

The doctor prescribes music; the influence of music on health and personality

Podolsky, Edward, 1902-
New York, F. A. Stokes Co., 1939

<http://hdl.handle.net/2027/uc1.31822023536402>

HathiTrust



www.hathitrust.org

Public Domain, Google-digitized

http://www.hathitrust.org/access_use#pd-google

This work is in the Public Domain, meaning that it is not subject to copyright. Users are free to copy, use, and redistribute the work in part or in whole. It is possible that heirs or the estate of the authors of individual portions of the work, such as illustrations, assert copyrights over these portions. Depending on the nature of subsequent use that is made, additional rights may need to be obtained independently of anything we can address. The digital images and OCR of this work were produced by Google, Inc. (indicated by a watermark on each page in the PageTurner). Google requests that the images and OCR not be re-hosted, redistributed or used commercially.

The images are provided for educational, scholarly, non-commercial purposes.

UNIVERSITY OF CALIFORNIA, SAN DIEGO

3 1822 02353 6402

UNIVERSITY OF CALIFORNIA, SAN DIEGO



3 1822 02353 6402

THE DOCTOR PRESCRIBES MUSIC

BOOKS BY EDWARD PODOLSKY

MEDICINE MARCHES ON

YOUNG WOMEN PAST FORTY

OLD AGE POSTPONED

THE DOCTOR PRESCRIBES COLORS

THE DIABETES SPECIALIST

THE DOCTOR PRESCRIBES MUSIC

*The Influence of Music
on Health and Personality*

By

EDWARD PODOLSKY, M.D.



FREDERICK A. STOKES COMPANY
NEW YORK MCMXXXIX

COPYRIGHT, 1939, BY FREDERICK A. STOKES COMPANY

All rights reserved. No part of this work may be reproduced without the written permission of the publishers.

Printed in the United States of America

To
ARTHUR

CONTENTS

CHAPTER	PAGE
I. THERE IS HEALING IN MUSIC . . .	I
II. HOW MUSIC ACTS ON THE BODY . . .	15
III. MUSIC AND MENTAL HEALTH . . .	22
IV. MUSIC IS A GOOD TONIC FOR THE HEART	46
V. GETTING MORE POWER FROM MUSIC	56
VI. MUSIC DRIVES AWAY PAIN . . .	70
VII. MUSIC WITH YOUR MEALS . . .	79
VIII. FOR INSOMNIA, TRY MUSIC . . .	87
IX. MUSIC AND WARPED PERSONALI- TIES	93
X. SINGING FOR HEALTH	102
XI. MUSIC AS A HEALTHFUL HOBBY . . .	109
XII. MUSIC AND COLOR	115
BIBLIOGRAPHY	133

*Music exalts each joy, allays each grief,
Expels diseases, softens every pain,
Subdues the rage of poison, and the plague.*

JOHN ARMSTRONG—

The Art of Preserving Health

CHAPTER I

THERE IS HEALING IN MUSIC

THE ancient fathers were wise in the ways of nature. Very early they became acquainted with an astonishing variety of methods to heal the body and mind. Before long they learned that music was one of the greatest of all healing forces. Four thousand years ago the priest-doctors of Egypt had a favorite incantation in music which purported to have a favorable influence on the fertility of women. This incantation is still preserved in the most ancient of all Egyptian medical papyri.

The ancient Hebrews employed music in several recorded cases of physical and mental illness, perhaps the most famous being that of King Saul when his reason was tottering. "When the evil spirit from God was upon Saul, then David took up a harp and played with his hands so that Saul was refreshed and well, and the evil spirit departed from him."

THE DOCTOR PRESCRIBES MUSIC

Another ancient people, the Greeks, also knew of the curative qualities of appropriate musical sounds. Homer even went so far as to say that it was music alone of all the means at the disposal of the surgeons which stopped Ulysses' almost fatal hemorrhage.

The power of music to soothe the troubled mind and to elevate the spirit of man was noted by Polybius, who, writing of a musical people of Arcadia, contrasted the gentleness of their manners with the boorishness of the Cynetes, who neglected the cultivation of music. Another Greek historian tells us that Clytemnestra yielded to un-social temptations through the persuasion of music. Terpander was said to have restored a rebellious and unreasonable mob to their allegiance through his melodies. On the other hand, the Spartan, Tyrtæus, by certain verses which he sang to the accompaniment of flutes, so inflamed the courage of his countrymen that they achieved a great victory over the Messenians, to whom they had lost on several previous and musicless occasions.

A similar incident is given by Plutarch in his biography of Solon. He tells us that the celebrated legislator succeeded in inciting the Athenians to invade and capture the Isle of Salamis simply by

THERE IS HEALING IN MUSIC

singing a song of his own composition. Empedocles is said to have actually prevented the murder of his father by playing on his lyre. And the fierce murderous temper of Achilles was allayed by music drawn from a lyre of gigantic proportions, an instrument which has its modern counterpart in the harp.

The harp later became a popular instrument to moderate unreasonable temper. Damon, by using the harp, was said to have been able to pacify the drink-mad Grecian men about town. Music was the first medicine for a hang-over. Even more ambitious, Asclepiades, also with the harp, was able to restore seditious armies to reason and order.

The first use of music as a regular therapeutic practice is attributed to Zenocrates, Sarpander and Arion, ancient Greeks with modern ideas, who used harp music to curb the wild outbursts of the violently insane. Celsus, a leading early medical practitioner, was an enthusiastic user of music instead of brutality to heal the insane. He pointed out different methods of influencing the minds of the insane, depending upon the nature of their mania. He said: "We must quiet their demoniacal laughter by reprimands and threats, and

THE DOCTOR PRESCRIBES MUSIC

soothe their sadness by harmony, the sound of cymbals and other instruments.”

While soft music soothes, wild music has a devastating effect on the susceptible. Antigenides, the first exponent of swing, played a very fiery, emotional composition before Alexander the Great and so inflamed him that he leaped from his chair, drew his sword and began attacking those about him.

Deliberate recourse to music as a healing force was made when occasion demanded. The Thebans used the flute for the alleviation of a great many diseases; Galen referred to this method as “super loco affecto tibia cavere” (playing of pipes against the affected parts). Matinus assures us that he was very successful in reducing fevers with songs, and that Æsculapius cured deafness by the sound of the trumpet. Aulus Gellius asserted that a case of sciatica was cured by gentle musical modulations, and that the Phrygian pipe was generally recommended as good medicine for sciatica by many of the old Greek doctors.

✦ In the classics there are many glowing accounts of how music was used to perform miraculous cures. ✦ Theophrastus in his essay on *Enthusiasm* testifies that the bites of serpents and other ven-

THERE IS HEALING IN MUSIC

omous reptiles were rendered harmless by music, which quieted the pulse and heart-action.) Plutarch's works contain many relevant anecdotes. He tells us that Thelates, the Cretan, saved the Lacedæmonians from a dreadful pestilence by playing sweetly on his lyre. Democrates, too, expressed the opinion that the sound of the flute was a good remedy for plagues of all descriptions—and plagues were as frequent in the ancient world as wars.

* Centuries later one of the greatest plagues of history swept across Europe. Following close upon its horrors, in 1374, a curious phenomenon was observed in Germany. This was known as the Dancing Mania. Entire communities joined hands, screamed and shook for hours on end until they dropped from exhaustion. It was thoroughly infectious and no medicine known at that time had any effect on the addicts. Music was found to be the only means of checking it. The authorities of many towns ordered soft, slow music to be played in the streets and markets; and gradually the dancers became normal and the strange contagion was arrested.

During the seventeenth century a pretentious work appeared bearing the title *Magis Universal*

THE DOCTOR PRESCRIBES MUSIC

Naturæ et Artis, which contained bars of music reputed to cure persons bitten by a tarantula. In this emergency, wild and whirling rhythms are used. [The effectiveness of music in curing tarantula poison was further affirmed by Dr. Mead in England, Dr. Burette in France and Dr. Bagliavi in Italy, their explanation of the phenomenon, which is quite reasonable, being that the music must be powerful enough to throw the patient into a violent fit of dancing, thus bringing on profuse perspiration, which reduces the amount of poison in the body.]

[It is remarkable that music can act either as a calming influence or as a stimulant.] Napoleon is alleged to have attributed his defeat in Russia to the combination of Russian winter and Russian military music. The weird, barbaric tunes of "those monstrous Cossack regiments" incited the Muscovites to furious attacks in which they wiped out the best regiments of the French army. Probably there have been many similar incidents in other wars. Music is as necessary to an army as food and ammunition.

The calming effects of music were put to most practical use. The most surprising of all instances—if it does not strain our credulity—is

THERE IS HEALING IN MUSIC

recorded in the life of Fillipe Palma, the singer. Palma was always falling into debt. For this reason his house was continually besieged by creditors. One day an enraged creditor stormed into his house and the singer at once realized that no soft-spoken words would have any effect on him. He decided to try music. Accordingly he sat down at the harpsichord and began to play a very soothing tune. In a short time the angry creditor was thoroughly pacified. It is also stated that not only did he free Palma from his obligations to him, but even gave him money to pay off his other creditors. This man must have been something more than merely allergic to music.

A similar but more dramatic story is told of the Sultan Amurath, who, having laid siege to Bagdad and taken it, gave orders that some 30,000 Persians were to be put to death, notwithstanding the fact that they had put down their arms. Among the intended victims was a musician. He begged the officer in charge to spare him for but a moment that he might be permitted to speak to the Sultan. He was granted this favor and brought before the conqueror. He then began to play the saddest and most heart-stirring melody. After a half-hour of this the Sultan could bear

THE DOCTOR PRESCRIBES MUSIC

up no longer. He lost all restraint and broke down, weeping hysterically. He countermanded the order for the massacre.

