

JOSEPH SCHILLINGER
875 FIFTH AVENUE
NEW YORK

December 16, 1942.

Dear Dr. Gross:

Besides a full teaching schedule, Joseph has been working hard, as you know, trying to complete the written course. So I want to add my thanks to his for your nice letter to him.

You didn't have to apologize for bringing to his attention his use of the expression "permits to do", etc. He always appreciates that kind of suggestion. However, such things fall into my department; and the only reason I have not changed it is that I thought such foreign flavor added charm, and that while not idiomatic, it was not grammatically forbidden. But I may be wrong.

There is one thing I have not been able to explain to Joseph, and that is when to use or not to use the definite article "the". Sometimes, in typing his manuscript, I make these minor corrections myself, but more frequently, because what I type is so far beyond me, it is quite likely that I skip them. His vocabulary just knocks me for a goal! Wait until you see the part of Orchestration he is writing now.

In perhaps another week or so I will send you what we have ready on Part 2 of Orchestration. The lessons are tremendous, both in length and depth.

Just to let you know how things stand financially, you have nearly finished paying for the complete course. When Orchestration is finished there will be only six more lessons to pay for, regardless of the actual number it takes.

The best of everything to you and Janet and the family for the New Year.

Always,

Frances Schillinger

JOSEPH SCHEIDT
875 Third Avenue
New York

October 10, 1944

Dear Mr. [Name]:

Regarding a full teaching schedule, I have not been able to find, as you know, any one to complete the winter course. It is a pity to add my thanks to his for your nice letter to me.

The difficulty was in looking for someone to fill the position the use of the expression "family to do", etc. I have suggested that kind of suggestion, however, which I think is not an improvement; and the only reason I have not suggested it is that I thought such a thing would be too hard, and that while not impossible, it was not practically feasible. But I am not sure.

There is one thing I have not been able to explain to you, and that is when to use or not to use the definite article "the". Sometimes, in typing the manuscript, I make these minor corrections myself, but some I do not because what I type is so far beyond me. It is really hard to say when. The vocabulary part of the book for a while will not see the part of the manuscript as it will be.

In regard to another part of it I will send you what we have ready on part of the organization. The lessons are in the book in French and English.

Just to let you know how things stand financially, you have nearly finished paying for the complete course. The organization is financial issue will be with you. I would be very glad, regardless of the actual number of lessons to pay for, everything to you and your family for the new year.

Sincerely,

Joseph Scheidt

ON THE SCHILLINGER SYSTEM OF COMPOSITION

One of the most challenging and stimulating books to those interested in esthetics has been the recently published System of Musical Composition by Joseph Schillinger. Its novel and scientific approach have evoked both enthusiastic support and stubborn opposition.

I am aware that anyone who projects himself into a controversial fray may find himself caught in the middle and what is worse may emerge with a bloody nose for his temerity. However, since a good intellectual scrap always did intrigue me, and since the sight of blood does not disturb me, even if it is my own, I did not hesitate to accept the invitation to write this article. It so happens that I knew Schillinger well and was his pupil. I had numerous opportunities to discuss his theory with him. Since I have had the privilege of both scientific and musical background, I feel I have a right to express my views. This I do without in the least trying to set myself up as an authority on music, science or esthetics. I will shed no tears if you disagree with me and I reserve

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the right to change my own mind in the future, if on the basis of further knowledge and experience I find it correct to do so. What is required of anyone who would with all fairness approach a study of Schillinger's work is an open mind, not hemmed in or hopelessly bound by dogma.

If you have made up your mind that the scientific method has no place in the arts and that nothing that anybody would say would shake you loose from such an opinion, it would be best for you to stop reading right now. On many occasions I have induced this question into an evening's conversation to find some of my good friends in the musical world undergo frightening distortions of their blood pressure when I declared that it was not only possible but most desirable to apply scientific procedure to an esthetic field like musical composition. Schillinger's ideas were at the other end of the pendulum from those who denied science's admission into art. Schillinger believed that science could explain all art through the process of detective reasoning based upon scientific

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analysis of the music of the past, and through inductive reasoning evolve new and more complex music of the future. He believed that where the composers of the past, including the great masters did their work through intuitive channels, it should be possible for scientifically trained composers to develop their art without having to rely on the fallible methods based on intuition and "inspiration". Let me quote from Schillinger.

