

Joseph Schillinger His Theories Work

Joseph Schillinger, who has taught many of America's leading composers, here plays his Hammond Organ in his Park Avenue apartment in New York. His latest book, KALEIDOPHONE, has just been published.

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He can combine such different occupations as writing a philosophical treatise on "The Destiny of the Tonal Art" and teaching musical composition to Benny Goodman, who later became the king of swing. For Mr. Schillinger is as practical as he is theoretical, and he knows that his theory of musical composition becomes part of American life only when such maestros as Mr. Goodman, Glenn Miller, Jesse Crawford, Lyn Murray, Nathan Van Cleave, arranger for many noted orchestras, and Leith Stevens, Director of the Ford Summer Hour, to mention only a few of his students, present compositions with their orchestras or on the radio. The late George Gershwin's most important opus, "Porgy and Bess," was the result of his study with Mr. Schillinger.

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for electronic instruments. He is keenly interested in electronic nusic because he believes music produced electrically surpasses in clarity of tone that produced by conventional instruments. "The men who will be responsible for the music of radio and television in 1950," he maintains, "will be neither composers nor performers, but a new kind of 'music engineer' who will operate the machines that compose and perform nusic."

Joseph Schillinger was born in 1895 at Kharkov, Russia. At the tender age of five he became interested in design, dramatics and verse, and at ten he was experimenting in play-writing. Upon his graduation from the St. Petersburg Imperial Conservatory of Music he became bead of the music department of the Board of Education in the Ukraine, later served in a similar post in Leningrad. During this time he did valuable research making phonograms of the native folk music of the Georgian tribes in the Caucasus. He also organized and directed the first Russian jazz orchestra in 1927 which he says netted him as much fun as it did knowledge. In 1928, Mr. Schillinger came to the United States to lecture on contemporary music, and was so impressed with the life and vitality he found here that he took out citizenship papers, becoming a citizen in 1936. In New York he taught in the departments of Mathematics, Fine Arts and Music at Teachers College, Columbia University.

Mr. Schillinger's spacious apartment contains so many interesting objects that the casual visitor would like to linger for hours just investigating them. For example, there is the rhythmicon, an electrically operated machine with a keyboard of 16 keys. With the rhythmicon Mr. Schillinger can produce patterns of sound which encompass every conceivable music pattern from the waltz to the rhumba or the minuet. One of his most vivid examples of what the rhythmicon can do is to simulate the rhythm of African tom-toms. Mr. Schillinger's recording equipment is hooked up to three huge amplifiers, one in the studio, one in the reception room and one in the bedroom. Students can hear their own efforts played back to them which is an invaluable aid in musical composition. It is generally conceded that Mr. Schillinger has the most completely equipped private studio in the country, but in addition its modern simplicity of line with soft pastel colors predominating makes it a serene and inspiring place in which to study.

Joseph Schillinger considers the Hammond Organ the first practical electronic instrument yet devised and because of its ability to sustain tones uses it constantly in his studio to illustrate to his students multiple harmonies and composition of various tone qualities.



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PLAIN TALK ON MUSICAL GENIUS

by Joseph Schillinger

MY BOY IS SO MUSICAL. He will be only seven next month, and he has absolute pitch, and can play a Mozart concerto from memory." This is the usual claim made by thousands of parents throughout the world, who are proud of, and sometimes mercenary with regard to, their own children.

One hears so much about "absolute pitch" that it should be worth the trouble to make it clear once and for all that there is no such thing as absolute pitch. Absolute pitch has no chance whatsoever to withstand comparison with other absolutes, such as "absolute zero" temperature, or the boiling point of such-and-such a liquid, or the melting point of such-and-such a metal. Furthermore, as science progresses, we learn that even these absolutes vary under certain conditions.

Some people, having read books on physics, arrive at the idea that there is an absolute "C" of 256 cycles, or an absolute "A" ("American concert pitch") of 440 cycles. In reality, all these standards are established by various international and national conferences on pitch. The fact that a certain wave frequency is called "A" is not a natural phenomenon, but a mutual agreement of a certain group of experts, valid in a certain locality, and for a certain period of years. The organ pipes of Halberstadt (1495 A.D.) were tuned at 505 cycles for "A." On the other hand, as recently as 1713 A.D. (Strassburg Minster Organ), the sound called "A" was below the "F" of today. Since then it has been gradually rising.

In the course of two hundred years the "A," which was attributed to 393 cycles, rose to 440 cycles and more. And although the committee appointed by the French government introduced the "diapason normal," the respective tuning fork ("A") oscillates at 439 cycles at 68° Fahrenheit and at 435 cycles at 59° Fahrenheit.

Yet with all this we still have parents claiming that their children are born with the gift of absolute pitch. There must be some misunderstanding about the meaning of the word "absolute." In science, this word means a definite constant, or a definite limit. Such absolutes are, for example, the speed of light constantly making 180,000 miles per second, which is the highest speed limit known, or, the "absolute zero," the lowest temperature known. Then it must be something else that proud parents call "absolute pitch." And it is. The so-called "absolute pitch" is merely one small portion of the manifold of mechanical memory, and the ability to memorize is highly developed in all normal children. The reaction of a child's hearing to a certain frequency, particularly with successive repetitions which often follow as a daily routine--and this is especially true in training young violinists—develops and crystallizes auditory mnemonic reflexes, and becomes a habit. The mechanism of a reflex conditioned to a definite sound frequency is well known through the numerous experiments on dogs in association with food. Thus, vain and ignorant people are trying to glorify an ordinary and normal physiological reaction inherent in children, and in animals as well.

It is a well-known fact that the mechanical memory manifests itself in more than one way in a normal child. Children easily memorize words, events, circumstances, and can learn a new language much quicker than grown-up people who have to go through the effort of developing associations. It is the imitative ability that is so strong in a child, and quite rare in a grownup—particularly in a mentally mature adult.

Musical memory, which is often considered the sign of a highly developed musicianship, falls into the same imitative group. Children memorize a musical composition, even of the complexity of a piano concerto, by constant repetition until their musical reactions form into a habit. It is no more remarkable than the learning of speech by a child, in which the vocal cords produce continuous reflexes of a

different degree of tension in an attempt to reproduce definite pitches by imitation. These adapted reflexes later develop into articulate speech.

Sometimes somebody's child has not only "absolute pitch" and plays a Mozart concerto from memory, but on top of all this, can even sit at the piano and improvise like Mozart himself. In such a case no parents ever have any doubt that the child is a born genius, while in reality he is seldom equipped with the necessary prerequisites of a true composer. Among the students of music schools and conservatories it is a common belief that so-and-so will be a great composer—just because his ear recognizes 435 cycles when he hears it. Another common misunderstanding about musical abilities is the assumption that such abilities in a skillful performer are necessarily coupled with the ability to compose as well.

Often not only a parent, but also a musical pedagogue, is amazed at the fact that somebody can write outstanding and original music without playing any instrument whatsoever. All the faults of musical critics, pedagogues, and laymen lie in the fact that all the existing definitions of musicianship are false ones. If the true diagnosis were given, we would not have so many maladjusted and disappointed musicians. It is often tragically true that people who aspire in their youth to become great concert soloists are lucky if they land as third-desk men in a symphony orchestra.

If we wish to determine honestly what musicianship really is, we have to analyze first the aspects of our musical civilization. It is characteristic of our musical civilization to cultivate performers, singers, conductors, and instrumental soloists. Many of our listeners, even among regular subscribers to symphony concerts, go to hear one or another conductor performing the same Beethoven symphony, with the same sense as they go to the Olympic games: they are merely interested in who will do it better in their opinion, or in the opinion imposed upon them by their favorite music critic in their daily newspaper.

It is typical of our musical civilization that nobody dares to form an opinion on facts for which the opinion has been formed for him. There is only a handful of listeners who would doubt the superiority of Toscanini, just because such superiority is widely acknowledged. Most listeners are not particularly interested in the work being performed; but when they visit a picture gallery or a museum, they want

to see the work of such-and-such a painter—and that they can observe immediately. It is different in music. There is a performer between the composer and the audience, and the performer is glorified as a hero, though from the viewpoint of natural sciences he should be classified as a parasite—since he develops his own success by usurping the result of thought and effort expended by someone else, usually long since dead.

Very few in our audiences are aware of the fact that the important steps in musical progress have been achieved not by the people they admire, but, in most cases, by the people they have never heard of. For example, the greatest eighteenth-century symphonies were written not by Mozart, as it is commonly believed today, but by Johann Christian Bach (1735-82), the youngest son of Johann Sebastian Bach, not an unknown figure in musical history. It is the imitative abilities characteristic of the childish mind that led Mozart to adapt Johann Christian Bach's schemes in constructing his symphonies, aping them closely enough to make it a plain case of an event of secondary importance. Some of the best of Johann Christian Bach's symphonies were composed thirty years before Mozart's, and Mozart went to London to study with Bach in order to adapt Bach's achievements for his own benefit.