The case of Philip V of Spain is famous. He suffered severely from fits of melancholia, which nearly ended in insanity. The court physicians tried in vain to cure him and as a last resort determined to try music. Farinelli, the famous castrato soprano and a former favorite of the unhappy king, was sent for to take part in this experiment. He was placed in a room adjoining that in which Philip sat in melancholy solitude. He sang a number of lively songs. No results were perceptible on the first day, but when the experiment was repeated, new tunes being sung and their number increased, the king began to show signs of returning interest. He listened and gradually became absorbed in the exquisite solo concerts. His interest grew daily. He became more discriminating, until finally, his attention once more thoroughly aroused, his cure became rapid and permanent.

George II of England was also subject to terrible fits of depression, and the only solace he received was from music. He would often ask for it when he sensed his melancholia coming on.

THERE IS HEALING IN MUSIC

Another case is recorded in the Archives of the Academy of Sciences at Paris. A well-known musician and composer was attacked by continuous delirium which no drug in the materia medica could cure. On the third day of his attack he asked if he might hear a little concert in his own room. Bernier's *Cantata* was sung. As soon as he heard the first notes his nervous tension relaxed. In another hour his fits were gone. As soon as the music ceased he had a relapse, but after ten trials of this treatment a complete cure was effected.

[Some people are influenced by music to a much greater extent than others.] There is the strange case recorded by Dr. Hector Chomet. A young musician, of Provence, was very deeply affected by the music of *La Vestale*, by Spontini. He went to hear this opera many times and each time was more and more fascinated by it. At length he became convinced that he had experienced the highest joy it was possible to get from life by listening to the music of Spontini, and, deciding that nothing further in life was worth seeking, he committed suicide.

Less disastrously affected was the gentleman of Devonshire, who was so profoundly moved by

THE DOCTOR PRESCRIBES MUSIC

a trio of Lampugnani's that he fell into a fainting fit which deprived him entirely of speech and memory for an hour. Music continued to have this effect on him, but he was so fond of it that he could not resist the temptation of hearing it. Some time later he was in London and went to hear Dr. Arne's opera *Artaxerxes*. He managed to bear up during the overture, with some difficulty, but the first song so overcame him that he fell senseless over the back of his chair.

Since then science has found a word for this occasional hypersensitivity to music (and less frequently to the other arts). We know that certain people are allergic to certain foods. Similarly certain persons are afflicted with what Dr. Wallace Marshall terms psycho-allergy. In such cases music may exert a profound influence on the psyche, and, as some of our historical instances indicate, either rouse the person to fury or reduce him to a state of lethargy.

[It was only toward the end of the eighteenth century that any serious effort to evaluate the precise effects of music on the human body was made.] Among the first investigators was Dr. Brocklesby, who conducted a series of experiments on a child of two, born of musical parents,

THERE IS HEALING IN MUSIC

“who was one day remarkable for mirth and good humor upon hearing sprightly airs of music; this gave occasion to the father and Mr. Stanley to try the effects of different measures, when they had raised the infant’s spirit very high by these means. But as the chromatic and the graver strains began, the child grew melancholy and sad, which temper was removed as soon as the pleasanter strain was played. Thus as I am informed they could, solely by this art, raise and allay grief and joy in turns in this infant’s mind.”

* [In 1893 Dr. Ewing Hunter, of Helensburgh, N. S., found that soft music successfully reduced high temperature in several cases of fever, the greatest reduction being two degrees, from 101 to 99.]

Dr. D. T. Wimmer, a few years earlier, described the results of experiments with music conducted in an insane asylum. The piano was played for half an hour to fourteen hundred insane women. It was found that all responded to the rhythm. In some cases the pulse rate rose, others became restless and beat time. Melody without emphatic rhythm had no effect at all except when it happened to be an air which awakened memories. Through slow music the worst

THE DOCTOR PRESCRIBES MUSIC

cases were soothed and sometimes went to sleep. After several experiments all showed improvement.

X [Two years ago Dr. J. A. McGlinn found that music was of distinct value in the operating room. In an article in *The National Medical Journal* he says: "The advantages of music in the operating room are summarized as follows: 1. It creates a better atmosphere for all patients coming to the amphitheater, where it prevents the usual noises such as the jingle of instruments, basin sounds, and hiss of escaping steam from being heard. 2. It diverts the attention of patients during operation under local and spinal anesthesia. 3. It relaxes the attention of the surgeon and the staff during the operation. 4. It entertains the operating-room force during the arduous tasks of cleaning up after the day is finished."

Dr. McGlinn found that soft, soothing music is the type most acceptable to all patients. The music was supplied by a special self-playing, automatic record-changing instrument with a superior type of reproduction.

The healing influences of music are appreciated not only among so-called civilized races. Many

THERE IS HEALING IN MUSIC

visitors to Indian villages in the Southwest have been impressed with the medicine-men's custom of singing while administering their herbs. These witch doctors believe that singing makes the herbs more effective. In fact, in some tribes the medicine-men dispense with herbs entirely and depend wholly upon vocal music to heal the patient.

Among the Chippewa Indians there is a song which contains the following incantation: "You will recover; you will walk again. It is I who say it. My power is great." This song was believed by many to have the power of restoring the use of the legs to a person who was lame or who otherwise had difficulty in walking.

The Sioux medicine-man has an elaborate musico-medical system. He has a song for almost every known ailment—a song to cure headaches, one for children's ailments and another for setting a fractured leg. The Papago Indians of Arizona have a similarly elaborate musical curing treasure-house. It is their belief that healing songs are obtained from certain birds and animals.

The Indian medicine-man of almost every tribe has a standardized ritual. He sings his songs four times. After this there is a pause. Then, if necessary, the song is repeated four times more.

THE DOCTOR PRESCRIBES MUSIC

While he sings he beats a drum or shakes a rattle which has not a little power in energizing the patient exhausted from disease. Masters of rhythm, the Indians realized many years ago that it is one of the most powerful means of influencing the physical condition of the average person.

^ Music has emerged as one of the most pleasant of all curative agents. [Modern science with its exact methods of measuring physiological activities is daily confirming as fact what many have suspected down through the course of history: that music exerts a profound influence on human health, happiness and efficiency.]

CHAPTER II

HOW MUSIC ACTS ON THE BODY

THROUGH what mechanism in the human body are the salutary effects of music produced? Just how, actually, is music translated into tonic or healing medicine? For many years scientists have been trying to arrive at an explanation. Primitive theories were as fantastic as those by which ancient doctors explained the causes of disease. Pícus Mirandale stated that music cured illness by moving spirits to act on the soul and body. Cœlius Aurelianus maintained that music charmed the diseased part, causing it to tremble and palpitate.

Dr. J. P. Burette, who made a searching inquiry into the work done by the ancients in musical healing, concluded that by repeated shocks given by atmospheric vibrations to the nerves, music brought about its curative effect. He held that music worked on the afflicted parts by pleasing the ear, thereby diverting the patient's attention from his ailment, and that by vibrating the

THE DOCTOR PRESCRIBES MUSIC

nerves it moved the "humor" and the "animal spirits" and broke down malignant obstructions.

Richard Browne, a well-known physician of the seventeenth century, accounted for the influence of music with the following theory: "It is evident that, if the strings of the fiddle be struck swiftly and boldly, the vibrations of the air must necessarily be briskly agitated and give a lively pleasure to the mind, which by sympathy will invigorate the whole machine. On the contrary, by slow, soft languishing strokes of the fiddle, the nerves will be so finely and delicately touched and the sensation so ravishing, as to cause the spirits to flow back in gentle undulations. . . . And thus it is evident that an allegro, by short, quick and brisk impressions upon the auditory nerves, fills the soul with gay and cheerful sensations."

In the *History of the Royal Academy of Sciences of France*, Louis de Mairon accounted for the effects of music in this way: "It is to the mechanical involuntary connection between the organs of hearing and consonance excited in the outward air joined to the rapid communications of the vibrations of the whole nervous system, that we owe the cure of spasmodic fevers, attended with delirium and convulsions."

HOW MUSIC ACTS ON THE BODY

In 1803, Dr. Jean L. Desserarts read a treatise before the National Institute of France, offering another theory of the mechanism. The gist of his article is in the following: "As the nervous system governs the motions of solids [muscles and organs], and controls their action on the fluids, it ought to be understood that the nerves when moved, disturbed or agitated, communicate their state to the parts which they penetrate; they thereby set them to work which belongs to their organization, and give them the power of producing various humors and that fluidity, that course which brings on and accomplishes a favorable crisis. Music, by imparting to the nerves their life, which in certain maladies is suspended or choked, restores the functions of vitality to vessels and tissues. It can, therefore, have powerful influence on the secretions and excretions, and become a constant means of healing maladies that are called humoral, gastric, putrid, or malignant."

Dr. Chomet advanced an interesting mechanical theory. He supposed space to be charged with an imponderable fluid, which he named *sound* or *ether*, whose existence he assumed to be everywhere, like the ether of the light and heat theory. It is also always present—active or dormant—like

THE DOCTOR PRESCRIBES MUSIC

electricity. He said that living beings, and to a certain limited extent, inanimate objects, could be influenced by this imponderable tone-ether, and that a sympathy or antipathy to the ether is constantly manifested, producing most curious effects. Moreover, this imponderable fluid is capable of modifying or changing its character in many ways, as in the case of light, heat and electricity. Under certain precise circumstances this ever-present tone-ether resolves into sounds, and if the sounds are harmonious into music. When we produce music by mechanical means, we tap and make use of the infinite volume of sound. In other words, we put ourselves into immediate communication with a new force that has a vast influence, for either good or evil, on the human body.

J. H. Hausen had an interesting theory along somewhat similar lines. His belief was that the tone-ether permeates the whole body and is present in every tissue, finding its way into the lungs and thence being conveyed by the blood to the remotest ramifications of the system.

✕ In his medical lectures, Dr. Leake propounded the theory that music operates by exciting peculiar sensations on the nerves of the ear, which in turn, communicate with the brain and the general nerv-

HOW MUSIC ACTS ON THE BODY

ous system. This assertion has had some scientific backing in recent years. [In a lecture recently given at Oxford it was stated that, although the intricate connections of the auditory nerves are just being unraveled, in all probability the roots of those nerves are more widely distributed and have more extensive connections than those of any other nerves in the human body. Researches on the auditory nerves indicate that there is scarcely a function of the body which may not be affected by the pulsations and harmonic combinations of musical tones. >Dr. Herbert Libby in his pamphlet, *The Therapeutics of Music*, argues that musical vibrations received by the auditory nerve produce reflex action upon the sympathetic system, stimulating or depressing the nerves and thus influencing the tone and well-being of the body.]