"Intuitive artists of great merit are usually endowed with great sensitiveness and intuitive knowledge of the underlying scheme of things. This is why a composer like Wagner is capable of projecting spiral formations through the medium of musical intonations without any analytical knowledge of the process involved. On the other hand, scientific analysis shows that the efforts of greatly endowed and creative persons could have been accomplished without any waste of time, introspection, special ability, or over-sensitiveness. Once the laws underlying certain structures have been disclosed, anyone can develop any number of structures in a class, through the mere use of a formula. This does not deprive an artist, making an individual selection

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(whatever the value of such selection may be), from operating under the illusion of as great a freedom as the one he imagines he possesses when creating through the channels of vague intuition and nebulous notions."

Schillinger was peculiarly well fitted by training and background for the task that he set himself. He possessed one of the most brilliant minds that I have ever encountered. His training included not only extensive study in music. He had studied extensively in history and philosophy, mathematics, physics and languages. He had a studious, inquiring mind, not content to accept traditional teachings and explanations. He had no patience with those who insisted upon explaining artistic creation and phenomena by purely metaphysical methods. With him it was the scientific approach without compromise. The list of his accomplishments as composer, teacher, inventor, lecturer as enumerated in the "Encyclopedia of Biography" is truly amazing. To me, as to many others who admired his brilliant intellect, his premature death at the age of 47 was a great tragedy. There was much that he would

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#5.

have contributed to society and to art had he lived longer.

It is, of course, not fair that his monumental work on musical compositions, consisting of two large volumes, should be presented in abridged form in an article like this. Schillinger needed no defenders and his work speaks most eloquently for itself.

In the projection of his theory Schillinger does not hesitate to discard many of the traditional methods. Whether or not you can find yourself in agreement with his method and his ideas I feel sure that if you were to approach the subject matter with an open mind you could not help but marvel and admire the brilliance of the concept. His system is divided into twelve correlated branches:

Theory of Rhythm
Theory of Pitch-Scales
Variations by Means of Geometrical Projection
Theory of Melody
Special Theory of Harmony
Correlation of Harmony and Melody
Theory of Counterpoint
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General Theory of Harmony
(Strata Harmony)
Evolution of Pitch-Families
Theory of Composition
Theory of Orchestration

His rhythmic patterns are evolved from natural sources and by scientific method are evolved into complex patterns and formulae. In his treatment of harmony, voice, leading, scales, melody and counterpoint, Schillinger consistently applies the scientific method. As I see it, the two volumes provide an encyclopedic and statistical embodiment of all the possible devices and combinations that musical composition has to offer. Schillinger's argument was that a good composer should be able to compose in any style, and through a mastery of the technical devices involved in music of a given type, a composer should be able to compose with ease in that style. Thus, for example, if a composer wished to write in a style of the 17th century, it would be necessary for him to analyze the music of that period and reduce it to its fundamental rhythmic, melodic and harmonic patterns and then apply these formulae in his compositions. Schillinger strongly believed that without

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the application of the scientific method the student and composer were restricted in their horizons. The student was enmeshed and weighted down by an insurmountable array of rules of dos and don'ts, which were in the main deduced from the writings of 17th and 18th century composers, many of them mediocre. When a student finally emerged from this quagmire, his experience permitted him to write in that style only, and usually not as well as his predecessors. To make it worse he was accused of not being original. On the contrary, according to Schillinger, the scientific method completely liberated the composer from subservience to the past, if he so desired. A composer could be as original as he desired.

Critics of Schillinger have stated that his system did not allow for the factor of genius and inspiration. Schillinger scoffed at this. He claimed that it was perfectly possible to compose music of a superior quality without inspiration, provided that the composer knew his craft thoroughly and understood the "ingredients"

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There remains for me to comment upon my own experience as a student of composition, and I must emphasize that at present I am only a student. I have found that the Schillinger system of composition has afforded me a most delightful intellectual, mental experience. Despite assiduous study of the system which was taken mainly through the correspondence method, I found that it was necessary for me to do further study with a well known composer in order to learn the classic idiom. I think that this has been greatly facilitated by my previous study of the Schillinger system in that it gave me a basis, a scientific basis, if you will, for comprehension of the classic. Schillinger does not go into all the details of the classic method with idioms

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He is content to formulate many of its basic principles. For the rest, the student must dig for himself. I know that Schillinger did not consider that a fault of his treatise. He considered much of past music as either a special case of music in general or as mediocre material not worthy of much attention anyway.