Have you ever heard of Guillaume de Machault? In his time he was the greatest celebrity in all fields. He developed certain types of musical technique

OSEPH SCHILLINGER is known to a large part of the reading public for his theories on the mathematical basis of the arts, and to musicologists for his varied musical compositions and for his identification with the development of the electronic musical instrument, the theremin. He began composing music when very young; he has taught in several American schools of music and at Columbia and New York Universities, and has lectured widely on many phases of the arts. Since 1929 he has been a member of the New York Musicological Society, and later, since its organization, of the American Musicological Society and the American Society for Comparative Musicology. His hobbies and recreations are photography, mountain-climbing, and fishing, enjoyed between lessons with students in composition who come from all parts of the country to his New York studio.

(polytonal counterpoint), for which some of our contemporaries take the credit. The latter claim that it is their discovery that several melodies may exist in different keys simultaneously. Machault, whom I have just mentioned, lived and died in the fourteenth century (1320-77), and if you want to know how "modern" his music sounds, listen to his "Mass" written for the coronation of Charles V. (It is now available in a Brunswick recording). How many of Johann Sebastian Bach's admirers know that other members of this family produced equally outstanding masterpieces; and that the man to whom the credit should go for Johann Sebastian Bach's style is the man who was his teacher, and the greatest composer and organist of his time — Dietrich Buxtehude (1637-1707)?

Looking back into facts of past musical history, we often discover that people whom we consider supermen did not possess the imitative abilities which we usually call musicianship. If you believe that there is anything worth while musically in the productions of Richard Wagner, it may surprise you to read in his own *Memoires* that he had to stop composing his "Niebelungen" because the piano had not arrived, and he could not compose any music without pounding it out of the piano keyboard. On the other hand, a great performing artist may be a very poor musician when it comes to the art of composing music: listen to the works of Paderewski and Josef Hofmann (Dvorsky).

It may produce an uncomfortable feeling in those who have made up their minds that a genius creates through inspiration and with the greatest of ease to learn that, in reality, Beethoven left manuscripts full of scratches and continuous rewriting. It often took him a long time to shape an 8-bar theme. Doesn't it make you feel just a little bit suspicious with regard to the accepted status of music when you hear that somebody's child can create with such ease, while old man Beethoven and Wagner had such a difficult time trying to realize their ideas in musical sounds?

Some years ago I heard a girl pianist who was a sensation. At the age of nine she made extensive concert tours, and had written several hundred compositions—many of which were published with the money she earned as a pianist. Nobody has ever played her music and nobody ever will. At the age of thirty-two she studied composition without success. In the past there were many composers in

Germany who were industrious enough to write over two hundred operas in the course of a brief lifetime, but they certainly have not made any genuine contributions to the progress of music.

If Wagner, Rimsky-Korsakov, and Stravinsky cannot boast of possessing "absolute pitch," but all the thousands of insignificant epigones can, the nature of musicianship must lie not in mere mechanical memory of hearing or in muscular habits of finger agility, but in something else which has never been brought to the attention of the general public. If some day we succeed in freeing our civilization from the admiration of publicity seekers who, in most cases, distort the original intentions of the true contributors to progress—the composers—we will realize that the valuable substance of music is not in the hands of the people whom the public admires so greatly. If the real life of music is in the hands of a creative composer, it is he who must interest us, providing we have a genuine love for music, and are concerned with its well-being.

What makes a great composer, if it is not his mechanical memory, or finger agility, or extraordinary sensitiveness of hearing? The musicianship which makes a true musician the creator of music is a group of abilities which are diametrically opposed to those usually claimed as the attributes of musicianship.

The first prerequisite of true musical abilities is an immunity to and dislike for other people's music. It is dissatisfaction that stimulates the urge to do better things, and a true creative composer produces his music in order to satisfy such an urge. He wants better music than that which is at his disposal, made by his contemporaries or his predecessors, and that is why he wants to make music of his own. A true creative composer usually is an individual endowed with originality of thought and conception—which is more important than whether "A" is 435 or 440 cycles per second. A true musician is a molder of sounds, and not a resonating chamber or a mirror that merely reflects what comes to it. He is looking for new ways of expressing either the things that have perpetual significance to human beings, or has his own new and original thoughts which he shapes into plastic forms by means of sound. While the elements of music remain the same through the course of many centuries—dealing with the same type of intonations and using similar types of instruments—it becomes important to possess the abilities of producing new combinations out of the manifold of sounds, so well-known and so seemingly well-explored that few people realize that all the music of our civilization for the past few centuries has not even seriously scratched the surface of the possibilities and devices offered by our present tuning system.

If a composer wants to say something of his own, it could be only beneficial for him to isolate himself from any routine music which pours out at us through all the concert, opera, and radio performances.

Often great composers produce outstanding musical works by employing folk songs, and even street songs. Many great composers, beginning with Beethoven and ending with Stravinsky, follow this old tradition. They do it intentionally, and if they do so it throws a new light on the problem of originality in music. The originality does not necessarily lie in the thematic material, as it is usually agreed. It is often the case that the thematic material is merely the springboard for the diver; it is the flow and continuity and form of a dive which reveal the beauty of a human body in flight, and not the springboard itself. The thematic material of the most important works by Stravinsky derives from Russian folklore, usually very little known even within the borders of Russia.

When Stravinsky made his first appearance as the composer of "Rites of Spring" in Paris, he was acclaimed as a wild and fascinating barbarian, while the truth of the matter is that he merely attempted, intentionally or unintentionally, to express himself as a national Russian composer. He did so, in contrast to the routines followed by Tchaikovsky and Rimsky-Korsakov, who were technically half-educated musicians (as compared to their German and French contemporaries), and who, being impressed by the mid-European harmony, dressed up Russian folk songs into those harmonies in which the Russian folk songs look no more attractive than a Russian peasant in a tail coat. Thus, if anything makes a composer important, it is the ability to get away from the established routines, no matter how respectable they may seem on certain occasions.

If our musical education would take better care of the young generation and teach it facts of music instead of myths about music, we would have to turn our admiration for the gift of musicianship toward an entirely different course.

The attributes of true musicianship are:

The ability not to be impressed too much by, nor to remember too much of, somebody else's music.

The ability to construct new forms of sound in its flow.

The inventiveness and combinatory abilities in handling any raw material of intonation.

The kinæsthetic sense of sound in motion—the sense which permits the composer to emphasize long periods of musical flow without ever hearing them before.

The sensation of tension and release as expressed through patterns of musical motion.

The sense of proportion in its mathematical meaning, with regard to the character and quantity of sound and the distribution of the latter.

The independent thought, initiative, keen observation, analytical sense, and freedom from prejudice and routine imposed by the established forms of musical education.

If a good dose of the physical study of sound, mathematics, and mechanics were to be added to such musicianship, we most certainly could anticipate a great composer in a youngster endowed and equipped with these above-mentioned ingredients, no matter how awkward his form of musical expression might be today.

If you know some young man or young woman who, at the age of fifteen, is composing music which is perfect, you can be sure that you have a musical corpse before you. And if this still seems paradoxical to you try to recollect that Brahms wrote his first symphony after he was forty.

The Call

Within the darkening world, no afterglow
No hem of sunset caught against the hill—
Within the dark we rise, and make to go
Our destined journeys, having but lain down
A moment by the path. What call came through
The heavy darkness, bidding us arise,
Though we are weary still?

It is the call

Of thine own spirit that will not wait on
Thy body's weakness. If the flesh should fail,
It is no matter: spirit cannot fall.

by Willis Eberman

Everybody's Bookshelf-

Teacher of Modern Musical Maestros

Joseph Schillinger, Russian-Born Genius, Immortalized in Biography by Wife

By Basil Woon

It will be a pity if a large popular edition is not printed soon of "Joseph Schillinger," a biography of her late distinguished husband by Frances Schillinger, his wife. The present edition—a collector's item if ever there was one—is limited to 2000 numbered and autographed copies, some of which are available and can be ordered of the publishers, Greenberg, through your bookstore.

Joseph Schillinger had perhaps a greater influence on "modern" pro-

gram, musical composition, and the living arta generally, than anyone to live in this century. Gershwyn was flearly unknown when he first atudied under Schillinger: when he dled he wasn't "a very great

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musician" — according to Schillinser, as quoted by his wife—but he was getting there. Among students of the Schillinger System then and later were Occar Levant, Leith Btevena, Glenn Miller, Paul Lavalle, Benny Goodman, Carmine Coppola, Will Bradley, Tommy Dorsey, Mark Warnow and many others. The "system" was based on Schillinger's belief that artistic composition, and particularly the composition of music, is a matter of mathematics and science, not of "genius." (This is also the contention of Herman Hesse in his Nobel prize-winning novel. "Magister Ludi.")