After a great deal of research on the effects of music on the body, Dr. Ingegnieros declared that: (1) Musical stimuli, like all sensorial excitations, determine an increase of the general physiological activities of the body. The influence of music is a fact experimentally demonstrated. (2) Musical stimuli in certain well-known conditions determine the transient functional reactions in the body that

THE DOCTOR PRESCRIBES MUSIC

characterize an emotion. (3) Physiologically, functional reactions that are specific of the musical emotions do not exist. It is a matter of the reactions common to the emotions in general, determined by music in certain conditions.

The conclusions that may be drawn as to the influence of music on the human body may be stated as follows:

1. Music increases metabolism, as shown by the work of Tartchanoff and Dutton.
2. It increases or decreases muscular energy, according to the experiments of Fère, Tartchanoff and Scripture.
3. It accelerates breathing and decreases its regularity, as demonstrated by Binet, Weed and Guilbaud.
4. It produces a marked but variable effect on blood volume, pulse and blood pressure.
5. It lowers the threshold for sensory stimuli of different modes.
6. It thus affords the physiological basis for the genesis of emotions, according to the James-Lange theory, and consequently influences the internal secretions, according to the researches of Cannon.

HOW MUSIC ACTS ON THE BODY

Within more recent years science has been analyzing the various physiological effects of different sounds and sound combinations. It has found that music causes not only physical and psychical action but chemical action as well.] Drs. Earl W. Flosdorf and Leslie A. Chambers in a series of experiments found that shrill sounds projected into a liquid media coagulated proteins, broke down ethyl acetate to produce acetic acid, cracked vegetable oils with generation of acetylene gas, and even, to a slight extent, changed starch into sugar. They demonstrated in a spectacular way that without raising the temperature, an egg can be soft-boiled in a few moments when subjected to very shrill music.

There can be little doubt that similar chemical reactions are produced in the human body by music, although as yet no way has been found of measuring them.

CHAPTER III

MUSIC AND MENTAL HEALTH

PHYSICIANS whose sole task is caring for the insane have long realized that music is one of the best medicines for the mind. Several years ago Dr. Egbert Guernsey said: "If every hospital or asylum inducted in its medical staff a musical director, and if every physician and trained musician understood the nature and action of music, there is no telling the good that might be accomplished, the lives brightened and the tangled brains restored to harmony."

Of a similar mind was Dr. Emmett Dent, for many years Superintendent of Manhattan State Hospital. After segregating a number of his patients for a time and recording the effects of especially selected music upon them Dr. Dent became an enthusiastic user of music as a cure. Many years' trial with music in mental cases has only further confirmed his opinion. He said: "Music is responsible for cures among the insane

MUSIC AND MENTAL HEALTH

and improvements of patients seemingly in a hopeless condition that are little short of marvelous.”

Some time ago the Superintendent of the State Hospital at Middletown, Connecticut, organized an orchestra in that institution which provided music for patients at meal time. He said: “The effect of that orchestral music on the thirteen hundred patients assembled during meals in the dining-room, afflicted with every grade of mental derangement, is satisfactory to the highest degree. Under its influence these patients are quiet, self-controlled and observe as complete decorum as could be found in the dining-room of any large hotel, and I believe the influence to be not only pleasing but of lasting benefit. While the scheme is to a large degree experimental, the results are so gratifying that we should be extremely loath to discontinue.”

The scheme was not discontinued. The doctor carried on this experiment with music in his institution for many years. At the end of that period he made another interesting statement: “We have continued to maintain an orchestra in our dining-room, where fourteen hundred insane patients take their meals, ever since its organization ten years ago, and we have never seen the time

THE DOCTOR PRESCRIBES MUSIC

when we deemed it possible to dispense with it. Of course, it is very difficult to estimate the amount of possible value music has for the insane; nevertheless, we have no doubt that whatever that may be it has a distinct, excellent, curative influence. Time and experience have only served to confirm the attitude I assumed in the matter ten years ago. We are able to bring fourteen hundred patients of both sexes together for their meals and keep them quiet, amiable, cheerful and orderly during the meal hour with the aid of music of a high-class orchestra. I am ready therefore to re-affirm the opinion expressed ten years ago as to the salutary influence of music on the insane."

These are not isolated instances. Physicians throughout the world are beginning to realize that music is of definite value in keeping the mind healthy. Henry Phipps' magnificent gift of \$500,000 for the advanced scientific treatment of mental disorders has made possible the equipment of a musical department in the Phipps Psychiatric Clinic of the Johns Hopkins Hospital in Baltimore, one of the finest institutions of its kind in the world. In that now famous clinic music is being tested as a cure for insanity of various types

MUSIC AND MENTAL HEALTH

and degrees, with encouraging results. It has been found that music lessens the fury of the most violent cases and in general is providing a valuable aid to the methods in use at the clinic.

Let us consider some individual cases in which music has proved to be of great benefit. A dementia-præcox case is reported of a woman who spent all day talking about her teeth. Nothing could get her mind away from this subject. Finally music was tried. She listened to music without once speaking or apparently thinking of her fixations. As the musical treatment continued she drew further away, in the intervals without music, from her mania. Her mind gradually became more normal.

Another interesting case is that of a boy of ten who, two years ago, was a patient in the wards of the Whitmouth Hospital in Dublin. He was abnormally over-active. His mother stated that he would stand for hours listening to the phonograph. The only thing that would keep him quiet was music in one form or another. He was a normal person only when listening to music.

Still another case was reported in *The American Journal of Psychiatry* by Dr. Willem van de Wall and Dr. Earl D. Bond of the Institute for Mental

THE DOCTOR PRESCRIBES MUSIC

Hygiene, of the Pennsylvania Hospital. It will be given here in detail as an example of what may be accomplished with music as a curative agent in psychoneurosis:

Miss X, aged 29, was referred on April 13, 1932, to the Institute because her physician, after a thorough physical examination, had been unable to discover the cause of her symptoms, which she described as: "Excruciating pains at menses, requiring bed for days; tightness and pain on both sides of the neck; pains in face and head." The patient while at the Institute complained of three types of pain: in her face and neck, in her abdomen, and in her legs.

The history given by the patient, her mother and a friend showed that these pains were of long standing and that invalidism had begun at the age of nine. At this age she had had fever with some delirium. After this, and not before, she was nervous, easily frightened, insecure and sensitive. Fatigue and, later, menstrual pains, made her schooling irregular. She thought that she was never understood. Nevertheless, she graduated from college and taught for a while with some

MUSIC AND MENTAL HEALTH

success, according to pupils and fellow teachers, but with no satisfaction to herself.

Because of distrust of her own ambitions she always accepted too much work and was always tired. She held an important secretarial office in a college and did very well until she had to give it up because of severe pains. Before any coming event she wore herself out with worry. At the time of her coming for treatment she was most undecided and self-centered, and she spent hours in day-dreaming and in watching herself in the mirror. She was conscious of a lump and a metallic taste in her throat.

Her musical history is of extreme interest. Her first contact with music came about through her mother, whose father, in turn, had fostered musical interests in her home. This man, the patient's maternal grandfather, was an immigrant, and he never lost his longing to return to his own land. He had a great love for music and organized his seven children into a home orchestra, which for years performed every night.

The patient had a great admiration for her mother's vocal abilities and power of improvisation. Her mother taught her at an early age little songs to be performed in Sunday school. She was

THE DOCTOR PRESCRIBES MUSIC

reared in the country. During the grammar-school period, hymns of the rural church were about her only music literature. At home, she spent hours with an older sister improvising melodies and practising two-part singing. The two girls sang for church programs. She described this thus: "We ran and sang to the wind, climbing the trees, swinging and singing; washing dishes, pasting labels, and singing about it, happy and living with a melody bubbling up as an inseparable part of the moment."

When she was thirteen she suddenly became interested in the piano. She taught herself from an old organ book to play two-part melodies with two fingers. She acquired ability to read the melody from the page, but "the tune I fitted to the ear." She states: "I was exalted over my ability to play my first hymn with two hands. I learned to play awful-sounding dramatic interludes and accompaniments on the organ for the entertainments and dramatic presentations of the church."

During her high-school period the patient's experiences in which music was a factor increased. She spent one year singing in a glee club, parts with very high notes. She helped to perform an

MUSIC AND MENTAL HEALTH

oratorio. "This enchanted me. The changes in time I loved most. I was charmed by some of the beautiful chorus movements and modulations." When she was sixteen, she joined the choir of what she termed "an emotional revival-meeting session." She tells us that she found "a new depth of appeal in the hymns *Almost Persuaded* and *Where He Leads Me I Will Follow*."

She loved to listen to music, but she felt more and more the necessity to produce music. Thus she organized a home orchestra—violin, trombone, alto horn and piano. Music-making had become the dynamic factor in her life.

For a month the patient stayed near the Institute and talked to the psychiatrist three or four times a week. Physio-therapy of various sorts was tried but with little benefit. The doctors decided to try music as a curative method. This consisted of three periods of treatment.

The first period was one of closely supervised study and living in controlled environment. An expert vocal teacher was secured and a suitable inexpensive home was found with two young women of the patient's own age. These women had always earned their own livelihood, a task which

THE DOCTOR PRESCRIBES MUSIC

had not always been easy for them; they were understanding and welcomed the patient.

The first method adopted was to focus her immediate attention on her vocal work and to eliminate the idea of being a patient who did the work for the purpose of treatment. She received three or four vocal lessons per week and was instructed to exercise and rest each day as prescribed by the vocal instructor. These lessons consisted of relaxation exercises of the throat, mouth and body muscles and of practice in tone and breathing. The instructor found the patient to be extremely tense and stiff. Efforts by the patient to undertake the simple exercises resulted in contraction of the throat, mouth and neck muscles, and a stiffening of the entire body.