Certainly the Schillinger method has proven very fruitful to people who have worked in the arranging field and to those who have to turn out large volumes of music rapidly as for radio scripts or for the movies. This fact I know to be so from personal conversation with people who do this kind of work.

What seems to me is the one really valid criticism is that from an esthetic standpoint, while cataloging all the possibilities which may unite in various ways to provide esthetic appeal, the Schillinger method does not teach the student how to distinguish between what is esthetically beautiful and what is not and as a correlary of this, how to produce such an esthetic response. It is at this point that the opponents of the scientific method in art would try

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to rise in their righteous indignation to jeer, "I told you so". Well, maybe so, it may be that here is the one spot where the factor of genius and inspiration may play the decisive role. In other words, all composers may learn the mathematical formulae, the methods and the craft of composition, but it is in the selectivity of the various components at the proper time and in the proper place, in that sensitivity to the stimuli thus produced that the illusive divine spark may be present. To which the determined scientist may reply that all the phenomena of nature, if not at present completely known or understood, are nevertheless capable of complete understanding in the future. To extract truth from nature is difficult but in the end science must triumph. Human beings, including their nervous systems and the matter which stimulates these nervous systems, are physical entities and therefore are capable of eventual, complete analysis and understanding. It is probably this belief which encourages scientists to continue their relentless probing of the human mind.

It is at this point where many of my friends

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#11.

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JOSEPH SCHILLINGER
875 FIFTH AVENUE
NEW YORK

February 20, 1943.

Dear Jerry:

First of all, Joseph asks me to thank you for coming to New York when you did, and for everything your kindness and human warmth prompted you to do for us. We both hope some day to be able to show you our gratitude.

Joseph came home on Thursday morning and so far, everything seems to be more or less as can be expected. The chief difficulty lies in his not being able to consume much food. If he takes more than a pint a day of the pabulum tube feeding he feels unbearable pressure and discomfort, and since that is such a small amount, we are trying to make up by giving him fruit drinks by mouth. He has an unquenchable thirst.

For the nausea, Dr. Garlock prescribed two or three drops of novocaine on a small lump of sugar, and that has succeeded in quieting down that discomfort when it comes. This morning Dr. G. came here to see him, before leaving for a two weeks trip to California, which he said is a combination government and pleasure trip. He said he would also drop in sometime after he returns, but that in the meantime we could call Dr. Lyons for anything, if necessary.

We have a practical nurse who seems to be a jewel. She is crazy about Joseph, and he is most grateful for her competence and willing attitude. Therefore, so far, in spite of the discomforts and occasional upsets which we know we must expect, I guess everything is all right. You can imagine how happy Joseph is to be in his beautiful, clean home again.

Please give our very best to Janet and thank her, also, for her sweet attitude toward the time and energy you devoted to us.

Next week I shall order the photostats of the rhythm and scale tables for you and shall send them as soon as they arrive.

Love,

Frances

(Do you know anything about the experimental work that Drs. Stein and Jacobs are doing at the Beth David Hospital? If you can think of anything, now matter how great the chance, would you tell me? Please write all such things to my sister,
Mrs. Elsa Snyder, 225 East 79 St., NYC,
and anything you send to me here will be for Joseph to read, too.)

73% contracts - 10 mas - 22% pop.

4.5 weeks for every man in armed forces.

Abortion, better women altogether out of you
part be available.

How more susceptible to industrial disease.

Highest death rate among unemployed women

Handicapped aged young adults. -> take more chance.

15-24 year

Solvents - budget for threat TNT

Anti-Pills - Demerol

Increasing
nervous
Painkillers

Empty

Deafening Helium Gas
Bombs

Physical
Pain

3-4 days - 168 hours
cycle - 168 hours
work

3-4 days - 168 hours
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Artificial
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10-12 hours
work

Physical
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Poor metabolism
Excessive temp. & humidity
noise
poor posture
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Dear Jerry,
February 20, 1945.
JOSEPH SCHILLINGER
835 Fifth Avenue
New York

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835 FIFTH AVENUE
NEW YORK

JOSEPH SCHILLINGER
875 FIFTH AVENUE
NEW YORK

December 16, 1942.

Dear Dr. Gross:

Thank you very much indeed for your letter of December 14, and for your check. It is good to have students like you who make me feel the hard work I do is worth while.

Here are your questions, and the answers:

1. In polythematic composition, since the various themes and their recurrences appear in different keys, should themes of modulatory character be used between other themes or can theme B follow A or C or D without concern for modulatory interlude?

