the *Harmonielehre*. There Schoenberg the empiricist says that we must “...again and again...begin at the beginning; again and again...examine anew for ourselves and attempt to organize anew for ourselves.” Defining his method in a sentiment that might be taken directly from Mach, he goes on to speak of “regarding nothing as given but the phenomena [*Erscheinungen*]....Since we do definitely know the phenomena we might be more justified in giving the name ‘science’ to our knowledge of the phenomena, rather than to those conjectures that are intended to explain them” (Schoenberg 1922: 8).⁵⁷

The comparison of economy in Schoenberg and Mach is not seamless,⁵⁸ but it is substantial. Both are intent on rooting out prejudice in their respective endeavors. And both do so with a strict integrity. Much as Mach discerns in certain scientific procedures the sway of an accessory and superfluous understanding, so too

Schoenberg finds that much current training in harmony depends upon superfluous and thus debilitating accessories.

Mach, David J. Bach, Schoenberg, and the Politics of *Harmonielehre*

Had Schoenberg read Mach's work, no doubt he would have found Mach's theoretical economy, his notion of system, and the reduction of the metaphysical appealing. No evidence remains to show Schoenberg knew Mach's writings directly, but he need not have possessed or even read them in order to have felt their influence. Machian ideas about method and economy were "in the air," palpable certainly in the ethos of the time.⁵⁹

The year 1897 marked not only the completion of Schoenberg's *Verklärte Nacht* but also the beginning of an antagonistic controversy that saw Mach's philosophy of science give way to new developments—called "atomism"—leading ultimately to Einstein (Lindley 2001). Mach's principal antagonist was Ludwig Boltzmann, who in 1897 published two papers attacking Mach's position and positing instead an approach based on a theory of atoms, which Mach branded metaphysical. Boltzmann's theories at first were dismissed, but his fortunes recovered rapidly upon Mach's retirement from the University of Vienna in 1901. The University offered Boltzmann not only a chair in theoretical physics but also Mach's professorship in the philosophy of science. His inaugural philosophy lectures took place in 1903, and were attended reportedly by 600 listeners.

To gain some impression of the polemic nature of Viennese discourse at the time—of which Schoenberg's *Harmonielehre* is but a symptom — as well as the widespread interest in matters both scientific and music theoretic, we need to consider the fact that the principal forums for intellectual exchange encompassed a broad spectrum of subjects, from natural science to the arts and from physics to music, and attracted participants both catholic in taste and outspoken in demeanor. Not long before he ascended to Mach's professorship, Boltzmann's name appears on the record of lectures and discussions sponsored by the *Philosophische Gesellschaft an der Universität zu Wien*, alongside the name of a music theorist who on February 15, 1895, and again on March 18, gave a lecture entitled "On the Spirit of Musical Technique," a scant month after Boltzmann's inaugural lecture, "On a Physical Application of Probability Statistics" (Blackmore 1995: 278). This shows not merely the mutual respect that philosophy and music had for one another; it suggests further that Schoenberg might well have known of the *Gesellschaft* lectures, of the physicists and their controversies. For that music theorist, well known to Schoenberg in later years, albeit of a very different methodological stripe, was Heinrich Schenker.⁶⁰

While it is not necessary, then, that Schoenberg should have known Mach personally for us to sense a certain sympathy in their thoughts, it is possible that the composer, as a participant in the Viennese intellectual community, knew of the scientist's work in some detail, and accordingly the comparison made above can be expanded beyond a mere resemblance in thought. A most likely candidate for conveying a first-hand knowledge of Mach's thought to Schoenberg would have been David J. Bach (1874-1947), a close friend in Schoenberg's youth and a committed socialist his life long, who was Mach's student.⁶¹

Bach's dissertation (on David Hume), written under Mach's supervision, was followed by an article, "Der historische Materialismus und die Wissenschaftstheorie [Historical Materialism and the Theory of Science]," published in 1899 in the Czech journal *Akademie. Orgán mládeže socialistické. Organ der sozialistischen Jugend* (Bach 1899). Friedrich Stadler describes the position on materialism and science that Bach took in the article as representative of a "trend of establishing materialism as an empirical method of research, replacing causality with functionality and evolving a kind of positivist methodology with evolutionary elements...a general characteristic of the Austro-Marxist application of Mach" (Stadler 2001: 136) In this regard, Bach was in a position to convey to Schoenberg not merely the central elements of Marxist thought but also the most recent tendencies in Austrian Marxism, especially a revision of materialism in accord with the empirical and positivist research of Mach.⁶²