It took the patient seven weeks of daily exercise to come gradually to a state of being able to relax the neck, throat and jaw muscles and to produce a free and open tone. She said that each new exercise caused tenseness and pain. As soon as she had overcome one tenseness another was experienced. By conscious effort and experiment she learned to develop confidence in relaxing before undertaking to produce tones. The initial attempt to release the jaw caused her

MUSIC AND MENTAL HEALTH

severe pain around the nose, eyes and throat and quivers in the shoulders and arms. She was told to rest and start again. After five weeks of practice she was able to relax her jaw for singing exercises without pains. She stated: "I see that I have been thinking that I would never learn to sing and made myself stupidly tense."

Breathing exercises led in two months to an extension of the inhalation time from ten to eighty-four seconds and vocalization by humming from ten tones to three octaves. Toward the end of the second week she was able to relax her jaw completely and to produce the high C with ease.

In the first week the vocal teacher found the patient rather distracted, dreamy, fearful and inhibited. As early as the fourth week this condition had changed to an attentive, concentrated, confident and projective attitude.

During the sixth week the patient began to talk less and less about herself and to discuss spontaneously the musical needs of small rural children and also what could be done to provide these needs. At the close of the first period she wanted nothing so much as to continue her training.

THE DOCTOR PRESCRIBES MUSIC

After a vacation of three weeks the second period began. As the young woman progressed her pains and muscular stiffness began to disappear. She had become quick and vivacious in movement, but remained somewhat inaccurate in rhythmical control and expression.

At the end of the second month she said: "I am free, twenty-one and a case no longer. I want to work and be of use." The third and final period of musical training completed her education in music and relaxation.

Upon completion of this treatment with music the patient's mother reported: "It is wonderful to see the change in a year. Instead of wandering pitifully about the house with a hot-water bottle for her pains, she is busy every minute and cheerfully trying to help others." The patient herself said: "I am growing happy from the inside—I think I begin to manage instead of allowing a stampede of forces within. I am alive with ambition."

In this case music proved to be the one great means of saving the patient from a life of mental invalidism. Fortunately, she had this marked interest in music, and musical training in her case

MUSIC AND MENTAL HEALTH

proved the solution of her trouble. But almost every person is to some degree interested in music and will enjoy active participation in it.

The Hospital Music Committee of the New York Visiting Committee has been taking music into the city hospitals and insane asylums for the past eleven years. It is a subcommittee of the State Charities Aid Association and its work is comparable to that of the famous Guild of St. Cecilia, which towards the end of the last century and the beginning of the present, organized curative concerts for asylums and hospitals, with impressive results.

The music provided by the Hospital Music Committee is especially valuable for mentally disturbed patients and is quite often the means of bringing about recovery. Many interesting stories have been told by Committee members. Here is a typical instance of the value of music on an emotionally upset patient in Lincoln Hospital, New York City. One ward was being disturbed by the moans of a patient who, the nurse declared, was not so much in pain as he was extremely nervous. The members of the Music Committee went close to the bed and kept playing and singing softly. It was not long before the man ceased to

THE DOCTOR PRESCRIBES MUSIC

moan. Music had helped him to get a better grip on himself.

Two years ago, Moissaye Boguslawski, the famous pianist, conducted a series of novel experiments in a Chicago hospital for the insane. Boguslawski played a group of Italian melodies before an Italian mother who was so mentally deranged that she refused to have anything to do with her baby. This woman showed no reaction until the pianist began to play an aria from *Il Trovatore*. This aroused sufficient interest in her to pay attention to her baby and look after it.

Dr. L. S. Bender, of Bellevue Hospital, reports cases of deranged children whose fits of violence were quickly terminated by music. In an asylum in Illinois one hundred patients were treated with marked success by piano music. Playing for each one individually, the pianist began with nursery pieces and continued through the music these patients would have heard through adolescence and adulthood, until some tune established a chain of associations with the world of actuality.

Among these patients was a young mother whose mind had become deranged at childbirth. She, too, would have nothing to do with her newly born infant. Her mind was restored to normal by

MUSIC AND MENTAL HEALTH

Brahms' *Lullaby*. An Italian girl who had not spoken for three months was able to get a better grip on herself and began to talk once more after hearing *O Sole Mio*. A woman who could not remember where she lived regained her memory after hearing *Silver Threads Among the Gold*.

There was also the case of a man who went blind because of hysteria following the sudden death of his wife. A pianist was called, who played slow, soothing music at first. Later the patient requested gay tunes, and after three successive days of treatment his nerves relaxed and he was able to see again.

In the great musical pharmacopeia there are various types of musical composition as there are various types of drugs in the medical pharmacopeia. There are melodies which stimulate the melancholic mind, and there are soothing tunes to calm the turbulent spirit.

King Ludwig of Bavaria, who was subject to fits of insanity, came to know in time that music was the best medicine he could obtain. He was continually being plunged into the blackest depths of depression; for these attacks there were two melodies which were more precious to him than any drug. They invariably helped him to recover.

THE DOCTOR PRESCRIBES MUSIC

They were the *Dream Song* from Auber's *Masaniello* and the *Hymn* from Von Flotow's *Stradella*.

In cases of this sort where the patient suffers from intermittent mental or nervous disorder, what is needed is music of pronounced rhythmic and melodic character. To name a few works, out of the vast literature of music, which are refreshing, sufficiently stimulating to keep the mind alert, and yet not demanding too much concentration, we would head the list with many of Chopin's Mazurkas and Preludes, such works as his *Nocturne in E Flat, Opus 9, No. 2*, the more cheerful songs of Schubert and Schumann and Grieg, Leybach's famous old *5th Nocturne*, the exhilarating yet not agitating Strauss Waltzes, the melodious arias of Verdi and Bellini which we continue to hum or whistle after the opera, and many of the stand-bys from the Family Music Albums, such as Nevin's *Narcissus*, MacDowell's *To A Waterlily*, Rubinstein's *Melody in F*, Dvořák's *Humoresque*. For patients of more strictly musical sensitivity, the pure beauty of the Mozart sonatas, his little symphony *Eine Kleine Nachtmusik*, the first and second movements of Beethoven's *4th Symphony*, the measured slow movement of his *8th Symphony*, are recommended.

MUSIC AND MENTAL HEALTH

The library of superb phonographic recordings of good music is now so extensive that one can select readily from the classics. It is of course impossible in this book to more than suggest the types of music which have been found valuable for types of mental and physical illness. Ideally, one should consider, too, the intellect and personality of the subject. For serious disorders, highly complex or definitely emotional music—most of the symphonic works of Brahms, Strauss, and Sibelius, the later Wagner music dramas, and much of the severely intellectual modern music—is to be avoided, as putting a strain upon the patient and perhaps even rousing a dangerous state of mind. Many of the songs of Schubert, Brahms and Wolff are too definitely expressive of particular emotions and too burdened with “thought” to be either desirable for, or understood by, the average listener.

There are, of course, among the works of these last-named composers many instances of sheer loveliness, free from stress and over-subjectivity, such as the *Siegfried Waldweben*, Schubert's *Du Bist Die Ruh'*, the *Meistersinger Prize Song*, Brahms' famous *Lullaby* and *Sapphic Ode*, the

THE DOCTOR PRESCRIBES MUSIC

3rd movement of his *1st Symphony* and the 3rd of his *2nd Symphony*.

Throughout the following chapters specific musical compositions are recommended for specific troubles. The reader with any degree of interest in the subject will find other works which he may prefer. The lists are given as suggestions; and in most cases they are based on a repertoire which has well served the purposes of clinics, hospitals or private nurses again and again. It has been found wiser in general to rely on the works of the less titanic composers, except for certain popular compositions.

For the treatment of the mentally deranged there are drugs known as tonics to take care of those who may be depressed and must be aroused, and sedatives to soothe the over-excited. Among the music tonics which have been found of value in mental depression are:

March Movement from Symphonie Pathétique.

Tchaikovsky

Egmont Overture. Beethoven

Pilgrims' Chorus from Tannhäuser. Wagner

Prélude, Op. 28, No. 1. Chopin

Hungarian Rhapsody, No. 2. Liszt

March of the Sirdars. Ippolitov-Ivanov

The military marches of Sousa

MUSIC AND MENTAL HEALTH

Among the sedatives in music the following are in frequent demand in local hospitals :

Berceuse from Jocelyn. Godard
Intermezzo from Cavalleria Rusticana. Mascagni
Ave Maria. Schubert
The Swan. Saint-Saëns
Lullaby. Brahms
Pastoral Symphony, 2nd Movement. Beethoven
On Wings of Song. Mendelssohn
Du Bist die Ruh'. Schubert
Nocturne in G minor, Opus 37, No. 1. Chopin

X There is a definite basis for gaging the effect of music on the mind. When measurable results are produced by music on the brain, the mind must be influenced. Towards the close of the last century, Dr. Patrici, an Italian physiologist, conducted a series of experiments to determine the influence of different kinds of music on the circulation of the blood in the brain. A thirteen-year-old boy named Emanuel Favre, a native of Savoy, while acting as an assistant to his employer, a woodcutter, was severely wounded in the head by a glancing blow of his ax. Through careful treatment in the hospitals he was restored to health, although the wound was more than three inches in length, cleaving the bone of the skull

THE DOCTOR PRESCRIBES MUSIC

for the entire distance. When the wound was healed the bones did not fully cover over the brain, but left a small section exposed. It was possible to measure accurately changes in the blood circulation through the brain. The boy was bright and fully willing to undergo these experiments. Dr. Patrici set out to ascertain first if the circulation of the brain in general is influenced by music, and second if the circulation in the brain is more or less influenced than that in other parts of the body.

An apparatus was devised which consisted of a closed cylinder of glass for holding the arm in water and a registering apparatus connected with the needle of a galvanometer. For registering the pulse in the brain a cap of gutta-percha was made, with an electrical connection capable of showing the slightest modification in blood volume as well as in pulsation.

X It had already been claimed by former observers that any excitement of the brain by musical sounds increases the flow of blood in other parts of the body. Accordingly two tracings were made simultaneously, the one of the pulsation of the blood in the brain and the other of the pulse of the arm.