Ans.: I consider connecting thematic units to be organic parts of the entire thematic structure and not as mere modulatory bridges connecting two themes. As a consequence of this (which is discussed in the Theory of Composition) such an intermediary theme can be in any harmonic style, i.e., diatonic, diatonic-symmetric, symmetric, chromatic. Each such style as you know has definite axial characteristics. So the whole question boils down to nothing. Even in Beethoven's Third Sonata for the Piano the first theme (or you may consider it an extension of the first theme) ends with a downward scalewise unaccompanied passage: C nat. d₄ (Myxolidian); but the next theme which is the second theme has a modulatory character, though it starts in G - minor. As you see, the extension of the first theme (bridge) does not modulate toward the second theme. Thus the ending of one section leading into another may be either related or unrelated to the following section. Today direct contrasts are considered more expressive and are preferred to the process of leading on a leash.

2. Modulation in Strata Harmony. Are the common tones, C. alt. and ident. motifs employed in any stratum?

Ans.: Modulation becomes an outmoded concept when viewed from the "strata" - angle. In types II and III everything has an appearance of continuous modulations. Identical motifs, common tones and chromatic alterations are all part of the scale theory and refer to melody (or melodies) but not to harmony in strata. Each Σ vertically offers a set of pitches which can be used in any desirable manner. The progression itself rectifies everything in this case.

Dr. Gross -- page 2.

3. Only dissonances must be resolved according to the principles of scalewise (contrary or oblique) motion of one voice or both voices (plus added versatility of the step of fourth down or up by remaining voice if one voice moves diatonically). Consonances, on the other hand, may resolve as above, or not resolve at all and proceed to any other consonance or dissonance.

Ans.: Your own description is exactly correct.

4. In the first example, since the progression in the upper stratum is C-7, $\begin{matrix} ? \\ ? \\ \downarrow \end{matrix}$ ascend. In almost all instances the rule has worked without causing octaves. In such an example, octaves are to be avoided by varying the type of resolution -- here constant bc? And the seventh here remains stationary. A resolution where it would have ascended would be wrong, whereas downward motion (or stationary) is permissible?

Ans.: There are very few such cases, and nothing can be done about them without introducing new regulations. Thus there are two solutions: (1) to admit such parallel octaves; (2) to change the scheme of tension, that is to reconstruct the progression of chord-structures just for such a place.

* * * * *

Frances has asked to answer the other parts of your letter.

I shall be glad to see you any time you get here.

With cordial best wishes always,

Sincerely,

Joseph Schillinger

5. Only dissonances must be resolved according to the principles of resolution (contrary or oblique) motion of one voice or both voices (plus added versatility of the step of fourth down or up by retaining voice if one voice moves dissonantly). Consonances, on the other hand, may resolve as above, or not resolve at all and proceed to any other consonance or dissonance.

Ans.: Your own description is exactly correct.

6. In the first example, since the progression in the upper structure is G-A-B, it ascends. In almost all instances the

rule has worked without causing octaves. In such an example, octaves are to be avoided by varying the type of resolution -- here constant but the seventh here remains stationary. A resolution where it would have ascended would be wrong, whereas downward motion (or stationary) is permissible.

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JOSEPH SCHILLINGER
875 FIFTH AVENUE
NEW YORK

December 29, 1941.

Dear Dr. Gross:

This is the second of the three sets of lessons covered by your last check. This set completes Two-Part Melodization and begins Two-Part Harmonization. Your next set will complete Two-Part Harmonization and will begin Instrumental Forms.

Though it is rather late to do so, beginning with the enclosed set I am changing the method of numbering pages. From now on, each branch will be numbered consecutively, and each new branch will begin with page one. Because you have divided your lessons into notebooks of separate branches this will be easier.

The best of everything for you and your family for the New Year.

Sincerely,

Joseph Schillinger

JOSEPH SCHILLER
575 FIFTH AVENUE
NEW YORK

December 28, 1917

Dear Dr. Gross:

This is the second of the three sets of lessons covered by your last check. This set comprises two-part Introduction and begins two-part Harmonization. Your next set will complete two-part Harmonization and will begin two-part Introduction.

Though it is rather late to do so, beginning with the enclosed set I am changing the method of numbering pages. From now on, each lesson will be numbered consecutively, and each new branch will begin with page one. Because you have divided your lessons into notebooks of separate branches this will be easier.

The best of everything for you and your family for the New Year.