The economies of the opening chapters to the *Harmonielehre* become clearer when seen in light of these developments in Marxist thought. Writing to David Bach in 1895, Schoenberg drew the analogy between class conflict and aesthetics thus: "Just as the activity in social relationships is the product of class conflict, so must aesthetics represent itself as a product of the conflict between idealistic and materialistic ideologies..., and art must bear the scars of the battle of artistic sensibilities derived from these [two] conceptions."⁶³ As noted above, the polemic carried out in the opening chapters of Schoenberg's treatise takes aim at certain idealistic assumptions, among them a phony aesthetics of beauty and the assumption of a natural basis of tonality. This polemic is carried out from a perspective very much like that of Marxist materialism and Machian empiricism in its insistence on immediacy and its rejection of abstraction and myth.⁶⁴

Mach had strong sympathies with the Left. In his major biographical study of Mach's life and work, John Blackmore enumerates several of these: Mach "shared Marxist indignation with existing economic and industrial conditions in the 'capitalist' world." And he

publicly displayed his sentiments in favor of "oppressed" social classes by a number of his conspicuous political actions. In 1896 side by side with Social Democratic laborers he chaired a protest assembly against the allegedly negative attitude of the ruling Christian Socialist Party concerning adult education in Vienna. In 1899 he made known that in his will he planned to leave large sums of money to both the Adult Education Union and the Social Democratic newspaper the *Arbeiter-Zeitung*.

In 1901 with the aid of an ambulance he insisted on attending the Austrian Upper House in person and voting in favor of a bill limiting the working day for Austrian coal miners to nine hours. In 1902 he spoke bluntly and successfully against the Christian Socialist idea of setting up an exclusively Catholic university in Salzburg.... (Blackmore 1972: 234-35)

Mach's political activity continued unabated, reaching a peak in 1907:

He made a point of being present in the Austrian House of Peers to vote in favor of an election reform bill, and he wrote several newspaper articles, one against race prejudice, one against the Pope's new syllabus on Catholic dogma, and two defending the University of Vienna and its unruly students against Karl Lueger and the Christian Socialist city government....By this time Mach had become good friends with Viktor Adler, the respected head of the Austrian Social Democratic Party, and with his son, Friedrich Adler.... (Blackmore 1972: 234-5)⁶⁵

The influence Mach's Left-leaning inclinations had upon science was discussed by David Bach and other leading Austro-Marxist luminaries. Friedrich Adler, for example, wrote in 1918, "Mach's achievement lies not in the improvement of the materialistic conception of history, but, quite on the contrary, in the fact that he pushed physics to that level on which history finds itself thanks to Marx." (Stadler 2001: 136)

Writing about Mach's influence upon Adler, Mark Blum suggests that Mach "introduced the notion of relativity within physics, that is, the idea that the definition of a physical body depends upon the context in which it is investigated" (Blum 1985: 156). This contextual thesis called into question the notion of a unified system of explanation, or as Blum puts it: "Whereas other thinkers in physics and in other areas of German *Kultur* grounded all certain knowledge within a unified system, Mach's proposition of relativity asserted that no systematic knowledge of the universe was possible, because man's context of investigation changed constantly" (1985: 156). Recall that Schoenberg, as noted above, adheres to a notion of system in his *Harmonielehre*, but this is not a fixed system based on extravagant claims of beauty. Instead his system of presentation, or *Darstellung*, emphasizes the logic of the vehicle of presentation, not the eternal verity of the thing presented (which, being artistic, is hardly subject to systematization). Mach and Schoenberg are alike in this regard—rejecting a certain knowledge that produces fixed and unified systems. This comparison should be drawn against the backdrop of the Austro-Marxism of writers such as Max Adler, Otto Bauer, Karl Renner, and Rudolf Hilferding, among others, which is subject to a broad form of Kantianism antagonistic to teleological design. As Leszek Kolakowski, in his grand overview, *Main Currents of Marxism*, describes Adler's Kantian Marxism: "Marxism was a theory – the first scientific theory – of social phenomena, which it studied from the viewpoint of causal connections while fully realizing that in the world of man these connections are effected by purposive action, and by the agency of human intentions, aims, and values" (2005: 565). It is in these regards that Austrian Marxism is sometimes referred to as humanistic, a quality that can

be ascribed to both Schoenberg and Mach. Under this rubric, Marxism believes in a human capacity for responsibility in thought and action, a capacity that emerges when humans are freed of irrelevant and encumbering assumptions.