Russian-Born

But' Joseph Schillinger was more than a teacher, he was a serious composer as, well. His "Symphonic Rhapsody! was chosen as the best work to be composed in the first 10 years of the Soviet regime. His Someta Rhamaody" was the only plano composition ever played in an otherwise all-symphonic program, He was born in Kharkov in 1895, his parents being prosperous upper middle class people; his ancestors were Dutch. He studied in

St. Petersburg at the Imperial Conservatory of Music, specialising in composing and conducting. Before he was 25 he had a working knowledge of six languages, was deeply interested in philosophy and religion and had practiced Yoga. At 25 he wrote a poem symbolizing the fusion of senses and the arts of the future—an effort that would have interested Eugene Jolas; of transition. From 1917 he was responsible for a number of symphonic and other compositions and until 1928, when he left the Soviet Union at the invitation of John Dewey, the philosopher, he held many professorial posts in various universities. Schillinger was a delared anti-Communist—a fact which hurt him among the Ameriear artistic leftists and frequently went on record as an enthusiast for the American way of life. On arrival in New York he rapidly came to the fore as a teacher. After the publication in 1946 of "The Schillinger System of Musical Composition" there were more than 100 authbrized teachers of the system. He died in 1942, of cancer, and his greatest work, "The Mathematical Basis of the Arts," was published posthumously.

In her preface Mrs. Schillinger says her book is not a definitive biography, "which has yet to be written by a scholar and a writer." Bhe "is an ordinary woman who had the Privilege and great happiness of being married to . . . great man and a simple one." Mrs. Schillinger is too modest. She has written, very aimply but very well, a charmingly sympathetic story of her life with an extraordinary personality whose career she helped and whose happiness she made,

The Story of a Master Mind, Joseph Schillinger

"JOSEPH SCHILLINGER

A Memoir." By his wife, Frances Schillinger. Pages, 224. Price (boxed) \$5.00 (limited autographed edition). Publisher Greenberg.

JOSEPH SCHILLINGER was a phenomenon—a phenomenon so recent that still relatively few versal purview was so vast that he is now looked upon by many as a kind of super-genius. Perhaps he was.

His approach to all art—painting, sculpture, architecture, music, everything-was essentially mathematical, but many of the composers he taught, including George Gershwin, Leith Steven Glenn Miller, Nathan van Cleave, Benny Goodinan and others, were definitely best known by their toe-tickling Broadway tunes, save for George Gershwin, known for his Rhapsody in Blue and other serious works. There was something about Schillinger which made all of bis students chauvinists in their extravagant praise of their teacher.

Born in Russia in 1895, he received his education at the St. Petersburg Conservatory and became Dean and Professor of the Academy of Music, teacher of Composition at the State Institute of Music (Leningrad) as well as Conductor of the Ukraine Symphony Orchestra. In every respect he was amazingly precocious and versatile. Seeking newer and wider fields he came to America when he was thirty-four years old and

was shortly appointed to a position at Teachers' College (Columbia University) as teacher of mathematics, music and fine arts.

He was married in Russia to a beautiful actress who was jealous of Schillinger's growing prestige. This led to a separation. In Noveinber 1938 he married his second wife in New York. She was a divorcee who had been an artist's model and a secretary. This union was ideal. Frances became an invaluable helpmate and a devoted secretary for the remainder of Schillinger's life. She it was who made it possible for Schillinger to put down his ideas in manuscript form for the press and thus rendered an invaluable people know his name. His uni- service in preparing the publication of the Schillinger System. Frances Schillinger, despite the hazardous literary undertaking of attempting a biography of her extraordinary mate, has presented an unusually sincere and distinctive portrait which at once makes it an historical document and at the same time an intimate picture of an inspiring domestic and professional association. She reveals to us the aesthetic, fastidious Schillinger, meticulous in his dress and in his household, quite unlike the popular conception of a genius. His life was so deliberately planned and so all-comprehending that the couple led an almost ecstatic, well-ordered existence. They were exuberantly happy in their life together.

Schillinger was a deep thinker, but had the gift of imparting his theories without being ponderous. He gave little time to politics but laid down an outline for the rehabilitation of humanity. He felt that religious and economic philosophies such as those of Marx led to the enslavement and unhappi-

ness of the people.

ETUDE-MARCH 1950

Schillinger

Publications Now Available

Books

THE SCHILLINGER SYSTEM OF MUSICAL COMPOSITION (2 vols., 1664 pp.) Carl Fischer, Inc.

THE MATHEMATICAL BASIS OF THE ARTS (706 pp.) Philosophical Library

KALEIDOPHONE: Pitch Scales in Relation to Chord Structures (95 pp.) M. Witmark and Sons

Musical Compositions

MARCH OF THE ORIENT, Op. 11, orchestral study score. Leeds Music Corp.

FIVE PIECES, Op. 12, for piano. Associated Music Co.

EXCENTRIADE, Op. 14, for piano. Associated Music Co.

LITTLE WALTZ, for piano. Leeds Music Corp.

DANCE SUITE, Op. 20, for unaccompanied cello. Leeds Music Corp.

THE SCHILLINGER SOCIETY is an organization formed to spread and perpetuate the work of the late Joseph Schillinger, scientist, music innovator and theorist of the arts.

The aims and purposes of the Society include publication of various Schillager works now in manuscript, distribution of leformation concerning Schillinger and isls discoveries, and serving as custodian of his manuscripts, including his musical compositions and works of art.

Membership is the Society is open to all those laterested la Schillager's work, and lavolves ao fees or dues.

MRS. JOSEPH SCHILLINGER Honorary President

ARNOLD SHAW Executive Disector

THE SCHILLINGER SOCIETY

340 East 57th Street

New York 22, N. Y.

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St. Fetersburg at the Imperial Conservatory of Music, appointining in composing and conducting. Below he was 25 he had a working knowledge of six languages, was deeply interested in philosophy and religion and had practiced Young At 25 he wrote a poum symholising the fusion of senses and the mis of the future-on effort that would have interested mayene Johns, of transition, From 1917 he was responsible for a number of symphonic and other compositions and until the when he left the Boylet Union at the invitation of John Dewey, the philosopher, he neid many professorial posts in various universities Schillinger was a declared and-Communist—a 1865 which hurt him among the Ameriears artistic isitists—and frequently Westername an enthusiest for the American way of life. On strivel in New York to regidly camis to the fore as a teacher, After the publication in 1966 of "The Schullager System of Mudcal Composition" there were more than 100 authorized beschors of the system. He died in 1942, of cancer, and his greatest work, "The Mathe" matical Basis of the Arts," was

In how preface Mars. Schillinger says her book is not a definitive blography, "which has yet to be "restree a bone rainting a will mention." the "in an ordinary woman who had tite privilege and great happia . . of belrass unted to seek mild "John Alamin a River const tagge Bonluinger is too modest. She has written, very simply but very well, a communication sympathesis of her life with an extraordinary persomethy witcoss career she helped and whose inapplices alse made,

glavomurilace harbidung

The Story of a Master Mind, Joseph Schillinger

"TORERM SCHITTINGER

A Memoir," By bla wife, Francis Schillinger, Pages, 224. Frier (boxed) 55.00 (limited autographed edition). Publisher Greenborg.

FOSEPH. SCHILLINGER WHEN phenomenon-a phenomenon so wall offer talks that there is people know his rosses. His universal purview webser vast that he is now looked upon by namy as a sind of super-genius. Harmos his

His appressed to all sit-painting, sculpture, architecture, amule, everything-was sessentially mathconsical, but many of the composers he taught, including George Gershwin, Leith States Slenn Miller, Nathan van Cleme, Penny Coodman and others, were defintiely best known by their torsticks ling Broadway tunes, save for George Gesshwin, know'n for him Rhapsody in Blue and other serious works. There was something about Schillinger which made all of his students chanyings in their "uxtravuyant praise of their teacher,

Born in Rusia in 150%, he received his education at the St. Petersburg Conservatory and became Dean and Probesser of the Academy of Music, tendent of Composition at the State beginner Communities of the Ukraine Symphony Ombestra. In every respect he was accuracy vignishes saw aft united from newson water of elitaries fields he sume to America when Lam has sway moder mist raw sal

was shuttly appainted to a pasition at Teachers College (Column lds tellerally) as templer of sandy will have stande and have serve.

He was married in Bussin to a beautiful actress who vous estimate of Schillinger's grawing presided This led to a separation in Noventure 1938 he married his sea and wife in New York, She was a a'teitea na nund haat suba meastrotta ments and a segretary, the union was ideal Prances became an invaluable helpmate and a devoted secretary for the remainder of Schillinger's life. She it was who made it possible for-Schillinger to gut down his ideas in manuscript form for the press and files rendered an invaluable service in proposing the publication of the Schillinger Symposis." Frances Schillinger, desuite the to gaidstrabute variett susignment attempting a biography of iwr extraordinary mote, has presented an unusually sincere and distinctive pertrait which at once makes it an historical document and at the same time an intimate picture of an implified domestic and professional association, She remain to us the acethetic firstidians Schillinger, unstendous in his dress and in his household, quite unlike the popular conception of a gening. His life was no well-emisty planned and so all compredending that the couple led an almost eestatic welbordered existence. They were excherantly impgy in their life together.

Schillinger was a deep thinker, but had the gift of imparting his theories without being ponderous. He gave little time to politics but laid down as sutline for the rehasould that all retirements to military religious and economic philosophies such as those of Marx led to the englavement and unhappisess of the propie,

ENTIRE ATTICK ISSO

Schillinger

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Books

THE SCHILLINGER SYSTEM OF MUSICAL COMPOSITION (2 vols., 1004 pp.) Carl Placher, las-

THE MATHEMATICAL BASIS OF THE ARTS

(706 pp.) Philosophical Library

KALEIPOPHOME: Pixels Sealing in Relation to Chord Strengtures (95 pp.) M. Witmark and Some

Musical Compositions

MARCH OF THE ORIGIT, Op. 11. anchestral study storm Loods Music Carp.