Sincerely,

Joseph Schiller

MRS. JOSEPH SCHILLINGER
340 EAST 57TH STREET
NEW YORK 22, NEW YORK

September 28, 1944.

Dear Jerry,

Here are some copies of the Newsweek article, with your good name in it. I can let you have as many more as you like, if you want them.

You will notice that credit for the drawing has been changed to Lyn Murray (a mistake on the part of someone at Newsweek, which I corrected).

I sent some material to Widder, as you so kindly suggested, so maybe he'll do an article too.

Received a nice letter from Myron Schaeffer in Panama, who says he'll be here in about six months, to stay a while.

Love to you and Janet.

Always,

Fances

MRS. JOSEPH SCHILLINGER
240 EAST 57th STREET
NEW YORK 22, NEW YORK

September 23, 1944.

Dear Betty,

Here are some copies of the Newark article, with your good name in it. I can let you have as many more as you like, if you want them.

You will notice that credit for the drawing has been changed to Lyn Murray (a mistake on the part of someone at Newark, which I corrected).

I sent some material to Widder, as you so kindly suggested, so maybe he'll do an article too.

Received a nice letter from Byron Schaffer in Panama, who says he'll be here in about six months, to stay a while.

Love to you and Janet.

Always,

Thomas

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION

1201

SYMBOLS

- DL = Day Letter
- NL = Night Letter
- LC = Deferred Cable
- NLT = Cable Night Letter
- Ship Radiogram

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DR JEROME GROSS:

= 10300 LAKESHORE BLVD CLEVE

= DEAREST JERRY JOSEPH DIED SOON AFTER MIDNIGHT LETTER
FOLLOWS GRATEFUL LOVE =

= FRANCES.

No	P 02500	10/11/19
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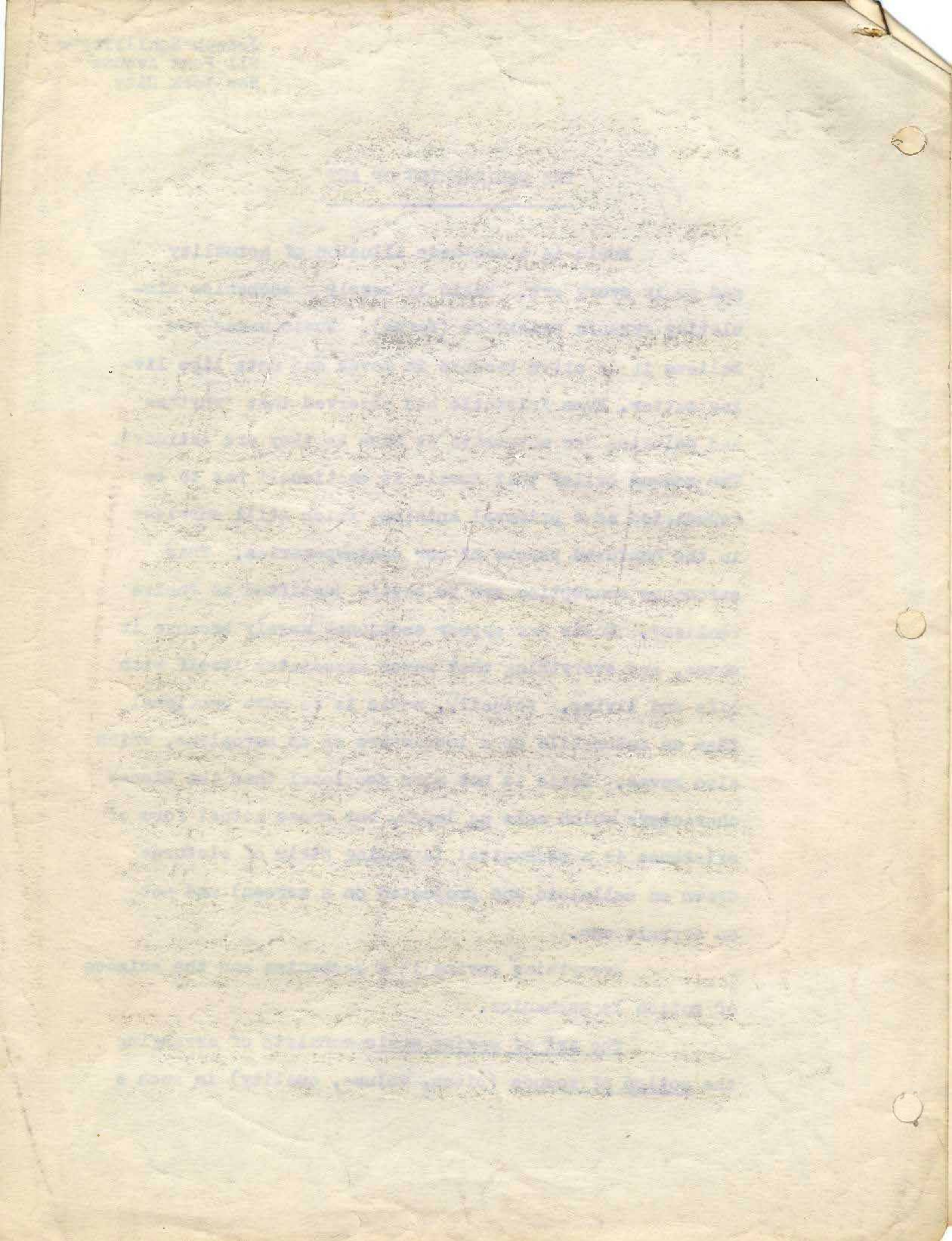
Joseph Schillinger
911 Park Avenue
New York City