Mach would have held his Leftist sympathies in common with both Bach and the youthful Schoenberg, until the latter gave up avowed politics for a form of political neutrality around the time of the First World War. As Schoenberg tells us in the essay “My Evolution,” Bach was a formative influence in both music and politics. He may have been responsible for Schoenberg’s employment as the director of several workers’ choirs⁶⁶ – first the “Metallarbeitersängerbund in Stockerau,” as “Chormeister,” later “Dirigent” of “Arbeitergesangsverbund in Mödling, in Donauefeld und Meidling”(Glaser 1981: 442). Most certainly the two would have discussed politics (Schoenberg 1984: 79-80).

If Bach conveyed to Schoenberg not only Mach’s method but also a Leftist appreciation of that method,⁶⁷ then certain aspects of Schoenberg’s radical approach to harmony – dispensing with the mythologies, emphasizing craft and instructional economy, and placing complete and total responsibility on the student – can be aligned with the Austrian Left. Much as Mach sought to purge science of its mythologies and untenable prejudices and Schoenberg sought to purge comparable mythologies from the study of harmony, so too Austrian Leftists sought to purge Austria of the sacrosanct influence of church and monarchy, in part by organizing workers along the lines of craft or profession. In the case of Austrian Marxists, this purging was undertaken according to the strict economies of Marx’s thought, which places responsibility firmly on the shoulders of the working classes and dispenses with extravagant myths of all kinds, from the divine right of kings to Adam Smith. Given Schoenberg’s association with Leftist causes prior to the first edition of the *Harmonielehre* and the revolutionary nature of the treatise’s drastic economical approach, the influence of both Mach and the Left upon the theorist ought not to be ruled out. Its extent must be delimited, however.

Conclusion

While Bach never altered his devotion to socialism, both Mach and Schoenberg did. Mach found himself a matter of controversy in Soviet Russia and attracted the considerable ire of the (at that time little known) Communist polemicist, Vladimir Ilyich Lenin.⁶⁸ Whether for this or for other reasons, Mach withdrew from the field of politics in his last years (Blackmore 1972: 235). Schoenberg, in the essay “My Attitude Toward Politics,” reviewed his early exposure to Leftist politics and his subsequent turn away from political engagement as follows. (The reader must bear in mind, however, the circumstances under which the essay was written.)⁶⁹

In my early twenties, I had friends who introduced me to Marxian theories. When I thereafter had jobs as *Chormeister* – director of men’s choruses – they called me ‘*Genosse*’ – comrade, and at this time, when the Social Democrats fought for an ex-

tension of the right of suffrage, I was strongly in sympathy with some of their aims. But before I was twenty-five, I had already discovered the difference between me and a labourer; I then found out that I was a *bourgeois* and turned away from all political contacts. (Schoenberg 1984: 505-506)⁷⁰

Thus Schoenberg's direct engagement with Leftist politics seems to have ended at around the turn of the century, although its influence, we suggest, lingered on in the *Harmonielehre*.

A certain ambivalence to politics develops in Schoenberg's later writings. The severe economy of the *Harmonielehre* gives way to the belief in an influential deity, a belief quite out of keeping with Mach, the Left, and the polemical opening chapters of the treatise. Although Schoenberg ruled out appeals to higher *telos* in *Harmonielehre* in much the same way Mach ruled out appeal to mysticism and theology in science, later in his life he conceived of a muse-like deity, referred to tongue in cheek as the *Supreme Commander*, who becomes responsible in considerable part for compositional inspiration. Traces of this theology of inspiration can be found throughout his writings, for example in the essay "Heart and Brain in Music", from 1946. There Schoenberg cites Brahms in this regard: "'A good theme is a gift of God,' [Brahms] said; and he concluded with a word of Goethe: 'Deserve it in order to possess it.'" (Schoenberg 1984: 67)

In a curious reversal of usage, the term *talent* appears in the essay "My Evolution." In the opening to the *Harmonielehre*, talent was regarded with suspicion: it needs a supplement, and, according to the *Harmonielehre*, that supplement is to be found in an economy and systematic rigor like that of modern science. In "My Evolution," however, the supplement to talent is God, the "Almighty."

What I believe, in fact, is that if one has done his duty with the utmost sincerity and has worked out everything to as near to perfection as he is capable of doing, then the Almighty presents him with a gift, with additional features of beauty such as he never could have produced with his talents alone. (Schoenberg 1984: 86)

This terminological reversal of meaning characterizes the growing ambivalence toward politics and science that Schoenberg's thought underwent from the time of writing the *Harmonielehre* to the time of the late essays such as "My Evolution".