MUSIC AND MENTAL HEALTH

During the course of these experiments three phenomena were observed:

1. The *volume of the pulse* in the arm was elevated in the same proportion as that of the brain.
2. At times it was found that the *circulation of the blood* in the brain was increased while that of the arm slowed down.
3. There were instances in which the *amount of blood* in the arm was not in the least influenced while the circulation of blood in the brain was increased.

Lively music was found to cause an increase of blood in the brain as well as a livelier pulse. The *Marseillaise* was used with very definite effects. This reaction indicated a purely physiological explanation as to how, for instance, the stirring music of the national anthem will arouse love of country and the readiness to make war.

The increase of blood in the brain together with the speed of circulation also explains why more work can be done when lively music is being played. We have here the basis for using music to increase output in industry.

THE DOCTOR PRESCRIBES MUSIC

We have here also the explanation of why maniacs can sometimes be soothed by soft, slow music. Dr. Patrici demonstrated that such music has the effect of slowing the blood circulation in the brain and decreasing its volume. Cerebral anemia is therefore more necessary than anything else to control maniacal activity. Just as lively music stimulates the brain to greater mental activity, soft, slow music is necessary to rest the brain after too much activity.

Moods have a biological foundation. They depend a great deal on the activity of the brain and blood. Depression and exaltation are actuated by speed or sluggishness of the blood in the brain and blood vessels as well as by nervous tension. The "blues," for example, are accompanied by sluggishness of heart and circulation.

Musically there is no better tonic for extreme cases of the blues than the affirmative closing movement of Beethoven's *Eroica Symphony*. *The Ride of the Valkyries*, and Dvořák's *Carnival Overture*—which Robert Haven Schaufler described as "almost like a plunge into an electric fountain of youth"—have been used with good results. For more definitely musical patients there is the last movement of Brahms' *1st Sym-*

MUSIC AND MENTAL HEALTH

phony, with its noble, march-like chorale, and the *Prelude to Die Meistersinger*.

The blues, in a minor form, is the common affliction of most of us on Mondays. Though often partly due to the effect of late hours and over-excitement on the week-end, it is undeniably also a purely psychological condition. The next time you waken to an ultra-blue Monday, try a few bars of Beethoven on your piano or phonograph—the last movement of the *5th Symphony*—or the Scherzo of the *7th Symphony*—and if you do not exactly go off to your job like an Alger hero, you will at least be surprised at how much more enjoyable the prospect of work will appear. A song like Schumann's *O Sonnenschein*, or *The Happy Farmer*, in fact any vigorous tune which you like, is as effective.

Everyone knows that music is one of the greatest reliefs from boredom. Active people turn constantly to popular tunes, to dance rhythms, to the infectious songs of the Gilbert and Sullivan operas; the more serious-minded to the robust and ever fresh music of the classic symphonies; the imaginative perhaps to some of the stirring sections of *The Ring*—*The Funeral March*, the fiery sun-drenched close of *Siegfried*, the *Rhine Jour-*

THE DOCTOR PRESCRIBES MUSIC

ney. So for convalescents there is a vast field of music to choose from. Liszt's *Les Préludes* has long been a favorite for lifting people out of boredom. Program music, like Smetana's *Vltava*, Rimsky-Korsakov's *Scheherazade*, and Tchaikovsky's *Romeo and Juliet Overture*, which bring a vicarious experience, are the best type of music for persons not seriously ill but bedridden and weary.

When one has suffered a loss that seems irreparable there is nothing quite like music to overcome the sense of utter desolation. One of the most solacing compositions for the bereaved has been found to be Beethoven's *Sonata Pathétique*. The slow movement of Brahms' *2nd Cello Sonata* has "a healing in its wings." Many of the Bach chorales (which one is more apt to find recorded in piano arrangements) seem to make very real that "peace that passeth all understanding."

To dispel rage and tantrums the insistent yet pacifying *Pilgrims' Chorus* from *Tannhäuser* has been used with success, although one might hesitate to recommend this too celebrated war-horse to patients with a developed musical taste.

For nervous exhaustion we need the deep serene beauty of the Variations from the *Appassionata*

MUSIC AND MENTAL HEALTH

Sonata of Beethoven, or the noble simplicity of the mellow German chorales like *O Haupt voll Blut und Wunden*. For mental fatigue there is the *Parsifal Good Friday Spell*, with its cool harmonies and promise of renewal; the Largo of the *Symphony from the New World*; the full-throated slow movement of Haydn's *Symphony No. 13*—like the night wind through the trees of a stately park; and those deeply serene, long-phrased lyrics of Brahms: *Feldeinsamkeit*, *Der Tod das ist die Kühle Nacht*, and *Sapphische Ode*.

χ All of these musical compositions have definite effects on the circulation of the blood in the brain as well as on the circulation in other parts of the body. The lively tunes accelerate the heart action; the slow tunes retard it. And added to this is that emotional content of most music, intangible and unmeasurable but of proven value to restore us as potently as many drugs. And these music tonics and sedatives leave no ill after-effect.

CHAPTER IV

MUSIC IS A GOOD TONIC FOR THE HEART

MMUSIC is good for the heart and circulation. A lively tune is better than a powerful drug in whipping up a lagging bloodstream. A soft melody works wonders in calming a surging and fagged-out heart. These facts have been known since earliest times. It is only in the last two hundred years that science has investigated the phenomenon. Grétry, the eighteenth-century French composer, was curious about the effects of music and wrote an essay offering his own observations on music and the circulation of the blood.

“I placed,” he said, “three fingers of my right hand on the artery of my left arm, or on any other artery in my whole body, and sang to myself an air the tempo of which was in accordance with my pulse; some little time afterwards, I sang with greater ardor in a different tempo, when I distinctly felt my pulse quickening its action or slack-

MUSIC IS A GOOD TONIC FOR THE HEART

ening its action to accommodate itself by degrees to the tempo of the new air.”

At about the same time, Dr. David Campbell, a physician of note, resorted to music as a means of calming or stimulating the circulation for many of his patients. He firmly believed that this was a most efficient means of removing undue pressure from the brain. Later research was to verify this theory.

The first really scientific experiment on the influence of music on the heart and blood vessels was conducted by Drs. Binet and Courtier in 1895. They found that the pulse was markedly affected by the type of music played. Lively music acted as a stimulant to the heart and circulation, while soft, sad music acted as a depressant. The following table is a summary of the results:

MUSIC	ACTION ON THE PULSE	
	<i>Before</i>	<i>After</i>
<i>March from Tannhäuser.</i> Wagner	80	84
<i>Soldiers' Chorus.</i> Gounod	81	87
<i>Hungarian March.</i> Berlioz	86.5	91.5
<i>Sword Episode from Die Walküre.</i> Wagner	69	70
<i>Ride of the Valkyries.</i> Wagner	68	83
<i>Spring Song.</i> Wagner	69	73.5
<i>The Meeting from Faust.</i> Gounod	68	84
<i>Love Duet from Faust.</i>	73	83

THE DOCTOR PRESCRIBES MUSIC

The foregoing experiments were conclusive proof that lively music has a definite effect in stirring up the circulation of the blood as evidenced by an increased pulse rate. This was the only means of circulatory activity they were able to study at that time. They had not the instruments to study heart action directly.

But in 1918 Drs. Hyde and Scalapino had all the modern blood-pressure measuring machines at their disposal when they conducted a series of experiments in the physiological laboratories at the University of Kansas in an effort to determine the influence of music on the heart action and on blood pressure. The object of the experiment, more specifically, was to ascertain the effects of different kinds of music on the heart and the blood pressure in individuals who were known to have musical talent and who were fond of music. The experiment was also extended to those who were indifferent to music.

The amount of electricity generated by the heart under these conditions was measured with the Einthoven string galvanometer, its sensitiveness being 1 cm. deflection per one millivolt; the film speed was 2.5 cm. per second. The time

MUSIC IS A GOOD TONIC FOR THE HEART

marker was set at 1/5 second and lead 2 was adapted for comparison, for all of the records. The pulse and blood pressure were measured with a Tycos blood-pressure apparatus and a modified form of Erlanger's sphygmomanometer. The music used in these experiments was from Victrola records.

The pieces selected were the poignant and tragic slow movement of Tchaikovsky's *6th Symphony*; the *Toreador's Song* from *Carmen*; and the *National Emblem*, a stirring, lively march and anthem by Bagley. The effect of other pieces of music had been tried, but results seemed to indicate that these other pieces were too familiar to the subjects, and gave results influenced by social memory and other factors.

The data from Subject A, who was fond of music, were checked with those of the other two listeners, but A's results, being the most complete, were chosen by the experimenters for publication.

The experiments were conducted under fairly constant physical and weather conditions, and at about the same time, the same hours of the day. The cardiograms (heart action recorded, produced by electrical changes), pulse and pressure

THE DOCTOR PRESCRIBES MUSIC

records were secured before and immediately after, and also from five to ten minutes after, the music had ceased. The cardiograms were also taken while the subject was still listening to the music. For the experimenter's own information, cardiograms of the subject's pulse and pressure were obtained, without the influence of music, at different hours of the morning, the forenoon being the time during which all tests were made. It was found that ordinarily the pulse rate and pressure vary somewhat during the forenoon as shown in the following table:

<i>Time</i>	<i>Pulse Per Minute</i>	<i>Systolic Per MM.</i>	<i>Diastolic Per MM.</i>	<i>Pulse Pressure Per MM.</i>
10:35	84	112	76	36
11:15	82	114	76	38
11:30	78	114	74	40
11:45	76	114	72	42
12:00	72	114	74	40

The fact that the pulse rate decreased and the pulse pressure increased as the morning advanced was taken into consideration in estimating the after-effects of music.