THE ENGINEERING OF ART

Music is a man-made illusion of actuality and so is every art. Music is merely a mechanism simulating organic existence (forms). Music makes you believe it is alive because it moves and acts like living matter. Even Aristotle had observed that "rhythms and melodies are movements as much as they are actions". The common belief that "music is emotional" has to be repudiated as a primeval animism, which still survives in the confused psyche of our contemporaries. This erroneous conception can be easily justified as "naive realism". Music may appear emotional merely because it moves, and everything that moves associates itself with life and living. Actually, music is no more emotional than an automobile or a locomotive or an aeroplane, which also moves. Music is not more emotional than the Disney characters which make us laugh, but whose actual form of existence is a mechanical (a moving strip of pictures drawn on celluloid and projected on a screen) and not an organic one.

Everything moving is a mechanism and the science of motion is mechanics.

The art of making music consists of arranging the motion of sounds (pitch, volume, quality) in such a



manner that it appears to be organic, alive.

The science of making music thus becomes the mechanics of musical sounds.

The technique of this science enables the art of music to serve its ultimate purpose: the conveyance of musical ideas to the listener.

The sources, the media and the instruments of art are created by nature. The forms, the texture, and the coloring of rainbows, sunsets, birds' plumages, crystals, shells, plants, animal and human bodies are the sources of the art of painting. Minerals, plants and vegetables are the media (pigments) and the sense of vision - the instrument of that art.

The thunder, the animal sounds and the echo are as much the sources of music, as all the inorganic and organic forms which provide the structural patterns for musical intonation and continuity. Lungs and vocal cords, reeds and animal skins, as well as electricity are the media (sound production) of the art of music, and the sense of hearing is the instrument of that art.

Natural forms originated as a necessity: an instrument for efficient existence. Multiplication of forms and images (optical and acoustical reflexion) as well as offensive and defensive (circumstantial) mimicry (aggressive and protective size, shape and coloring) constitute the first step in the evolution of art forms.

Deduction of esthetic (dogmatic) norms, combined with imitation and readjustment of appearances according to these norms constitutes the following step - intentional mimicry. The final step in the evolution of the arts is a scientific method of art production, where the works of art are manufactured and distributed according to definite requirements and specifications. This final step becomes possible only after the laws of art have been disclosed. The discovery of the laws of art has been an old dream of humanity.

In the Li-Ki, or Memorial Rites of the ancient Chinese we read: "Music is intimately connected with the essential relations of beings. Thus, to know sounds, but not airs, is peculiar to birds and brute beasts; to know airs, but not music is peculiar to the common herd; to the wise alone it is reserved to understand music. That is why sounds are studied to know airs, airs in order to know music, and music to know how to rule."

The science of art-making must be concerned with two fundamentals:

- (1) The mechanism of pattern-making.
- (2) The mechanism of reactions.

A theory of the arts must be ultimately formulated as a science dealing with the relationship

which exists between the forms of excitors (works of art as they exist in their physical form in this case) and the forms of reactions (emotional responses as they exist in their psycho-physiological form, i.e., in the form of nervous impulses, reflexes and psychological categories).