The method and politics of Schoenberg's *Harmonielehre*, then, reflect only a limited period of time in his intellectual and creative career. In conclusion let it suffice to say that the polemics of the opening chapters to the *Harmonielehre* (as seen in light of the contemporary developments in Central European science and politics that gave birth to them) are a momentary symptom of Schoenberg's developing life, a symptom as important to an overall conception of the man and his work as the contemporary works of revolutionary music and their artistic genesis. The evocation of theology in Schoenberg's later writings is itself but a symptom of the developing contradictions in his life and thought. Indeed his life and thought might be profitably examined as a whole in light of the letter to David

Bach cited above, where Schoenberg described aesthetics “as a product of the conflict between idealistic and materialistic ideologies.”

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Notes

- 1 See for example Schorske (1981: 345-62), especially p. 345, where lyric poetry, theater, and music are given a principal hand in the development of Schoenberg’s radical musical stance. Compare Rosen (1976: 18-29), where the visual arts are invoked, as well as Mallarmé. See as well, Botstein (1999: 35-36), where the novelists Theodor Fontane and Adalbert Stifter are cited as influential.
- 2 See for example Kwiram (1999) and Blaukopf (1995: 158-9), on Schoenberg’s early politics and its relationship to trends in positivistic and empiric forms of research.
- 3 Schoenberg (1911), and Schoenberg (1922), translated as Schoenberg (1978). While Carter’s translation can be relied upon in general, from time to time the author will provide his own translation for the sake of precision. No copies of a second edition are known to exist.
- 4 See Janik and Toulmin (1973: 107). “One can, indeed, draw a close analogy between Schönberg’s *Harmonielehre* and [Alfred North] Whitehead and [Bertrand] Russell’s *Principia Mathematica* as compendious expositions of a new logic,” and see p. 119. On Schoenberg’s relationship to Wittgenstein in particular, and to the Vienna Circle logical positivists, see Wright (2005).
- 5 In ways far beyond the scope of this article, thus the concentration upon the opening chapters, which, despite minor contradictions, are remarkably consistent in tone and concept.
- 6 The other two divisions of basic instruction in music theory are “counterpoint and form,” (p. 13), both of which necessitate consideration of motive. Their subject matter is treated in other treatises, each with their own strict economies. That Schoenberg should address motive in later chapters is one of the contradictions in his treatise referred to above, although to be fair he speaks of motives largely in reference to other composers’ works (see p.164, on Brahms’s Third Symphony, and p.343, on a Bach Chorale). He severely constrains motive in the chapter on chorale harmonization, where he speaks of “this absence of motivic obligations,” (p. 289).
- 7 From typescripts to first and then third edition, the treatise underwent considerable revision. The revision of the first edition was particularly thorough, leaving hardly a page unaltered. For this reason, the author has treated all three sources as versions of the *Harmonielehre*, rather than treating the third edition as definitive.
- 8 See Sechter (1853-54), and Bruckner (1950). The law of the shortest way is found under various rubrics in many manuals of harmony, from Viennese and Central European treatises (notably that of Moritz Hauptmann, *Die Natur der Harmonik und Metrik*, (1853)) to jazz (see for example, Marc Levine, “Common Tones” *The Jazz Theory Book* (Petaluma, California: Sher, (1995: 155-61)). The law of the shortest way can be seen from the perspective of recent developments in music theory called “neo-Riemannian,” and the term *parsimonious* as applied to

voice leading. For an overview of the term, made with reference to Hauptmann and other “dualist” theorists, see Robert C. Cook, “Parsimony and Extravagance,” *Journal of Music Theory* 49, no. 1 (2005): 109-140 (the law of the shortest way is referred to on p. 111). See as well Henry Klumpenhouwer, “Dualist Tonal Space and Transformation in Nineteenth-Century Thought,” Chapter 14 of *The Cambridge History of Western Music Theory*, T. Christensen, ed. (New York: Cambridge University Press, 2002). See as well the writings of Richard Cohn, among them the following: “Weitzmann’s Regions, My Cycles, and Douthett’s Dancing Cubes,” *Music Theory Spectrum* 22, no. 1 (2000): 89-103; “Neo-Riemannian Operations, Parsimonious Trichords, and their *Tonnetz* Representations,” *Journal of Music Theory* 41, no.1 (1997), 1–66 (see p. 62, therein).