DANCE SUITE, Op. 30, for marcompanied cells, Lords Munic Corp.

FIVE PIECES, Op. 12 for plane, Associated Music Co. EXCENTRIABE, Op. 14, for pictor Associated Music Co.

LITTLE WALTE, for pinno Leeds Music Cosp.

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THE SCHELLINGER SOCIETY is on organization formed to agreed and geopetunts the work of the lote Joseph Schill-Regar, scientist, manle innevetor and theorist of the orts.

The class and parguess of the Society include publication of various Schillinger works now in monescript, distribution of laterentian concerning lesittinger and his discoverion, and pervise at entrades at the monacoripts, including his Are to sales and thought of the

because of the Society is open to all these interested in Schilleger's work, and lavelyes no focu or dees,

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THE SCHILLINGER SOCIETY

New York 22, R. Y. 240 East 57th Street

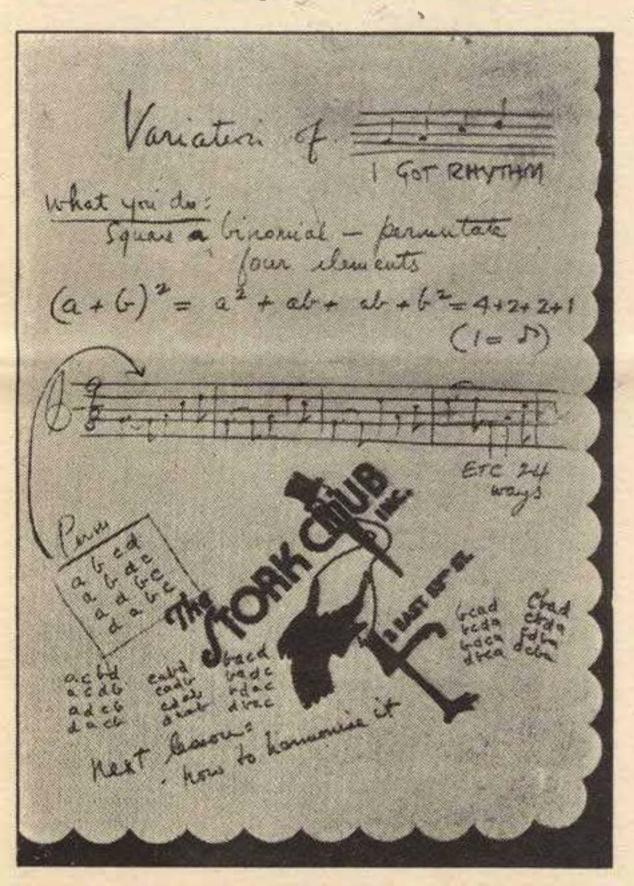
MUSIC

Music by Slide Rule

At a composers' conference at the New School for Social Research a few years ago, a Russian named Joseph Schillinger demonstrated his theories of composition by playing a new work of his own. Of what style, he asked his listeners, did the



Schillingers mathematical music . .



... paid off commercially as shown in this outline of the genesis of a Gershwin song, sketched for NEWSWEEK by a Schillinger disciple, Lyn Murray

piece seem reminiscent? After hearing that it had been inspired by everybody from Mozart to Debussy, he told his audience that he had converted into music a newspaper graph of Wall Street stock prices. The same thing, he told his fellow composers, could be done with telephone numbers or the silhouette of the Manhattan skyline-it was simply a matter of mathematics.

"My belief," Schillinger once wrote, "is that because music has been created by intuitive or trialand-error method and there has never been any scientific investigation of the resources, there is more new unexploited material in forms in music than in any other field subjected to scientific investigation. More is known about the weather than about music."

Following this belief, Schillinger approached music as a pure science. He drew graphs of passages by Bach, Mozart, Beethoven, and Wagner to determine whether reason or whimsy had dictated their compositions. He decided in favor of reason. He then proceeded to expand and systematize their procedures, feeling that the composers had arrived at them by coincidence and that their fullest possibilities had never been explored.

Schillinger also applied these scientific principles to art. He designed combinations of geometric figures, proportions, and color so successfully that he was offered a job as textile designer. A fastidious dresser, he applied the same ideas to his clothes. From the skin out, he matched in color harmony. Beyond this, and the fact that he was an avid photographer and mountain climber, little else is known about Schillinger the man. The Schillinger System was almost his whole life.

He proved his pudding commercially. George Gershwin, for example, came to Schillinger in desperation. He had written hundreds of songs; he feared he had run dry. From Schillinger he got what he needed: innumerable new combinations and uses for the same old notes. "Porgy and Bess" was written during his Schillinger period—a three-lesson-a-week, four-and-a-half-year study which ended only at Gershwin's death in 1937.

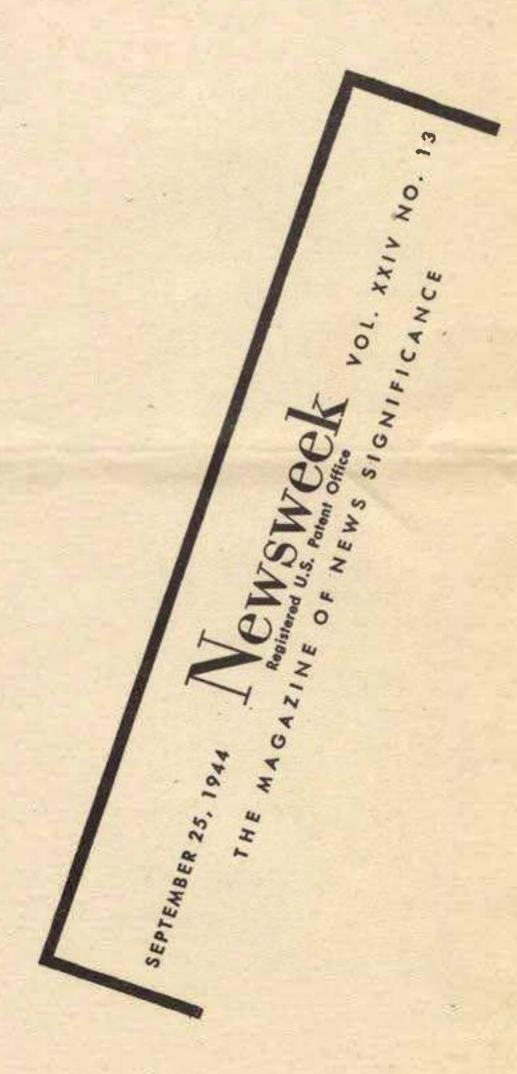
Other Schillinger students ranged from the tall, scholarly Rt. Rev. Msgr. L. H. Bracken (former conductor of the Catholic Diocesan Choristers of Brooklyn), to the short, jazzy Toots Mondello. Lyn Murray and Paul Lavalle from radio were also followers, as were Benny Goodman and Glenn Miller, who, incidentally, wrote "Moonlight Serenade" as a Schillinger exercise. To those who had to produce compositions and arrangements fast and in quantity, the Schillinger System was a boon. The permutations of some note combination like D, E, G, A turned out to be endless. Those that sounded like a rusty riveting machine could simply be thrown out.

But Schillinger died in 1943. What he had taught personally (at \$10 a half hour) was left up to seven authorized teachers who included Jesse Crawford,

the organist, and Ted Royal, one of Broadway's best-known arrangers. There was ample evidence last week, though, that his name will not be forgotten for some time. In Cleveland, where the newly organized Society for Aesthetics met as a part of the huge convention of the American Association for the Advancement of Science (see page 76), Dr. Jerome Gross, a prominent Cleveland surgeon, concert violinist, and disciple of Schillinger, gave a brief memorial on his late teacher's work.

NEWSWEEK

And in New York, where other Schillinger pupils were making plans for a Schillinger Society, the composer-mathematician's estate revealed that Carl Fischer, Inc., was publishing a two-volume set on the Schillinger System. To come out in the early part of 1945, the set will sell at \$30. Whether it will eventually revolutionize music—as its zealots claim is a question. Whether it can help you, too, to become a composer with the aid of a slide rule is also a moot point. But that's what you pay your \$30 for.