A summary of the experiment has been condensed in the following table:

MUSIC IS A GOOD TONIC FOR THE HEART

Music	Curve	Time	Relative to Music	Systolic Pressure	Diastolic Pressure	Pulse Pressure	Pulse per Minute	"P. P." per Cubic Millimeter	"T. P." per Cubic Millimeter	"E. M. F." (Heart Energy)
Symphony	54	11:15	before	110	65	45	76	1.98	0.82	0.50
	55	11:20	during				83	1.80	0.72	0.55
	56	11:25	during				75	2.00	0.85	0.56
	57	11:30	during				77	2.03	0.90	0.55
	58	11:32	after	102	60	42	80	1.86	0.74	0.58
	59	11:36	after	102			81	1.84	0.71	0.58
Toreador	46	11:00	before	106	78	28	81	1.84	0.77	0.66
	47	11:05	during				83	1.80	0.68	0.58
	48	11:10	during				87	1.71	0.58	0.56
	49	11:15	after	112	74	37	85	1.76	0.65	0.57
National Emblem Anthem	41	11:40	before	106	70	36	75	2.00	0.80	0.60
	42	11:50	during				70	2.14	0.90	0.62
	44	11:57	during				71	2.09	0.95	0.63
	45	12:00	after	112	66	56	75	2.10	0.84	0.70

From a study of the table we learn that while listening to the symphony of Tchaikovsky the average effect is a slight decrease, if any, of the pulse-pressure wave, and therefore a slight increase relatively of the pulse rate; the electrical energy also is increased. We find that from two to ten minutes after the music has ceased the pulse rate and the electrical heart energy have increased considerably, but the pulse pressure has fallen considerably.

Consequently the minor melodies and harmonies of the symphony caused an increase in heart activity and action current, but a fall in

THE DOCTOR PRESCRIBES MUSIC

blood pressure. This experiment confirmed what had long been suspected that sad music has a depressing effect and a calming action on the blood circulation. It is therefore quite useful as a sedative in maniacal conditions and in overcoming over-excitement of the nervous system.

A different sort of music is the *Toreador's Song* from *Carmen*, and it produced an entirely different set of records. The pulse rate was increased under its influence. The pulse pressure was also increased. It seems, therefore, that this kind of music has a stimulating effect on the circulation by increasing the blood pressure and pulse rate while lessening the action current of the heart. The effect of the spirited *National Emblem* anthem was a slower pulse rate, a longer pause and a decided increase in the pulse pressure as well as the electrical current of the heart. We may expect such reactions from any highly stimulating music, particularly marches and martial hymns.

A little later three Canadian physiologists undertook a most interesting study of the effects of music on blood pressure on a number of persons classified as musical, moderately musical, and non-musical. Tones, scales, arpeggios were played to them, and they listened to piano pieces, songs

MUSIC IS A GOOD TONIC FOR THE HEART

and orchestral works. It was found that quiet, uneventful music produced a fall of pressure (possibly a "rest effect"). A rise was brought about by livelier, more intense, and discordant music. But with this, as the interest of the group became stronger, a fall, attributed to breathing changes, was produced. Vocal music was judged to be less effective, and an orchestral work had the same effect as a piano piece.

X In 1929, Drs. Swale Vincent and J. H. Thompson conducted a very interesting series of experiments on the effects of music on the heart and circulation. They used a concealed phonograph in their experiments. They found all the reactions to music were well marked. Variations in blood pressure were frequent. There was generally a definite fall at the beginning of the piece, except where it was vocal. Loudness was followed by an obvious fall in pressure, and soft tones did not produce a rise, although they allowed a return to normal. Change of melody caused fluctuations.

Those who were musical gave the most conspicuous responses when chamber music was played and the least when dance music was the subject. The whole group was easily excited by the music, and one person became pallid, de-

THE DOCTOR PRESCRIBES MUSIC

veloped twitchings and showed signs of intense excitement when listening to the second part of the *Overture to Oberon*. It was found that the works of Gilbert and Sullivan were the most stimulating. They always increased the circulation of the blood and caused elevations in blood pressure.

Subsequent experiments with music on the circulation were conducted at Temple University, where it was shown that music has a direct effect on pulse, breathing and blood pressure. Gershwin's *Rhapsody in Blue* is an extraordinary tonic. It raised all three functions. Weber's *Invitation to the Dance*, on the other hand, had a soothing effect. Liszt's *Hungarian Rhapsody* and Sousa's *Stars and Stripes Forever* are excellent tonics for the heart.

New experiments are continually being devised to measure the effects of music on the action of the heart and bloodstream. They all point to the simple fact that lively music has a stimulating effect, and soft lyric music a calming effect. And if music has a stimulating effect on the heart, it also has a stimulating effect on the brain, muscles and other parts of the body. This being accepted as an established fact, doctors, nurses, any one

MUSIC IS A GOOD TONIC FOR THE HEART

who has the care of an invalid, a convalescent, a victim of nervous or mental disorder, can put it to practical use. Music is coming into use even in industry as a means toward greater efficiency and happiness.

CHAPTER V

GETTING MORE POWER FROM MUSIC

THERE is scarcely an organ or set of organs in the human body that does not feel the effect of music. This fact impressed Drs. Binet and Courtier so seriously that they determined to make a thorough study of the action of music on various organs of the body. Their study of the effects on the heart and circulation has been discussed in the previous chapter. Their investigation of the effects of music on breathing showed surprising results.

The reactions of a single person were studied. In one series of experiments, tones, chords and musical exercises having no intellectual or emotional associations were used. These stimuli produced no changes in breathing except a speeding up of from .5 to 3.5 additional respirations per minute. This acceleration varied with the increase or decrease of the time, and was higher for passages containing minor phrases and discords.

GETTING MORE POWER FROM MUSIC

It was then found that more definitely emotional music, chiefly songs, which often aroused quite different emotional associations according to the personality and degree of introspection of the listener, varied in their measurable influence simply according to the *physical* effect of the tones and rhythm. Thus, all sad melodies, regardless of their specific poetic subject or style, increased the rate of breathing by 2.6 on the average and considerably decreased the depth of inhalation.

On the other hand, gay music, military marches, for example, produced a speeding up of 3.8 and showed less tendency to decrease the depths of the breaths taken. There was a third class of melody which produced complex and unclassified reactions. The following table is a summary of the Binet-Courtier experiments:

MUSIC	ACTION ON BREATHING	
	<i>Before</i>	<i>After</i>
<i>March from Tannhäuser.</i> Wagner	9.6	13.5
<i>Soldiers' Chorus from Faust.</i> Gounod	9.0	12.5
<i>Sword Episode from Die Walküre.</i> Wagner	9.5	14.5
<i>Hungarian March.</i> Berlioz	11.0	14.5
<i>Ride of the Valkyries</i>	9.0	14.0
<i>Spring Song.</i> Wagner	9.5	13.0
<i>The Meeting from Faust</i>	10.0	13.0
<i>Love Duet from Faust</i>	10.0	12.0

THE DOCTOR PRESCRIBES MUSIC

More pronounced results are obtained when instead of listening to music the person makes the music himself. Singing is most beneficial for the organs of breathing; it undoubtedly strengthens the throat and lungs. By a purely mechanical process it expands the chest and puts an end to any vicious habits of breathing through the mouth, instead of through the nose. It is a well-known fact that pulmonary and chest complaints as well as catarrh are rare among singers. I have known some physicians to say that singing not only prevents chest complaints, but may actually be used as a curative measure against them.

The evaluation of the effect of music upon muscular activity was undertaken several years ago by Prof. Carl E. Seashore, whose tests for musical aptitude are well known. He found that the greatest pressure which could be exerted by the thumb and grip during silence was 4 kilograms. When the *Giant's Motive* from *Das Rheingold* was played the grip was increased to 4.5 kg. *The Slumber Motive* from *Die Walküre* reduced the power to 3.2 kg. It was also found that music tends to reduce or delay fatigue and consequently increased muscular endurance.

GETTING MORE POWER FROM MUSIC

These effects of music on the muscular system have been taken advantage of in industry. Some time ago it was noticed that workmen repainting a liner in Hamburg harbor during the rehearsal of a concert by the ship's orchestra were found to get through with their work much more quickly if the music was of a lively nature, whereas they were inclined to lounge and paint slowly if the character of the music was drowsy. The industrial application of music to speed up production is based on its well-proved effects on the muscles and nerves.

It was in 1887 that Dr. Lombard observed the reinforcement of the knee action caused by music, while making a general experimental investigation of the variation of the knee-jerk in relation to the activity of the central nervous system. The apparatus consisted of a hammer suspended on its axis through the handle, falling like a pendulum so that the source of the blow could be regulated. A rod was connected with the foot sliding in the groove of a wheel. It was equipped with a needle which recorded the extent of the movement on a blackened surface. His observations are summed up as follows:

THE DOCTOR PRESCRIBES MUSIC

CONDITIONS	KNEE-JERKS	AVERAGE
Silence (25 experiments)	32 mm.
Music of a passing band	60, 71, 74, 60, 65	65 mm.
<i>Maryland, My Maryland</i>	62, 76, 74, 71, 66, 64, 59	67.4 mm.
Drum corps without wind instruments	51.8 mm.

The height of the knee-jerk, therefore, seemed to vary distinctly with the intensity of the stimulation. There was an increase and decline in the extent of the knee-jerks as the music approached and receded. In a subsequent experiment to test the effect of music on the knee-jerk a song was played on a piano in an adjoining room. The average knee-jerk was 70 mm.

In another experiment the melody was Beethoven's *Funeral March* and its influence through its various sections on the knee-jerk was quite variable, as the table on p. 61 shows.

Nervous energy is clearly allied to muscular energy, and both are increased by brisk music. Slow music causes a decrease in both muscular and nervous expenditure, and this, of course, accounts for its sedative effects.