As long as any art-form manifests itself through a physical medium, and is perceived through an organ (or organs) of sensation, memory and associative orientation, it is a measurable quantity, and measurable quantities are subjected to the laws of mathematics.

Thus, the analysis of forms (even if they are considered esthetic) requires mathematical technique, and the synthesis of forms (the making of forms realized in an art medium, in this case) requires the technique of engineering.

There is no reason why music or painting or poetry cannot be designed and executed the way engines or bridges are. The technical progress of today produces enough evidence of the success which results from engineering, i.e., from the method of expedient economy and efficiency. And if this method transformed the most daring dreams of yesterday into actualities of today, it is bound to be equally as successful in the field of art.

On Schillinger and

THE SCHILLINGER SYSTEM OF COMPOSITION

One of the most challenging and stimulating books to those interested in esthetics has been the recently published System of Musical Composition by Joseph Schillinger. Its novel and scientific approach have evoked both enthusiastic support and stubborn opposition.

I am aware that anyone who projects himself into a controversial fray may find himself caught in the middle and what is worse may emerge with a bloody nose for his temerity. However, since a good intellectual scrap always did intrigue me, and since the sight of blood does not disturb me, even if it is my own, I did not hesitate to accept the invitation to write this article. It so happens that I knew Schillinger well and was his pupil. I had numerous opportunities to discuss his theory with him. *For these reasons and because* ~~Since~~ I have had the privilege of both scientific and musical background, I feel ^{that} I have a right to express my views ^{concerning Schillinger and his work.} This I do without in the least trying to set myself up as an authority on music, science or esthetics. I will shed no tears if you disagree with me and I reserve

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#2.

the right to change my own mind in the future, if on the basis of further knowledge and experience I find it correct to do so. What is required of anyone who would with all fairness approach a study of Schillinger's work is an open mind, not hemmed in or hopelessly bound ^{down} by dogma ^{and} prejudice.

If you have made up your mind that the scientific method has no place in the arts and that nothing that anybody would say would shake you loose from such an opinion, it would be best for you to stop reading right now. On many occasions I have ^{discussed} induced this question into an evening's conversation to find some of my good friends in the musical world undergo frightening distortions of their blood pressure when I declared that it was not only possible but most desirable to apply scientific procedure to an esthetic field like musical composition. Schillinger's ideas were at the other end of the pendulum from those who denied science's admission into art. Schillinger believed that science could explain all art through the process of ^{deductive} ~~detective~~ reasoning based upon scientific

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analysis of the music of the past, and through inductive reasoning evolve new and more complex music of the future. He believed that where the composers of the past, including the great masters, did their work through intuitive channels, it should be possible for scientifically trained composers to develop their art without having to rely on the fallible methods based on intuition and "inspiration". Let me quote from Schillinger.

"Intuitive artists of great merit are usually endowed with great sensitiveness and intuitive knowledge of the underlying scheme of things. This is why a composer like Wagner is capable of projecting spiral formations through the medium of musical intonations without any analytical knowledge of the process involved. On the other hand, scientific analysis shows that the efforts of greatly endowed and creative persons could have been accomplished without any waste of time, introspection, special ability, or over-sensitiveness. Once the laws underlying certain structures have been disclosed, anyone can develop any number of structures in a class, through the mere use of a formula. This does not deprive an artist, making an individual selection

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(whatever the value of such selection may be), from operating under the illusion of as great a freedom as the one he imagines he possesses when creating through the channels of vague intuition and nebulous notions."

Schillinger was peculiarly well fitted by training and background for the task that he set himself. He possessed one of the most brilliant minds that I have ever encountered. His training included not only extensive study in music. He had studied extensively in history and philosophy, mathematics, physics and languages. He had a studious, inquiring mind, not content to accept traditional teachings and explanations. He had no patience with those who insisted upon explaining artistic creation and phenomena by purely metaphysical methods. With him it was the scientific approach without compromise. The list of his accomplishments as composer, teacher, inventor *and* lecturer as enumerated in the "Encyclopedia of Biography" is truly amazing. To me, as to many others who admired his brilliant intellect, his premature death at the age of 47 was a great tragedy. There was much that he would

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have contributed to society and to art had he lived longer.

It is, of course, not fair that his monumental work on musical composition^s, consisting of two large volumes, should be presented in abridged form in an article like this. Schillinger needed no defenders and his work speaks most eloquently for itself.