- 9 “Daraus geht hervor, dass es nicht Sache der Harmonielehre ist, kunstreiche Stimmführung, etwa im Sinne des Kontrapunkts, oder melodische im Sinne der Formenlehre zu unterrichten, sondern Stimmführung ist in der Harmonielehre nur jene Bewegung der Stimmen, die am zweckmässigsten und einfachsten die Verbindung der Akkorde ermöglicht and dabei jene Fehler vermeidet...”
- 10 “Daraus geht hervor, wie unzweckmässig die Methode ist, die dem Schüler bezifferte Bässe gibt,...denn was er dabei lernt, ist höchstens Stimmführung...”
- 11 “In diesem Sinn sind all Harmonielehrbücher, die dem Schüler bezifferte Bässe zur Aussetzung der Stimmen übergeben, unzweckmäßig angelegt. Daraus lernt der Schüler nur Stimmführung, und die ist nicht Sache der Harmonielehre...” Compare, for example, popular contemporary texts such as Louis and Thuille [1907].
- 12 Schoenberg (1922: 7-8). “Es wird also in unserem Fall, in der Harmonielehre, sicher nützlich sein, das Wesen der Verbindungen lediglich aus dem Wesen der Akkorde abzuleiten, Rhythmisches, Melodisches u. dgl. auszuschalten. Denn die Kompliziertheit, die entsteht, wenn man alle Möglichkeiten der Harmoniefunktioned mit allen Möglichkeiten der Rhythmik und des Motivischen komboniert, wäre wohl ebenso unüberblickbar für den Lehrer wie für den Schüler.”
- 13 Schoenberg (1922: 6). “Und ich wäre stolz, wenn ich, ein bekanntes Wort variierend, sagen dürfte: Ich habe den Kompositionsschülern eine schlechte Ästhetik genommen, ihnen dafür aber eine gute Handwerkslehre gegeben.”
- 14 Schoenberg (1922: 8). “Hier wird also dem Talent des Schülers vertraut, was allerdings insbesondere dort das Beste ist, wo der Lehrer nicht imstande ist, aufs Bewußtein, aufs bewußte Wissen und Können des Schülers mit bewußten Mitteln konsequent einzuwirken.”
- 15 Schoenberg (1922: 8). “Gewiß treffen Begabte das ziemlich gut, denn diese bringen meist durch Gehör and Gedächtnis aus der aufgenommenen Musik ein gewisses Wertgefühl für Harmoniefolgen mit,... Aber der weniger oder anders Begabte steht mit Anweisung, die sich bloß auf die Stimmführung beziehen, hilflos da und erlernt nie einen Tonsatz zu entwerfen, dessen harmonische Konstruktion durch Folgerichtigkeit wirkt.”
- 16 See this article’s epigraph, taken from Dümling (1975: 1). Translation is this author’s.
- 17 See Hilmar (1978) and Hillmar (1981).
- 18 See Avrich (2006):Chapter 1, on Francisco Ferrer y Guardia (the Spanish extreme Leftist and anarchist, who formed a Modern School in Barcelona in 1901) and Paul Robin (founder of the Prévost Orphanage at Cempuis, near Paris, from 1880 to 1894), among others.
- 19 See Calvocoressi (2006: 224).
- 20 Compare Engelbrecht (1971: 73-87), cited in Zeps (1987: 196 n58).
- 21 See Smith (1986) 129-30 and Chapter 7, “The Schwarzwald School.”
- 22 That Schoenberg appears to reverse himself on the question of “talent” in a brief essay written in 1917 to advertise a seminar in composition at the Schwarzwald school does not invalidate the conclusions drawn above. See Auner (2003: 139-40). The course was devoted to composition, not harmony *per se*, and by that time political circumstances—especially those of the Left—were in flux, as were Schoenberg’s political allegiances (see below).