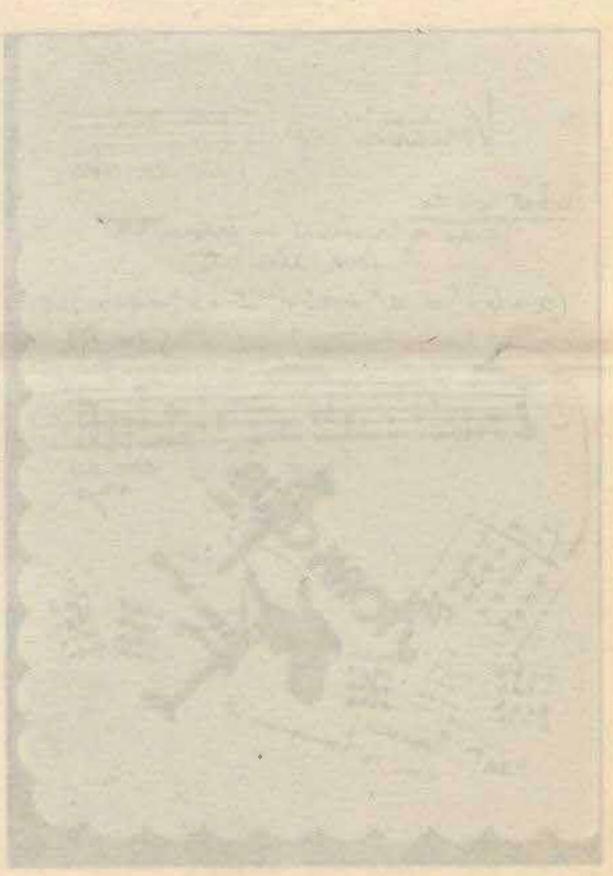


Music by Slide Birls

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of the general of a Combrete score shows in this outline of the general of a Combrete story shoulded for Natural by a Schillinger disciple, Lya Marray

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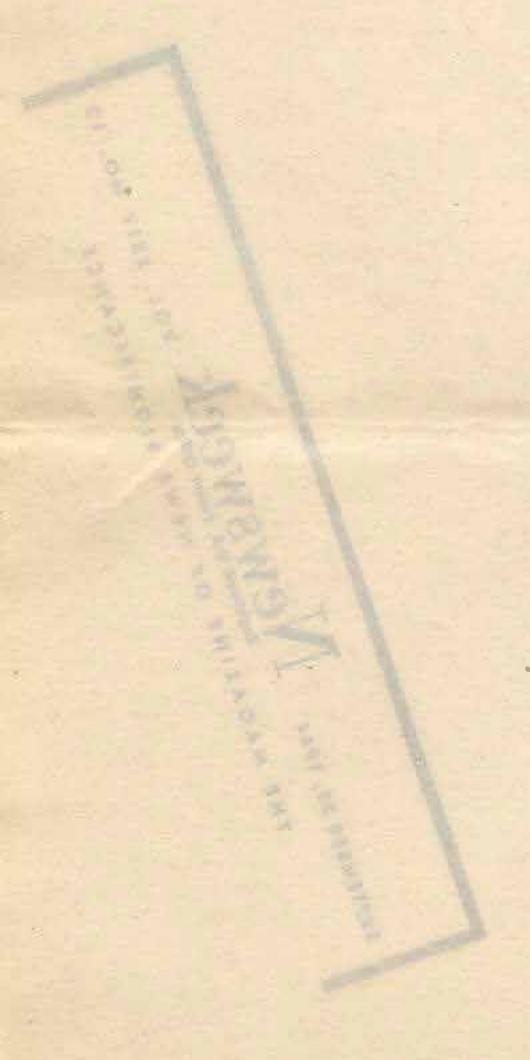
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JOSEPH SCHILLINGER

Pharmacist at Kings County Hospital Dies After a Week's Illness at 51

Charles J. Watters, a pharmacist at Kings County Hospital and a here of the First World War, died at the hospital of pneumonia on Monday after a week's illness. Mr. Watters lived at 3618 Avenue L. Brooklyn. His age was 51.

Born in Glens Falls, N. Y., he starred as a baseball pitcher and baaketball forward in grammar and high schools there and at Columbia University. He was president of his class at the Columbia versity College of Pharmacy,

> atters served overseas as with the 107th (Old) giment of the Twentyn, American Expee. He was cited for urage and devotion dering first aid to der heavy enemy bush Lake Sector, st, 1918. Another his "exceptional g forward with establishing and n hours under collecting and the trenches" Hindenburg

> > umed his years, store

SCHILLINGER DEAD; COMPOSER, TEACHER

Collaborated in Invention of the Theremin, for Which He Wrote 'Airphonic Suite'

GERSHWIN, LEVANT PUPILS

Ex-Dean of Ukraine Academy of Music Taught at Columbia -Came to U. S. in 1930

Joseph Schillinger, composer, teacher of George Gershwin and Oscar Levant and collaborator with Leon Theremin in the invention of the electric organ known by the latter's name, died at his home at 875 Fifth Avenue early yesterday after a short illness. His age was 47.

Mr. Schillinger was born in Kharkov, Russia, on Aug. 31, 1895. He was graduated in 1918 from the St. Petersburg Imperial Conservatory, where he had specialized in composition and conductmg. He then becsme conductor of a student orchestra in Kharkov, and during 1920-21 of the Ukraine Mr. Beebe had Symphony Orchestra. In 1925 he She belonged to was composer for the State Academic Theatre of Drama in Leningrad and later was dean of the Ukraine's State Academy of Music and taught in other schools in that part of Russia.

In 1930 Mr. Schillinger came to the United States, where he was connected with the New School for Social Research as a lecturer and the American Institute of the City of New York. He taught mathematics, music and fine arts at Teachers College of Columbia University and also at New York University.

The year before his arrival here which he was graduated in the Cleveland Symphony Orchestra had performed his "March of the Orient," and later Leopold Stokowski gave his "Symphonic Rhapsody" with the Philadelphia Orchestra. The Soviet Government commissioned Mr. Schillinger to write the latter work to celebrate the Soviet's first ten years in Moseow.

> Mr. Schillinger composed his "First Airphonic Suite" for the theremin, with Mr. Theremin as soloist. The entire score of "Porgy and Beas" was written under his supervision.

> Others among his pupils were Paul Lavel, Mark Warnow, Jesse Crawford, Glenn Miller, Tomoy Dorsey, Hal Kemp and Benny Goodman.

FREDERICK D. SHELTON

Atlanta Journal Artist, Won Many Prizes for His Paintings

Special to THE NEW YORK TIMES. ANTA, Ga., Mar k Davis Shelton department

MRS. D REL

Wife of a Lead

Specia ! ENGLE Mrs. Dorot Mountain fare leader Pavilion, Medical C last night. Dwight S. the Mutual pany of Ne

She estat Canteen for Chapter and her recent for the chap bile canteen lest war sh Red Cross Sergeant Fr who won the Cross, was France in th

Mrs. Beebe Bergen Coun Center and h man for many group charity

She had won golf tournsmient and Quogue, L. Country Club, Al Club. Englewood the Field Club and Quogue.

Born in Buffalc school here, and w of the Art Students York. Besides her leaves a son, Kenne ther, Frederick H.

FRANCIS E. SI BANK EXEC

Vice President Conn., Firm, a

Francis E. Ste. Avenue and Pide retired in 1939 investment bank bleton & Co., die ing in Doctors seventh Street a

nue, after a long Born in this 1885, a son of Storer and the Knox, Mr. Store School, Southbo the Cutler Scho was graduated lege in 1987 elected to and the

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(they start at 65c) and our careful service. We're e to, handy to buses, trains, trolleys. And it's so con eat where you do your shopping! Join us for Wednesday or Friday, for luncheon any week day!

e "flair" in our Downstairs Fashion Storepriced under our Lowered Price Police

Sand Plaid.

19.6



Music Makers to Be 'Engineers'

Schillinger Teaches Composition on Basis of Pure Mathematics.

"The men who will be responsible for the music of radio and television of 1950 will be neither composers nor performers, but a new kind of 'music engineer' who will operate the machines that compose and perform music."

noted scientist, inventor and com- who is equipped both in efficient poser, who more than any one else in America, is the man behind the knowledge of the science of physimen who produce the music for the microphone. Having proved to his own satisfaction that he can write music for leading symphony orchestras of this country and Europe, he has devoted bis time and rhythms, I am able to produce energy for the last several years to teaching musical composition according to a mathematical system. of African natives," he continued. He is today the only scientist who is applying science to music. By means of his system an untalented made in such a way and the musician can turn out meritorious genuine recordings made in the compositions and arrangements. In short, he explodes musical genius velt Expedition, which were used as a myth, declares that the number of performers exceeds the number of composers "because it is easier to play an instrument in a very mediocre way than to compose matically different rhythmic commusic more or less articulately. "I believe that new professions

develop because there is a need for them," he states. "The industrial side of music, such as radio, television, motion picture—all the media of our streamline age-will call for new types of skilled workers."

Schillinger, obviously, has given considerable thought to the future of radio music. He predicts an improvement in the quality, which, he says, will be accomplished through the development of electronic instruments.

More Music to be Mechanized.

As to the method of production, radio music, he declares, 'will be can create music in any desirable more and more mechanized, not style." only in the field of performance but

Leon Theremin when the latter was composed. Thus, there will be the introducing his electronic instru- possibility of a direct broadcast of ments. Titled "First Airphonic a composition while it is being com-Suite," it was performed by the posed. The sound production in all Cleveland Orchestra in Cleveland such instruments naturally must be and New York with Theremin as electronic. soloist.