While these interesting laboratory experiments

GETTING MORE POWER FROM MUSIC

STIMULUS	KNEE-JERKS	AVERAGE
Main theme of <i>Funeral March</i> by Beethoven	82, 104, 96, 99, 108, 95, 106, 118, 117, 90, 113, 119, 98, 100, 124, 108, 112	105
Interval of silence	83, 90, 90, 90, 56, 83, 59, 75, 50	74
Soft music	52, 63, 47, 50, 55	53.4
Deeper passage	66, 73, 58, 78, 70, 86, 77, 87	74.4
Soft	66, 43, 59, 61, 72, 68, 51, 79, 86, 86	67
More thrilling	79, 86, 86	83.6
Varied and softer	58, 57, 79, 64, 47	64
Quiet after 15 minutes (25 experiments)	29

on the effects of music on nervous and muscular energy were being carried on, practical use was being made of music as a stimulant by many people throughout the world. The laboratories merely confirmed and explained what had been known for a long time. For hundreds of years men have realized that under the influence of music working hours pass faster and more pleasantly. It was Athenæus, the observant Greek

THE DOCTOR PRESCRIBES MUSIC

writer, who tells us that the Etruscans regulated everything by music. They even made bread, boxed, and flogged people to the sound of the flute. Perhaps the music made the flogging less painful.

Another Greek immortal, Pausanias, records that Eominodes, a Greek engineer, had the walls of Messena built to the sound of Bactrian flutes. Ovid, the Roman poet, observes that "even the miner while clanging his chains sings and lightens his burdens with untaught songs. He sings while bending low on the oozy sand, dragging the slow barge against the stream."

Quintilian states: "Every man when at work even by himself has his own song, however rude, which may soften his labor." Bucher, who made a thorough investigation into this subject, says that the ancient Greeks had special songs for harvesting, thrashing, grinding grain, wine-making, spinning, weaving, drawing water, dyeing, and daily labor of every kind.

Down through the centuries people in every land have realized that music makes the day's work a pleasant adventure instead of a task. In East Africa the fisherman sings as he rows, the porter as he drags his load, the women as they

GETTING MORE POWER FROM MUSIC

grind grain. James Grant, the African explorer, says that when his Negroes were cleaning rice they were always supported by singers who accompanied the tunes with clapping and stamping, continuing until the rice was ground almost to powder.

All through Africa labor is made easier by music, a glorious symphony of weird, energizing sounds. At Zleetum, North Africa, the Negro women sing a song in chorus while pounding wheat, always in time with the music. In the southeast of the Congo, porters of the Bamba tribe usually sing while at work. The work songs of the stevedores and cotton pickers in the United States have passed into our folk art. In the literature of music there are many songs which trace more or less directly back to similar chanteys of peasants and laborers in various parts of the world:—handmill songs, songs to accompany the preparation of textiles, weaving songs, water-drawing songs, and songs that go with plowing, planting, mowing, harvesting, fruit-picking and dozens of other tasks. Work songs, according to Bucher, present certain common characteristics. Through rhythm they facilitate the synchronous expenditure of energy by workers en-

THE DOCTOR PRESCRIBES MUSIC

gaged in a common task and thus economize their physical expenditure.

The energizing influence of singing is apparent also in the solo music of craftsmen and tradesmen. The street cries, now so sadly disappearing from our cities, but still to be heard occasionally, served as much to stimulate the peddler as to advertise his wares.

Music has always been a necessity in armies. It helps soldiers carry on their physically taxing tasks with greater ease and efficiency. There is nothing more stimulating than a military band; without it, troops could hardly accomplish their monotonous, grinding marches.

In a lesser way, music is an advantage for any kind of physical effort. Gymnasiums often employ music. The success of the German as contrasted with the Swedish system of calisthenics is due to the fact that the Germans make extensive use of music. There is a great variety of compositions to suit all types of calisthenic drill. For the body twist a slow waltz, such as Victor Herbert's *When You're Away*, is suitable. In shadow boxing almost any quick dance tune is adaptable for fast work, as is also *The Battle Hymn of the Republic*. For a slow movement Nevin's

GETTING MORE POWER FROM MUSIC

Narcissus is suitable. For arm-swinging exercises *The Trail of the Lonesome Pine* or Grieg's *Ase's Death* is good.

According to authorities music acts in the following ways to increase efficiency in movements requiring expenditures of nervous and muscular energy.

1. Muscular contraction is greatly increased by a sound made simultaneously with the movement.
2. The strength of muscle contraction while at work or exercise increases with the intensity of the sound.
3. The strength increases with the pitch.
4. The point of fatigue is deferred.
5. The steadiness of contraction varies.

The utilization of music is receiving more and more serious consideration among those who are concerned with physical tasks. Dr. Clarence W. Spears, head football coach at the University of Wisconsin, introduced music as an aid to football. He found that music was of importance in the making of an outstanding athlete. A keen response to music is a valuable asset in a good center, Dr. Spears maintained. In addition to big

THE DOCTOR PRESCRIBES MUSIC

hands and ability to pass accurately, a sense of rhythm and timing is one of the most essential qualifications.

Several years ago the influence of music on efficiency in sports was tried out during the six-day bicycle races at Madison Square Garden. Without music an average time per mile was three minutes and fourteen seconds, or a rate of 18.6 miles per hour. When music was played the average time was three minutes and four seconds per mile or a rate of 19.6 miles per hour, a rather appreciable increase. And the cyclists were able to do this with less fatigue.

For many years in business schools the music of the phonograph or piano has been used to control or accelerate the speed of students of typewriting or penmanship. From schools, the use of music has spread to shops, factories and offices. Experiments on the influence of music on workers in an architectural drafting room were carried out at the Carnegie Institute of Technology. It was found that music increased efficiency and speed. The architects agreed that music may be used profitably during a greater part of the workers' time.

Artists also have found music helpful. It is

GETTING MORE POWER FROM MUSIC

said that Da Vinci listened to the tones of a lute while he painted the Mona Lisa.

Modern industrialists are not backward when it comes to applying methods to increase production. A dry-cleaning establishment in the Middle West offers music at frequent intervals to its three hundred workers. A sufficient number of phonographs have been established to afford lively music during most of the working day. Popular music, selected by the employees and played at their pleasure is used; and singing or humming on the part of the worker, if he feels so inclined, is encouraged.

In London, Drs. S. Wyatt and J. N. Langdon discovered that 97 percent of 355 factory girls who sat packing cracker boxes all day long were bored with their work. The more intelligent the worker, the more she suffered the misery of monotony. When phonograph records were played at intervals through the day, symptoms of boredom vanished, and during the actual playing time of the music the output of workers increased as much as 11 percent. Light orchestral music had the least effect. Swing music proved to be the best of all.

It is said that most of the railroads of the

THE DOCTOR PRESCRIBES MUSIC

south were built to the rhythmic singing of Negro workmen. The tobacco factories of Virginia, Kentucky and the Carolinas are run to Negro music. Experiments in sorting mail in a post office, with musical accompaniment, were recently carried out. It was found that the use of music reduced the number of errors by as much as 12.86 percent. The speed of sorting also was increased. The pieces used were Dvořák's *Humoresque*, Labitsky's *Dream of the Tyrolienne* and Rachmaninoff's *Prelude in C Sharp Minor*.

J. Verns, a noted French financier and manufacturer, said some time ago that he would introduce music into all the industries with which he is connected. There is no doubt that he will greatly benefit by this innovation. In South America music has an important place in cigar factories, where it is furnished by phonograph or radio to help the hours go more pleasantly as well as to increase the speed and efficiency of the workers. A certain rose nursery in Connecticut uses a radio and loud amplifier to carry music to its field workers.

Just recently, Professor S. V. Kravkov, a Russian physiologist, has discovered that music can even improve the eyesight—as much as 25 per-

GETTING MORE POWER FROM MUSIC

cent. After a series of exhaustive experiments Dr. Kravkov stated that while music was being played the listener could actually see further and better than when there was silence. A practical application of this may be made to aid astronomers, engravers, microscopists and others whose work depends on the strength and accuracy of their eyes. It would seem that music would be of value in observatories, photo-engraving plants, and many laboratories.

Thus music may be prescribed as a valuable medicine for increasing efficiency in our daily task, whether mental or physical. It is a proved stimulant of undoubted power. Greater advantage should be taken of it.

CHAPTER VI

MUSIC DRIVES AWAY PAIN

IN the study of the physical and psychological effects of music recent developments have been concerned with the power of music as an enemy to pain.

X Some years ago Dr. Ewing Hunter conducted a series of experiments with music on a group of patients at the Helenburgh, N. S., Hospital in which he established the fact that music was capable of diminishing pain. Somewhat later Dr. Wm. Mays had notable success in reducing pain in sufferers from neuritis through music in minor keys. In war hospitals music was played with good results when patients were entering or emerging from an anesthetic state.

X In more recent years Drs. S. Burdick and E. K. O'Neil of the Kane Hospital at Kane, Pennsylvania, performed surgical operations to a musical accompaniment, maintaining that cheerful music on the phonograph, selected in the light of the pa-

MUSIC DRIVES AWAY PAIN

tient's nationality, interests and taste, reduced suffering and improved the attitude of the patient.]

X Recently a young man rejected an anesthetic in place of music played on a harmonica by himself while surgeons probed for a bullet in his thigh. He was able to go through this ordeal without experiencing any appreciable pain.

Many years ago there was in Dublin an Indian doctor who made a specialty of extracting teeth. He used to troop around the city with a band of musicians, offering to extract teeth without pain. When a patient arrived for an extraction, the band struck up a lively air, which was kept up during the operation. The patient usually testified that he felt no pain while the tooth was being removed.

X Some dentists in the United States have come to realize that this doctor's use of music is not to be scorned. Dr. Elmer S. Best of Minneapolis, has devised a dental chair which plays music as an anesthetic while operations are being performed. A recording and amplifying system built into the chair is used to maintain auditory contact with the patient's mastoid bone while the dentist is drilling. The music, by traveling through the bones,

THE DOCTOR PRESCRIBES MUSIC

drowns out the grinding noises. It is done by a novel use of the latest bone-conduction instruments developed originally for the deaf. Tipped back, the patient's head comes in contact with the two plates fixed in the head-rest. They are the new sound-borne conduction plates and are attached to a phonograph by wires leading into another room. No sound is audible to the ears. But when the head touches the plates they transmit the music perfectly through the bones and the pain occasioned by the dental operation is considerably diminished.