In the projection of his theory Schillinger does not hesitate to discard many of the traditional methods. Whether or not you can find yourself in agreement with his method and his ideas, I feel sure that if you were to approach the subject matter with an open mind you could not help but marvel and admire the brilliance of the concept. His system is divided into twelve correlated branches:

Theory of Rhythm
Theory of Pitch-Scales
Variations by Means of Geometrical Projection
Theory of Melody
Special Theory of Harmony
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General Theory of Harmony
(Strata Harmony)
Evolution of Pitch-Families
Theory of Composition
Theory of Orchestration

His rhythmic patterns are evolved from natural sources and by scientific method are evolved into complex patterns and formulae. In his treatment of harmony, voice, leading, scales, melody and counterpoint, Schillinger consistently applies the scientific method. As I see it, the two volumes provide an encyclopedic and statistical embodiment of all the possible devices and combinations that musical composition has to offer. Schillinger's argument was that a good composer should be able to compose in any style, and through a mastery of the technical devices involved in music of a given type, a composer should be able to compose with ease in that style. Thus, for example, if a composer wished to write in a style of the 17th century, it would be necessary for him to analyze the music of that period and reduce it to its fundamental rhythmic, melodic and harmonic patterns and then apply these formulae in his compositions. Schillinger strongly believed that without

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the application of the scientific method the student and composer were restricted in their horizons. The student was enmeshed and weighted down by an insurmountable array of rules of dos and don'ts, which were in the main deduced from the writings of 17th and 18th century composers, many of them mediocre. When a student finally emerged from this quagmire, his experience permitted him to write in that style only, and usually not as well as his predecessors. To make it worse, he was ^{often} accused of not being original. On the contrary, according to Schillinger, the scientific method completely liberated the composer from subservience to the past, if he so desired. A composer could be as original as he desired.

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Critics of Schillinger have stated that his system did not allow for the factor of genius and inspiration. Schillinger scoffed at this. He claimed that it was perfectly possible to compose music of a superior quality without inspiration, provided that the composer knew his craft thoroughly and understood the "ingredients"

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#8.

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There remains for me to comment upon my own experience as a student of composition, and I must emphasize that at present I am only a student. I have found that the Schillinger system of composition has afforded me a most delightful intellectual, mental experience. ^{in my} Despite assiduous study of the system which was taken mainly through the correspondence method, I found that it was necessary for me to do further study with a well known composer in order to learn the classic idiom. I think that this has been greatly facilitated by my previous study of the Schillinger system in that it gave me a basis, a scientific basis, if you will, for comprehension of the classics. Schillinger does not go into all the details of the classic method with ^{the} idioms.

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#9.

He is content to formulate many of its basic principles. For the rest, the student must dig for himself. I know that Schillinger did not consider that a fault of his treatise. He considered much of past music as either a special case of music in general or as mediocre material not worthy of much attention anyway.

Certainly the Schillinger method has proved very fruitful to people who have worked in the arranging field and to those who have to turn out large volumes of music rapidly, as for radio scripts or for the movies. This fact I know to be so from personal conversation with people who do this kind of work.

What seems to me is the one really valid criticism is that from an esthetic standpoint, while cataloging all the possibilities which may unite in various ways to provide esthetic appeal, the Schillinger method does not teach the student how to distinguish between what is esthetically beautiful and what is not and as a corollary of this, how to produce such an esthetic response. It is at this point that the opponents of the scientific method in art would try

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to rise in their righteous indignation to jeer, "I told you so". Well, maybe so, it may be that here is the one spot where the factor of genius and inspiration may play the decisive role. In other words, all composers may learn the mathematical formulae, the methods and the craft of composition, but it is in the selectivity of the various components at the proper time and in the proper place, in that sensitivity to the stimuli thus produced, that the illusive divine spark may be present. To which the determined scientist may reply that all the phenomena of nature, if not at present completely known or understood, are nevertheless capable of complete understanding in the future. To extract truth from nature is difficult but in the end science must triumph. Human beings, including their nervous systems and the matter which stimulates these nervous systems, are physical entities and therefore are capable of eventual complete analysis and understanding. It is probably this belief which encourages scientists ^{to} continue their relentless probing of the human mind.

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on one or the other side of the fence begin to get hot under the collar on the question of the possibility and desirability of the scientific method in its application to the arts. Perhaps you feel that way now, nevertheless, if you do decide to read Schilling's books, try to do so with an open mind.

11

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It is not that every scientist is a
fanatic, but that every fanatic is a
scientist.

[Faint, illegible handwriting]