He is firm in his belief that sound, electrically produced, surpasses in clarity of tone that produced by artists playing the conventional instruments. "Whereas most of the energy of the artist goes into making 'beautiful tone,' electronic instruments provide all the versatility of any desirable tonal quality. It will become even more flexible in this respect in the future. "

And he adds that with their development there will be no question of competition with Stradivarius.

"In 1929," he states, 'Dr. Trautweln in Berlin developed an electronic instrument which was used in concert performances and which surpassed in tone quality all existing violins, yet gave a true Violin tone. The so-called monotony or versatility of a sound produced on an electronic instrument depends on the type of sound production. Some of the insruments on the market today-for example, the Novachordpossess such versatility."

Symphonics to Pe Obsolete.

near future all-electric symphony for Hal Kemp; such musicians as orchestras will be the only ones in come as obsolete as horse carriages.

ments will depend on the progress able broadcast music, are on his of electrical research and the com- roster. petence of music directors who go | Leith Stevens, composer and coninto such an enterprise. Chamber ductor, who will lead the hour this ensembles of electronic instruments summer; Lyn Murray, choral dihave already become quite common rector, who is now composing and today—there are the Ferde Grofe conducting the background music ensembles of Hammond organs and for "The Adventures of Ellery Novachords at the world's fair, the Queen," and such popular bandprograms of Jesse Crawford at NBC leaders as Glenn Miller, Benny and others under the title of 'Elec- Goodman and Tommy Dorsey are tronic Orchestra.' Some partly elec-among his students. The late tronic instruments such as the vi- George Gershwin studied with him braphone, the vibraharp and the four and a half years, taking three electric guitar are so in conspicuous, lessons a week. The entire score he adds, that they are used in all of his "Porgy and Bess" was writmost every dance orchestra."

instruments, it can be written in two and a half years. precisely the same way as music The efforts of these men have not for any other kind of instruments, only reached the highest æsthetic he states, but electronio instru- standards but have proved comments offer many new and amaz. mercially profitable.

Thus declares Joseph Schillinger, ing possibilities for a composer technic of composing and orchestrating, and who also has cal sound.

automatically and simultaneously pondent, and Leith Stevens's Orperformed. On an instrument, chestra. known as the Rhythmicon, built by Leon Theremin for the study of drum beats dentical with those of any complex or virtuoso beats, AND comparable to the drumming

Experts are unable, he says, to distingulab between his records Belgian Congo by the Denis-Roose. in the motion picture, "Dark Rapture." This instrument, the only one of its kind, has sixteen keys, which, being pressed, produce autobinations—sometimes as many as sixteen.

All Based on Engineering.

He has worked out the entire system of musical production on the basis of engineering. Under his mathematical formulæ he can, he says, provide for the development of electronic instruments of a specified type for the production of rhythm, harmony and melody as well as other models which incorporate the combination of such functions. "The latter models are an equivalent of the total efforts that would be exerted by all the living, past and future composers. In other words, such instruments

He plans to build such instruin the field of composition as well," ments which will not only compose Schillinger was associated with but perform music while it is being

Einstein Likes System,

Schillinger's method, incorporating his development of the mathematical principles of music, has been studied and put into practice by a host of composers and arrangers, the majority of whom are identified with the radio world. Incidentally, Prof. Albert E. Einstein of relativity same, though he admits he is not a skilled musician, approves of the Schillinger mathematical system of musical compogition.

Among those who have written music and worked out orchestrations and arrangements under his tutelage is Paul Laval, who conducts the Chamber Music Society of Lower Basin Street program on WJZ's network on Sunday afternoons and who, with a twentysix-piece orchestra now bas taken over the Saturday night spot on NBC formerly occupied by Toscanini and the network's symphony orchestra. Laval has been a student for five and a half years. Mark Warnow, Jesse Crawford; Franklyn Marks, staff arranger Schillinger beileves that in the at NBC Harold Mooney, arranger Nathan Van Cleave, Paul Sterrett, use, while the present ones will be- Lee Montgomery, George B. Leeman, Harry Simeone, who provide "The number and type of instruction instrumentations of innumer-

ten under Schillinger's supervision. As for the music for electronic Oscar Levant was a student for

DRAGONETTE RETURNS

Popular Soprano Heads Cast for Summer Show.

night of the series of Sunday concerts, broadcast by the Detroit Symphony Orchestra, under the direction of several of the country's best-known conductors, the hour will change its format for the summer. Beginning a week from tomorrow, the Sunday night hour from 9 to 10 on WABC, will be taken over by a musical variety show featuring Jessica Dragonette, popular radio soprano who has been absent from the air for the last two years. Assisting her will be James Newill, a new baritone; "Music can even be composed Linton Wells, explorer and corres-



Music Maker

Joseph Schillinger and his Rhythmicon on which he composes and produces melodies for the analysis of the most complicated musical rhythms.

July, 1944

INTERNATIONAL MUSICIAN

Schillinger System

Walter Fischer, president of Carl Fischer, Inc., today announced that contracts had been signed for publication of the internationally famous treatise on musical theory known as the Schillinger System of Musical Composition. Written and developed by the late Joseph Schillinger, scientific and musical genius who died last year, the contents of the celebrated manuscript are known at present only to a limited group of outstanding composers and arrangers who studied with Schillinger.

The complete roster of Schillinger students reads like a "Who's Who" in American inusic. Big name bandleaders include Benny Goodman, Will Bradley, Jack Miller, conductor for Kate Smith; Lyn Murray, Paul Lavalle, leader of the Lower Basin Street Symphony; Alvino Rey and Glenn Miller, whose song hit, "Moonlight Serenade", was first written

as an exercise for Schillinger.

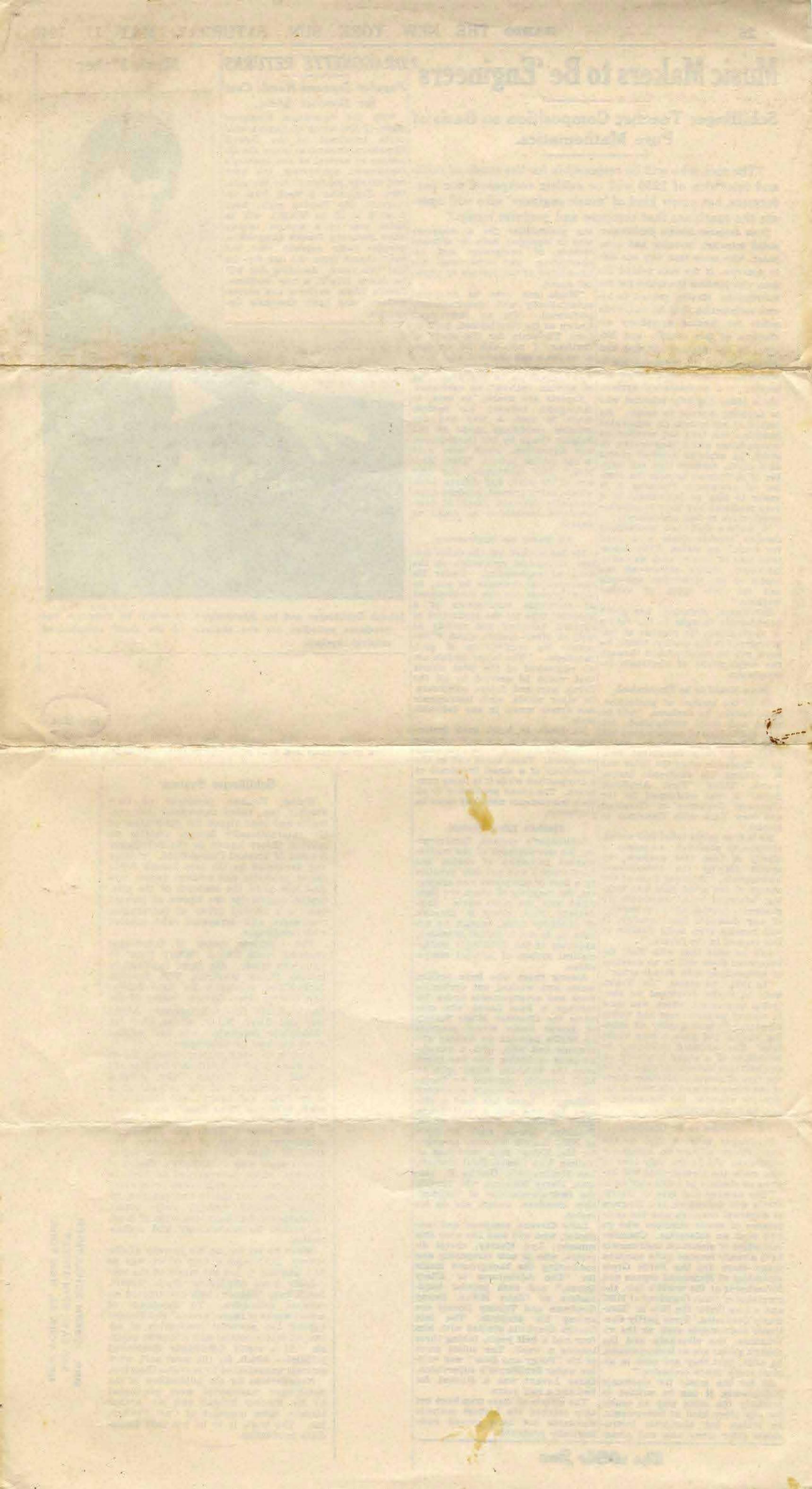
Among the song writers, George Gershwin was a pupil of Schillinger for four and a half years. Vernon Duke, musical comedy composer of the current army show, "Tars and Spars", and Matty Malneck, writer of "Star Dust", were pupils of the theorist.