- 23 Schoenberg TBK2: 8: "Dagegen aber ist es desto mehr ihre Aufgabe, ihn die besten Möglichkeiten an die Hand zu geben, um die Folge der Akkorde einander wirkungsvoll selbst gestalten zu können." The latter half of the phrase is altered in the typescript thus: "...um die Akkorde einander wirkungsvoll folgen sein lassen."
- 24 "Um den Hauptzweck der Harmonielehre zu erfüllen: Akkorde, ihren Eigenschaften gehorchend, zu solchen Folgen zu verbinden, daß deren Wirkung der jeweiligen Aufgabe entspricht,..." Translation is this author's. Compare Schoenberg (1978: 14).
- 25 See Schoenberg (1922: 142). "Des Vorteils, durch sie Wirkung zu erzielen, müssen wir uns vorläufig begeben, dagegen aber trachten, uns vor den Nachteilen zu schützen, die sie mit sich bringen."
- 26 The chordal progressions of the *Harmonielehre* were created contextually, for Berg's harmony lessons with Schoenberg. See Dineen (2005: 97-112). Thus they can be seen as part of a system created to the specific needs of Schoenberg's pupil.
- 27 Given a set of seven chords, each chord can connect with six other chords.
- 28 Schoenberg (1922: 194). "...unsere Logik...sich nicht vorstellen kann, daß es Ursachen ohne Wirkungen gibt. Die daher von jeder Ursache Wirkung sehen will und die Ursachen in ihren Kunstwerken so setzt, daß die Wirkungen sichtbar aus ihnen hervorgehen."
- 29 Schoenberg (1922: 326). "...nur jene Mittel aufzuwenden, die zur Hervorbringung einer bestimmten Wirkung unerlässlich notwendig sind."
- 30 Aesthetics, of course, is challenged elsewhere in Schoenberg's oeuvre. Schorske suggests that the "mature indictment of the protagonists of beauty" took its first artistic form in *Moses und Aron*. See Schorske (1981: 360). The first edition of the *Harmonielehre* antedates this by at least fifteen years.
- 31 See, for example, (Morgan 1991: 1).
- 32 Schoenberg (1922: 3). "Ich glaube, es ist mir in diesem Buch gelungen, einige alte Vorurteile der Musikästhetik zu widerlegen. Daß es sie bis jetzt gab, wäre schon ein genügender Beweis für meine Behauptung. Aber wenn ich ausspreche, was ich nicht für ein notwendiges Erfordernis der Kunstwirkung halte, wenn ich sage: die Tonalität ist kein ewiges Naturgesetz der Musik, dann sieht wohl jeder, wie die Theoretiker entrüstet aufspringen, um ihr Veto gegen meine Ehre zu erheben. Wer würde das heute zugeben wollen, und wenn ich es noch schärfer bewiese, als es heur geschehen wird?" And see Jacob (2005: 24), the section entitled, "Didaktik und Selbstverständnis..."; Cross (1992: 417-27).
- 33 Schoenberg (1922: 3-4): "Die Macht, die der Theoretiker nötig hat, um eine unhaltbare Stellung zu befestigen, stammt von seinem Bündnis mit der Ästhetik her. Die beschäftigt sich nur mit den ewigen Dingen,... Eines der dankbarsten Mittel zur Erzielung musikalischer Formwirkung ist die Tonalität. Wie anders aber macht es sich, wenn er vom Prinzip der Tonalität spricht, als von einem Gesetz: „Du sollst...“, dessen Befolgung unerlässlich sei für alle musikalische Formwirkung."
- 34 Schoenberg (1922: 3). "Man könnte behaupten, ich gehe zu weit; das wisse ohnedies heute jeder, daß die Ästhetik nicht Schönheitsegesetze vorschreibe, sonder nur ihr Vorhandensein aus den Kunstwirkungen abzuleiten versuche. Ganz richtig; das weiß heute fast jeder. Aber kaum einer berücksichtigt es."
- 35 Schoenberg (1922: 4-5). "...ihre Theorien wollen als praktische Ästhetik wirken; wollen den Schönheitssinn beeinflussen, daß er beispielsweise durch Harmoniefolgen solche Wirkungen hervorbringe, die für schön angesehen werden können; wollen das Recht haben, solche Klänge und Folgen auszuschließen, die für unschön gelten. Aber diese Theorien sind nicht so gebaut, daß aus ihren Grundsätzen aus der folgerichtigen Weiterbildung dieser Grundsätze die ästhetische Bewertung sich von selbst ergibt! Im Gegenteil: da findet kein Zusammenhang statt, absolut kein Zusammenhang. Diese Schön- und Unschönurteile sind ganz unmotiviert Ausflüge ins Ästhetische, die nichts mit der Anlage des Ganzen zu tun haben."
- 36 Schoenberg does not make clear reference to any one theorist in this chapter. He might have had in mind Riemann (1887) and (1903). In Chapter 2, Schoenberg pillories Ernst Friedrich