In its present form, the Schillinger manuscript consists of twenty-five volumes of about 3,000 typewritten pages. Book I deals with Schillinger's Theory of Rhythm, which he regarded as basic to his system. Succeeding books cover every phase of musical theory and practice, including melody writing, pitch scales, counterpoint, harmony, evolution of musical styles, instrumentology and orchestration.

When he set out on his journey of discovery, Schillinger's first effort was to find whether or not the music of the concededly great composers—Bach, Mozart, Beethoven, Wagner—was constructed on rational principles. To thousands of actual works of these "greats". Schillenger applied the powerful instrument of advanced mathematical and scientific analysis. As a result Schillinger discovered principles which, for the most part, were entirely unsuspected by previous theorists.

Negotiations for the publication of the Schillinger manuscript were conducted by Mr. Fischer himself and Mr. Arthur Hauser, sales manager of Carl Fischer, Inc. The work is to be put into immediate production.

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



by Smuggled Narcotics



sabotage. For this reason they have arrested many German and Japanese agents who, if only suspected of subversive activitles, might have gone unmolested.

Actually there is very little difference of opinion about the activities of most German and Japanese agents in South and Central America. Recently in Brazil the secret police-raided a library in the German-controlled college of Bahia. In the library were only 500 volumes. Out of these 500 all but one were Nazi German books. And, in thirty-one of these books. the investigators found code writing on margins or jackets!

Spy Techniques

THIS incident points up some of the illustrations on this page. All are supposedly borrowed from a World War book. Actually these pictures are part of a modern instruction campaign.

One picture shows a fictitious code. Actually this code is not fictitious. It is a direct key to earlier messages delivered to Nazi agents in South and Central America. The sabotaged potatoes refer to the use of vegetables and fruit for conveying drugs.

Another picture shows a woman agent hiding a chemical, which she has stolen, in her shoe. This trick might be all very well—a sort of ABC of espionage practice were it not for the dodge of chemically soaked stockings, mentioned

s laden basket to chief of police. When a piece cut in half it revealed hiding place for drugs.

mateur sleuths uriosity. Carlos, trained. Therenuch for having leanwhile better ut much more in s did in two days their findings to and American

Program

e program is re to finance rations. Gern other ary by blackited States countries, dtizens to way. But the drug this traf-

they deliberately spread the drugs and encourage their consumption, knowing that a drug-starved addict will do almost anything to get

his daily portion. At the same time they collect drugs for import to other lands.

The European War has helped this pian mightily. It automatically cut off supplies of drugs to be delivered to American addicts. The Japanese have taken over these deliveries for their own profit.

By using their elaborate secret service, they have been distributing the large stocks of the drugs they seized in China to the United States and to the various Latin American countries. Carlos saw one small instance of this traffic. Other, better trained agents, have seen It in operation on a larger of China scale. Put none has been able

stop it. Because the Japanese drug trade pays well and makes use of any Axis-Power agent in any convenient part.

White Russians have served Tananese often, but not well. Manmployed De ent

French

These potatoes pictured in a Nazi spy manual suggest to secret agents in Central and South America a means for smuggling dope.

in an earlier article. Generally it ev be accepted with स्रीतित्व व्यापिक्षात्वा

An optical composition of woodblocks and mirrors from the studio of Joseph Schillinger, music scientist.

Finding Cube R



This book jacket shows how mathematics may be used in design under the Schillinger system.



THE late George Gershwin stepped off an elevator on the 13th floor of a Park Avenue apartment house and entered a 13room suite. Later, noticing the numbers, he laughed, because this visit proved to be one of his luckiest. But at the time he was only interested in telling Joseph Schillinger his troubles.

win said. "I can't write anything new; I'm repeating myself. Can you help me?"

Joseph Schillinger said he could. And he did—so effectively that Gershwin turned out "Porgy and Bess" under his supervision. Using the same ideas and methods Schillinger helped Benny Goodman and Oscar Levant and Glenn Miller, Jesse Crawford, Lyn Murray, Leith Stevens and scores of others. All came to his 13-room laboratory and workshop apartment on the 13th floor and all thought themselves fortunate.

Behind Joseph Schillinger is one main theory which has been used so often and successfully as to become a fact. It is that musical compositions, classical or popular, don't have to be dreamed up by exceptionally talented people in periods of emotional activity. Instead you or anyone else can learn to write songs just as certainly as you could learn to build airplanes.

VOU can first analyze or tear down music to its contributing parts. Then you can study these parts until you know how they fit together. After that it is simply a matter of putting the parts together in different ways.

Naturally this is an extreme implification of the system Joseph This inger uses to build musical

compositions. He teaches musical composition through analysis. He reduces music to its factors, then uses these factors to build new music. The whole system is based on mathematics. His system reduces whatever - plus - whatever equals music.

"Music," he says, "is a man-made reproduction of an actuality, and "I've written 700 songs," Gersh- if you can analyze it you are in a better position to produce more of it. The common belief that music is emotional in its origin is wrong. Music appears to be emotional only because it moves, and everything that moves associates itself with life and living. Actually music is no more emotional than an automobile or an airplane which also move. It is no more emotional than the Disney characters which make us laugh, but whose actual existence is a mechanical and not an organic one."

Analyzing Emotion

M. SCHILLINGER'S ideas, broken down into layman's language, might appear something like this: Music and poetry, design and general art can be reduced to a science. First you must study carefully the contributing factors. Then you must study the mathematical procedures behind them. Gradually you will see that certain factors contribute to certain ends.

You will, supposedly, play on the emotions you wish to be stirred. A longing for home, for instance, perhaps can be stirred by analyzing what makes up a longing for home. The sounds common to a home in this case would be most important. For the science of music simply is the mechanics of musical sounds. And the art of

music simply is the conveyance of these sounds to the listener.

Mimicry First Step

DELVING deeper into this Schillinger science of music, you would find that mimicry is the first step in art forms. "Thunder, animal sounds and echoes are as much a source of music as the forms and colorings of nature in rainbows, sunsets, bird's plumage, crystals, shells, plants and living bodies are a source of the art of painting.

"Imitation is at first unintentional, such as the protective shapes and coloring in natural camouflage: then intentional mimicry follows when a striking pattern or coloring is copied for the pleasure of it. Then the final step, which is the scientific method of art production according to definite specifications, that becomes possible only after the laws of art have been disclosed.

"This discovery of the laws of art to know how and what to produce has been an old dream of humanity. In the Li-Ri, 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 in order to know airs, airs in order to know music and music in order to know how to rule."

Returning to the Schillinger system, you would enter all of these items in a mathematical balance sheet. You would, for instance, make a marching song march in the tempo of the nation to which

it was fitted. Y the time and sol Bavarian waltz. use mathematic lar sad waltz to of new listeners cry into their 19

You would t that any melod birds twittering tide. could be put the bewildered cient song sifting fretted moonligh could be reduced That the hot sawdust-strewn Bavarian inn qu all its musica thick. joyout who have through generhi

Musical

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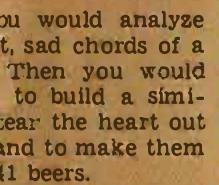
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oot of Inspiration



"Optical Elements in Rhythm," this study gives me idea of the geometric nature of music.



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ho has applied cal methods in armonies, has bout the use tures.

n 'Fantasia' can coordiis without a says, "Mr. w music can

resorted to the accessories of music. He made a mistake in seeking a fundamental relationship between forms of musical sound and the physical forms of musical instruments. Unity is absent from the production in other ways. For. even with the help of Leopold Stokowski and Deems Taylor, 'Fantasia' failed to solve the problem of combining visual images with music. This could only be done through mathematical methods."

DERHAPS because the mathematical appeals less to women. Mr. Schillinger has taught only one feminine musician his methods. She is Marjorie Goetschius, granddaughter of Percy Goetschius, Dean of Composition at the Julliard School of Music for more than twenty years.

The Schillinger studio which produces this peculiar science has various electrical instruments, blackboards, lecture rooms and show cases. Not dedicated to music are those exhibits which point the way to art through mathematics, and poetic writing through mathematics and even architecture through mathematics.

But all these sections have one thing in common. They ignore the dreams a creative artist might have. They point away from any surge of feeling. Cold figures take the place of emotion. Everything is analyzed. Years of study and training are pleasantly cut out. Thus, as Joseph Schillinger says, creation is made a pleasant process.

"It does not circumscribe the freedom of an individual," lie adds. "But merely releases him from vagueness, gives him accurate knowledge and permits him an infinite number of solutions to satisand color, fy the particular requirements."



"A Study in Rhythm": When mathematics meets design in the Schillinger manner.



Joseph Schillinger photographed at the keyboard of his electric organ.



Supporting a Spy System



The agent above is hiding saboteur's chemical in her shoe; at left placing drugs in her stocking.

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Part of page from German book whose type holds coded messages.

By Richard Wilmer Rowan

Author of "Terror in Our Time," "The Story of Secret Service." and "Spies and the Next War"

(This is the twelfth of a series of articles exposing spies and Fifth Column activities)

THE Japanese freighter drowsed at anchor in a west-coast Mex-Ican harbor. A white-clad figure appeared briefly on her bridge. glanced anxiously shoreward, then melted back into the white paintwork of an officer's cabin just aft of the bridge.

Carlos, rowing his shabby, weathered boat out to the ship. didn't see the Japanese officer squint at his passage through the bright sunlight. His back was to the ship and his gaze vithout curiosity on the fruit that made up his e reason s acthe odd Japanese might eat their fruit.

Long practice had taught Carlos to approach the port gangway of foreign ships, the tradesmen's doorway. But he didn't notice how quickly his cargo was lifted aboard or how many officers were on deck to see it carried to the cabin of the captain. In fact Carlos was not curious at all until the next day. Then, perhaps because of chance, perhaps because he was sheltering himself under the shortening shadow cast by the shed roof as noontide approached, he was called again.

"The ship of the Japanese," a stranger told him. "There is something to come ashore."

This time Carlos earned not two but four reales for his labors. And this time he was curious. He was curious for two reasons. First, because he felt that four regist was

a ruinous rate for a short bumboat trip. Second, because, forced as he was by his rowing position to gaze at his cargo instead of looking ahead, he recognized the fruit he was rowing back as the same fruit that he had rowed out.

Later that night Carlos walked from a cantina to the office of the police chief. He explained his story. A piece of fruit cut in half revealed the hiding place for a package of drugs. And later that night Carlos died with a knife sticking curiously out

of his ragged shirt. Chance and casual curiosity had combined to furnish Carlos with the answer to the question: "How does the Japanese Secret Service finance its expensive work?"

Since Carlos rowed his shabby, sun-bleached bumboat through the sparkling waters of that Mexican bay and died because he was curious, a number of discoveries have been made by more cautious men. They have haunted the docks where the blunt-nosed freighters from the Orient come ip. They have hung around the roadsteads. gazing speculatively at each shipto-shore boat that crawls through still water. They have been curious because that is their business, in San Francisco and San Diego and on down to Acapulco and Salina Cruz, they have seen drugs come ashore from Japanese ships and traced them east as far as Kansas City.

This briefly is how Japan meets the tremendous expense of supporting its vast secret service net-This, too, shows one of the

Carlos took

of fruit was

ways in which help America by o of course, was un fore he paid too been curious. A trained men find o an hour than Carlo and live to report interested Mexico officials.

Financing

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Joseph Schillinger Finds Mathematical Music Best

Noted Composer and Scientist Teaches His Method To Many Already Famous Players and Arrangers

The phrase, "there is nothing new under the sun" is said more frequently about music than of anything else in the world.

America is crowded with sharp-eared, self-appointed tune detectives who, whenever a melody makes its first appearance, can be heard declaring omnisciently: "that's a steal from so-and-so" or "it always was a good tune" or "Strauss said it first but in 3/4 time."

Joseph Schillinger, noted scientist, composer, and teacher, who has made a mathematical study of music extending over a lifetime, finds an entirely

new outlook upon musical resources and their use.

Through his scientific approach he has discovered that, so far as music is concerned, there is something new under the sun. What is more, he is showing some of the most famous composers and arrangers in America the fruits of his findings.

He makes the startling statement that music can be automatically composed and performed and, as evidence, he has phonograph records which are synthetically - made rhythms of the drums of African cannibals—produced on what he calls a Theremin-Rhythicon, an instrument specially designed to simulate drum-beats.

He has played these rhythm records for experts at his studio, 911 Park Ave., New York City, and the latter have been unable to distinguish between the original beats played on African drums and the synthetic product.

Schillinger, using his mathematical theory, also can present any number of variations from any original piece of music, thus producing any desirable number of compositions in the same style.

"My method," he states, "also permits modernization, or, if need be, antiquization of any existing music.

"For example, Bach was a great master of counterpoint, and Debussy produced some startling flavors in harmony. It is possible to produce the syntheses of Bach and Debussy in the form of a fugue, with Bach's contrapuntal craftsmanship and Debussy's harmonic deftness."

Lest you doubt it, he then proceeds to play a recording of just such a blend. First, he plays the original Bach fugue; then, a Debussy extract. Finally, he adjusts the phonograph needle to a record on which Debussy's harmony has been grafted skillfully upon the Bach melody.

With the ceaseless demand of motion pictures and radio for music and more music, composers and arrangers are approaching music scientifically, not only to work out new variations of compositions already produced but to create new melodies.

Schillinger's roster of students reads like a Who's Who in modern American music.

It includes such names as Oscar Levant, George Gershwin, who studied four-and-a-half years with Schillinger and whose opera of Negro Life, Porgy and Bess, was written entirely under the latter's (Turn to page 46, please)



Joseph Schillinger

MEIRUNUME

Joseph Schillinger

(Continued from page 30)
supervision; Benny Goodman, Glenn
Miller, Mark Warnow, Leith Stevens, Paul Laval and Lyn Murray.

Also, such well-known arrangers of radio, motion picture, and stage productions as Paul Sterrett, Nathan Van Cleave, Franklyn Marks, Charles Previn, Edward Powell, Frank Skinner, Irving Brodsky, Lee Montgomery, Ted Royal, and Gus Levine.

More band leaders and arrangers have come to Schillinger for new musical light than any other body of musicians.

"It is because," he says, "they are working in a highly competitive field and, being practical persons, they are constantly seeking new ideas and new techniques which will enhance their popularity and thus bring them greater financial returns."

During the course of their study, many of the musicians work on serious compositions. Glenn Miller, for example, composed Moonlight Serenade during his study with Schillinger. It is an exercise in writing melody to harmonic progressions.

Harold Mooney, arranger for Hal Kemp, wrote a fugue after only four or five lessons in counterpoint.

Schillinger's course in musical composition requires three years for the average student, and the average student takes one lesson a week; however, many take two and three lessons a week. Gershwin, at the time he was writing Porgy and Bess, took three and sometimes four lessons a week.

Schillinger is proud of the progress of Paul Laval as a composer and conductor. Laval at present directs a double woodwind quintet in chamber music a la jazz on WJZ Sunday afternoons. Laval bas been a student for more than five years. At the time he began, he was a rather obscure clarinetist in a symphony orchestra.

Today, he is a staff conductor at the NBC, composer of numerous pieces, and occupies the first saxophone chair with the NBC Symphony. Recently, Toscanini singled him out for special praise during his Saturday night recital.

Incidentally, Laval's quintet, through unusual treatment in back-ground instrumentation, sounds like a large orchestra and is one of the novel programs in the modern al idiom yet presented.

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Washington Invasion By Outside Bands

has local musicians wondering why Local 161 doesn't do something about it.

It's an MCA and CRA invasion, which has landed most of the bestpaying spots and is depriving at least 60 local men of work.

At present there are also nearly 75 men jobbing around town on transfer cards and two more clubs are negotiating with MCA for orks.

This problem is expected to be a big issue in the next election and unless a lot of changes are made between now and election time, there probably will be a lot of changes made.—By Carl Mirman, Washing-TON, D. C.

Summer Chases Music Away from Cleveland

when the Trianon ballroom, one of the main sources of name bands for this territory, closes its doors for the season after featuring Larry Clinton, Jack Teagarden, Harry James, and Gene Krupa on successive week-ends.

With the Palace theatre also closed for most of the summer, the nearest spot for dancing or listening to name bands will be at Cedar Point, near Sandusky, about 75 miles away.

In Cleveland, Euclid beach, Puritas park, and the Aragon ballroom will have local and traveling bands but, with the exception of infrequent Palace bookings, none of the big bands are expected to play here.

Best draws at the Aragon in recent months were Bobby Byrne and Glenn Garr. Byrne left with one of the town's best trumpet men, Chuck Forsyth.

Vince Pattie, Gene Sullivan, and Frank Gagen have been featured recently at Puritas, and future bookings will have an accent on local outfits.—CLEVELAND.

Una Mae Carlisle Scores Solidly

as a terriffic jazz vocalist and pianist at Lindsay's Sky-Bar.

Una Mae dropped into town two months ago to visit relations and, after catching on at Jimmie Owens' place in Harlem, has been wowing cats with her brilliant jazz.

She has been featured in Paris and London and was starred for a number of months at the Hot Club of France.—CLEVELAND.

Dick Stabile's Saxists

and other well-known players using Woodwind mouthpieces are pictured in a new booklet just issued by the Woodwind Co. of 131 W. 45th St., New York City. It will be sent upon request to anyone mentioning METRONOME.

Eliot Hoyt's New Men

are Ernie Foder at piano and C. Ogel at bass. They replaced Paul Erwin and Tony Espen, respectively, who joined Emerson Gill. Don Smith left Hoyt also, to join Tyle Gaffield.—Toledo, Ohio.

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