- Richter on another matter, but Richter makes claims similar to Schoenberg's: "All artistic attempts until now have not succeeded in creating a truly defensible scientific musical system [wissenschaftlich-musikalisches System] according to which all areas of musical phenomena find presentation [sich dargestellt finden] by means of a fundamental principle as constant and necessary conclusions." Richter 1918: 29, cited in Rexroth (1971: 72).
- 37 Schoenberg (1922: 5). "Wo steckt im System der gemeinsame Grund... Das Schönheitsgefühl? Was ist das? In welchem Zusammenhang steht das Schönheitsgefühl sonst mit diesem System? Mit diesem System, bitte!!" Compare Adler 1981: 10-11. Adler, well known to Schoenberg, was far more optimistic about the systematic potential of artistic laws.
- 38 See Rexroth (1971: 80-98). See also, Janik and Toulmin (1973: 139-40)
- 39 Schoenberg (1922: 6) "Diese Systeme! Ich werde bei einem andern Anlaß zeigen, wie sie nicht einmal recht das sind, was sie immerhin sein könnten, nämlich: Systeme der Darstellung. Methoden, die einen Stoff einheitlich einteilen, übersichtlich gliedern und von solchen Grundsätzen ausgehen, die eine undurchbrochene Folge sichern."
- 40 Schoenberg (1922: 6): "...kann [die Kompositionslehre] sich auf das beschränken, was wirklich ihre Aufgabe ist: beim Schüler solche Fertigkeiten zu erzielen, daß er imstande ist, etwas von erprobter Wirkung hervorzubringen."
- 41 Schoenberg (1922: 6): "Wenn es mir gelingen sollte, einem Schüler das Handwerkliche unserer Kunst so restlos beizubringen, wie das ein Tischler immer kann, dann bin ich zufrieden."
- 42 Compare Louis and Thuille [1907] and Schenker 1906. Schoenberg orchestrated Schenker's *Syrian Dances* for Busoni, which the latter conducted in Berlin in November 1903. See Stuckenschmidt (1977: 220 & 430): "Heinrich Schenker, a good acquaintance from Schoenberg's youth in Vienna..." And see Busoni (1987): letters 381 and 384.
- 43 Louis and Thuille [1907:vi]: "...durch die Heranziehung und genaue Analyse zahlreicher Literaturbeispiele zu einem lebendigen Verständnis der harmonischen Beziehungen im concreten musikalischen Kunstwerke anzuleiten..."
- 44 Mach wrote three treatises on musical subjects, but while they would prove relevant in a broader discussion of Mach and Schoenberg, they hold little relevance a discussion of *Harmonielehre* proper.
- 45 See Janik and Toulmin (1973: 133): "...his psychology had a direct impact on the aesthetic views of *Jung Wien*; Hofmannsthal himself attended Mach's university lectures..., while Robert Musil was very much in Mach's debt."
- 46 Mach's critics are numerous, from his contemporaries such as Robert Musil and Vladimir Lenin, to among others Stanley Jaki in our own time. Rarely are these criticisms directed at economy of method, the subject of this comparison between Mach and Schoenberg.
- 47 See Janik and Toulmin (1973: 133-34). They hold that Mach's position on science was founded on a basic precept, the "reduction of all knowledge to sensation....The task of all scientific endeavour [being] to describe sense data in the simplest or most economic matter." At least one notable writer, Paul Feyerabend, differs with this assessment; see (1987):chapter 7. Janik and Toulmin do not emphasize the context of nineteenth-century materialism, which distinguishes Mach's emphasis upon the senses from earlier scientific projects, that of the Enlightenment for example.
- 48 His work has been "usually characterized as empiricism, sensualism, and phenomenalism," but can be called "nominalism...associationism and psychological atomism," and compared to phenomenalism, and logical atomism, and even a "biological theory of knowledge." See Capek (1968: 171-2), and Cohen (1968: 132-70).
- 49 Schoenberg, no doubt, saw economies in the work of other Viennese artists, notably Adolf Loos. But as a theoretical framework, Mach's notion of economy in scientific method is better suited to a polemic on music theory. On Mach's influence in general see Stadler (2001: 123-42), wherein Fritz Mautner's critique of language, and Robert Musil's fiction are addressed. Economy in prose is an abiding interest of Central-European writers at this time and since;

- Mach, Loos, and presumably Schoenberg shared a fondness for the economies of Georg Christoph Lichtenberg's aphorisms. See Stadler (2001: 124).
- 50 Citing Mach (1905: 454) and (1895: 254).
- 51 On the controversy surrounding Mach and "atomism" see Blackmore (1972: 33-34). See Lindley (2001).
- 52 Schoenberg (1922: 5). "Methoden, die einen Stoff einheitlich einteilen, übersichtlich gliedern und von solchen Grundsätzen ausgehen, die eine undurchbrochene Folge sichern.... Ein wirkliches System sollte vor allem Grundsätze haben, die alle Ereignisse einschließen. Am besten: genau so viele Ereignisse, als es wirklich gibt: nicht mehr, nicht weniger."
- 53 Schoenberg (1922: 5). "Und nur solche Grundsätze, die nicht auf Ausnahmen angewiesen sind, hätten darauf Anspruch, für allgemein gültig angesehen zu werden, die mit den Naturgesetzen diese Eigenschaft unbedingter Geltung gemein hätten. Aber die Kunstgesetze haben vor allem Ausnahmen!"
- 54 Schoenberg (1922: 5). "Das Bemühen, Kunstgesetze aufzufinden, kann also höchstens solche Resultate erzielen, wie sie etwa ein guter Vergleich erzielt: Einfluß gewinnen auf die Art, wie sich das Organ des betrachtenden Subjekts einstellt auf die Eigentümlichkeiten des betrachteten Objekts."
- 55 Schoenberg (1922: 5). "Aber es sollte nicht beansprucht werden, daß man solche kärgliche Resultate für ewige Gesetze hält, für etwas Ähnliches wie Naturgesetze. Denn nochmals: die Naturgesetze kennen keine Ausnahmen, die Kunsttheorien bestehen vor allem aus Ausnahmen."
- 56 Schoenberg (1922: 5-6) "Was übrigbleibt, kann genügen, wenn es sich als Lehrmethode gibt, als System der Darstellung, dessen Organisation sinnreich und zweckmäßig sein mag mit Rücksicht auf die Erreichung des Lehrziels, dessen Klarheit einfach Klarheit der Darstellung ist, aber nicht behauptet, Klarheit zu sein über die Dinge, die dem Dargestellten zugrunde liegen."
- 57 Schoenberg (1922: 2): "Nichts als gegeben ansehend als die Erscheinungen... Wir dürften, da wir sie bestimmt wissen, mit mehr Recht unser Wissen um die Erscheinungen Wissenschaft nennen als jene Vermutungen, die sie erklären wollen."
- 58 A full comparison lies beyond the confines of methodological economy would entail many contradictions, but that lies beyond the scope of this paper.
- 59 They were present in a sense at least comparable to the ideas of artistic revolution that Carl Schorske has addressed in *Fin-de-siècle Vienna*.
- 60 Several other participants in the Gesellschaft and its lectures are noteworthy for work pertaining to music. Houston Stewart Chamberlain spoke about Wagner's philosophy on December 16, 1898. The musicologist Guido Adler, a close acquaintance of Schoenberg and friend to the philosopher Alexius Meinong (whose work was discussed regularly at the Gesellschaft), was a Regular Member of the society, as was the "Hofopernsänger" Gerhard Stehmann. See Blackmore (1995: 279 & 296). The Robert Neumann listed on the roster of regular members may be the same person Schoenberg mentions in the *Harmonielehre* in a discussion of microtones. See Schoenberg (1978: 25, 384, 423-25).
- 61 See Bach (1924: 316-20). Bach's principal biography is Kotlan-Werner (1977). See pp. 12-15 for a summary of his early years with Schoenberg. As reviewer for the *Arbeiter Zeitung*, Bach came to Schoenberg's defence on occasion. See Bach (2006: 200-204). For Bach as Mach's student, see Bach (1908). And see Auner (1999: 98-99). See also Hailey (1996: 35-40), with regard to Webern's association with the Worker's Symphony Concerts founded by Bach in 1905 and the workers' chorus, the *Singverein*.
- 62 See Glaser (1981: 53-58). Bach's older brother, Max, was also an important figure in this developing world of Austro Marxism. See Glaser (1981: 94-97), and Kotlan-Werner (1977: 134).
- 63 Translation is this author's. Cited in Dümling (1975: 16), in Glaser (1981: 442); and in Blaukopf (1995: 158-59). The letter is translated in Auner (2003: 16-17).

- 64 See for example, "Mystification of Capital, etc.," in Marx (1976: 1052-1058 & 168-69). Marxism, in this sense, is a science aimed at jettisoning certain mystifications from economics.
- 65 In 1916, Friedrich Adler assassinated the Minister President of Austria, Count Karl von Stürgkh. He was released from imprisonment during the Austrian revolution of 1918, and became a principal figure in Austrian socialism until the Second World War.
- 66 See Auner (2003: 15-16). Glaser reports that Joseph Scheu, critic for the *Arbeiter Zeitung* (whose position, upon his death, was taken by David Bach) arranged the appointments (1981: 442). And see Stuckenschmidt (1977: 31); Schoenberg (1984: 536, ft. 1).
- 67 See Auner (2003: 16), the letter to D. J. Bach, dated July 25, 1895, where Schoenberg attempts to square the Romantic notion of nature with "the recognition of social conditions..."
- 68 See Lenin (1967:chap. 6), "Empirio-Criticism and Historical Materialism, section 5, "Ernst Haeckel and Ernst Mach." And see Blackmore (1972: 235-246).
- 69 The essay concludes with the following phrase "But I was never a communist," to which the editor adds: "This statement, and the whole article in fact, shows Schoenberg's sensitivity to the 'Loyalty Oath' controversy at the University of California, although, having retired from that institution for more than six years, he was in no way involved." See Schoenberg (1984: 536, ft. 2). Written in 1950, the essay coincides with McCarthyism, a fact that may have influenced its tenor. See, however, Auner (2003: 233), and Auner (1999: 99).
- 70 See Stuckenschmidt (1977: 144).

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