In the course of a description of the exact details of using procaine as a spinal anesthetic, together with an analysis of the results, Dr. Rusca, of Locarno, includes the suggestion that music be used to soothe the patient during an operation. As soon as he is placed on the operating table the patient is given a pair of headphones through which he hears nothing but music, broadcast by a radio-phonograph apparatus. Care must be taken to choose music suitable for the condition of the patient. Not only do the headphones effectively isolate the patient from the sounds of the operating room, but the music provides a counteraction to the patient's nervous condition induced by his

MUSIC DRIVES AWAY PAIN

uncertainty as to what is happening. Patients afforded this comforting addition to spinal anesthesia have remarked how quickly the time of the operation has appeared to pass.

Dr. A. F. Erdmann, of the Brooklyn Eye and Ear Hospital, has quieted cases being operated upon under a local anesthetic by having them wear earphones and listen to some musical selection.

How does music fight pain? Psychologists have a ready answer. Dr. C. M. Diserens, who has given a great deal of attention to this particular problem, says: "Music, as experiments amply demonstrate, evokes or tends to evoke motor reactions. In any case, incipient motor reactions probably result even where imagery alone is detected. These in turn arouse a large number of proprioceptive sensations, which may possibly be very faint, but which when added to the intense auditory sensations greatly increase the total sensation, so that other particular sensations (as of pain) tend to be lost or crowded into a marginal position."

There are other explanations. One doctor prescribes flute playing for sciatica, claiming that relief is obtained by vibrational massage of the afflicted parts. Music also has some effect upon

THE DOCTOR PRESCRIBES MUSIC

the ductless glands, increasing secretions of the adrenals and other energy-producing and pain-fighting glands.

Assagioli, an Italian scientist, is of the opinion that music harmonizes the complicated organic rhythms of the body. Music is capable of harmonizing painful moods and sensations. Thus pleasant associations arise to replace unpleasant ones, and these are quite effective in taking the edge off pain, whether organic or functional.

Another theory as to how music drives away pain is given by Dr. J. T. R. Davison: Music exercises its influence over the human organism in the relief of pain. Pain is a special condition of the sensorium felt as distress and is due to a special stimulation which, traveling from the periphery by other routes, reaches the sensorium and there gives rise to sensation felt as pleasure. In the sensorium, these two sensations have to struggle for existence as they cannot exist simultaneously, and whichever of the two adapts itself comfortably to the reigning conditions of the central origin will gain the day. When the sensation is that of pleasure, pain will cease to exist, but as the conditions of the sensorium are not

MUSIC DRIVES AWAY PAIN

identical in any two cases music will sometimes be powerless to dislodge pain from its stronghold.”

Recently a most interesting bit of work was widely reported. It has been found that musical sounds break up or dissolve lumps of cholesterol, the material found in gall-stones, which are, as everyone knows, often the cause of great pain. Cholesterol is found also in certain quite painful types of hardening of the blood vessels. Hence there are promising possibilities for musical therapy in these two specific disorders. The experiments were conducted mainly by Dr. Wm. Malisoff, physiological chemist, who is conducting researches on the chemistry of disease. The future will, in all probability, reveal important information on the chemical effects of music on certain chronic and painful ailments. In such an event music may become as firmly established as ether, chloroform, sodium amytal and other analgesiacs as a combatant of pain.

No matter what the precise explanation may be, music is a real enemy of pain, both of body and of mind. In the latter capacity it is being used with great success in many hospitals. Music is very effective in easing the mental pain of the seriously

THE DOCTOR PRESCRIBES MUSIC

ill. A singer who has been devoting a great deal of her time to bringing comfort to the sick tells this story of what took place in the Coney Island Hospital in Brooklyn.

“A boy of nineteen kept asking me for one song after another. We had already outstayed our time and he was begging for just one more. Something in his expression made us hate to refuse, and the nurse came up to me and whispered, ‘Please don’t stop. You don’t realize what you are doing! That boy has only a few hours to live, and the songs have apparently overcome his pain. Soon he will be in a coma and you are keeping his last moments happy, and the attention of the other patients away from him!’ ”

The type of music suitable for an anesthetic must receive serious consideration. In general, in cases of severe physical pain, music in a fast, aggressive tempo is indicated. It has been found that dental pain yields nicely to loud, lively music. When two pronounced sensations are struggling to get the upper hand, the one possessed of pleasing rhythmic make-up generally wins. Thus for the operating room and the dental chair the following musical compositions have been found very effective:

MUSIC DRIVES AWAY PAIN

Toreador's Song from Carmen. Bizet
Anchors Aweigh
The Stein Song
The Stars and Stripes Forever
Any of the lively selections from Wagner's operas
Soldiers' Chorus
Parade of the Wooden Soldiers

For pain of a non-surgical character a more soothing type of music is called for. Among these may be mentioned:

William Tell Overture. Meyerbeer
Poet and Peasant Overture. Suppé
Flight of the Bumblebee. Rimsky-Korsakov
Caucasian Sketches. Ippolitov-Ivanov
Waltz of the Flowers. Tchaikovsky
The Sugar Plum Fairy. Tchaikovsky

Soothing music is indicated in the milder types of pains, headaches, etc.

The Old Refrain. Kreisler
Nocturne in E Flat. Chopin
Souvenir. Drdla

[There is no doubt that music can be used to advantage in driving away pain.] The phonograph, the radio, sound films and living performers may be used as the source of the music.

THE DOCTOR PRESCRIBES MUSIC

A supplementary list of music which has been found useful as an anodyne for pain:

Chorus of Romans. Massenet
Overture to Naomi. Morris
On the Volga. Akimenko
Southern Rhapsody. Hosner
Overture to Undine. Lortzing
Poet and Peasant Overture. Suppé
Overture to Il Guarany. Gomez
Overture to Euryanthe. Weber
Matona, Mia Cara. De Lassus
Ecco Mormorar l'Onde. Monteverde

CHAPTER VII

MUSIC WITH YOUR MEALS

MUSIC is regarded by a great many people as a necessity for the dinner table. They require music with their meals just as much as they require salt and pepper. Both are necessary stimulants and adjuvants, and both make the meal taste better.

Dinner music is not a recent innovation. From earliest times music has brought an æsthetic dignity to the act of eating. It was for this reason that Epictetus called a table without music a manger. Musicians were rarely absent from the feasts and banquets of Egyptians, Greeks and Romans. Plutarch, the Emil Ludwig of his day, was strongly of the opinion that the flute could not be spared from the banquet room. "Its rich and full tones spread peace and tranquillity throughout the soul." They also spread tranquillity throughout the digestive organs. Centuries later, Sir Thomas More, in his *Commonwealth*,

THE DOCTOR PRESCRIBES MUSIC

proposed music at the meals of every class in his model community.

There has always been a sympathetic relationship between food and music. Many great musicians have been excellent cooks, and many famous cooks accomplished musicians. Verdi and Rossini were quite famous chefs in their circles, and Caruso was constantly devising new dishes. Lulli, the great chef, was an excellent musician. He took as great pride in preparing some choice dish as in playing a difficult solo on his violin.

One can employ music as an aid to digestion in two ways: by participating actively in music, by singing, or by passively enjoying it as a mere listener. In 1881 Dr. Walter H. Walshe of London wrote a book entitled *Singing Physiologically Estimated*, in which he stated that singing is of marked value in jaundice, liver complaints and indigestion. Singing aids in extracting the nutritive elements of food and it facilitates digestion. This is easily explained by the fact that singing involves deep breathing, and deep breathing brings about oxidation of body tissue, which occasions hunger and increases the appetite.

Teachers of singing have observed that the appetite and digestion of children being trained

MUSIC WITH YOUR MEALS

to sing are as a rule superior to those of non-singers. The trainers of choir-boys, when questioned as to the digestive powers of their young charges always make such statements as, "Singing makes boys hungry"; "Singing is certainly appetizing."

The late Professor Philip Ames of Durham, England, said that his boys had the appetites of horses and the digestion of ostriches. Similar statements have been made from time to time by other teachers of singing. We have here a sort of double action, the mechanical exercise of the muscles of the abdomen, and deep breathing. This brings about an increased intake of oxygen, which improves not only the digestion but the blood as well.

Dr. Pavlow, the famous Russian experimental physiologist, offered a concise explanation as to why music has such a favorable effect on digestion. Stated briefly, music by arousing pleasurable emotions promotes the flow of digestive juices. This increased flow causes a more thorough digestion. Still another important fact is that the principal nerve of the tympanum (middle ear) ends in the center of the tongue and connects with the brain, reacting alike to the sensations of taste and sound.

THE DOCTOR PRESCRIBES MUSIC

Hence, good food and good music make an ideal combination.

→ The stomach is a most sensitive organ and reacts very quickly to emotional changes. Unpleasant emotions bring about certain changes which give rise to distress. When the stomach is upset the pylorus (a muscular structure at the base of the stomach) closes. The contents are banked up in the stomach, the organ remains awash and sensations of heaviness, distention and acid risings result.

If the unpleasant emotions continue to plague the stomach matters become worse. The person who is thus upset shows drowsiness, mental inefficiency and a tendency to abstraction and day-dreaming. His temper begins to wear thin. He becomes irritable.

There are so many things to worry each one of us that it does not take a great deal to cause the stomach to squirm. What is needed in cases of this kind is something that will fight off the unpleasant feeling and replace it with a pleasure-arousing element. Music is the best antidote for unpleasantness at the dinner table.

When there is music to be heard there is an outpouring of gastric juice. This acts as a flush-

MUSIC WITH YOUR MEALS

ing device. The food is digested properly, it passes from the stomach into the duodenum through a wide-open pylorus.

Curiously enough the stomach acts in rhythms, much in the same way as music. The stomach is a muscular organ, the activity of which consists of rhythmic waves of contraction which pass along it similar to the waves which pass over the heart and are known as heart-beats. In the stomach, these waves of contraction are called peristalsis, and their rate is much slower than the rate of the heart. But, unlike the rhythm of the heart, the rhythm of the stomach may be considerably influenced by the rhythm of music. The nerves controlling the stomach are very sensitive to musical stimuli.

Digestion is influenced by two factors: glands and nerves. Music acts upon both. Dr. George W. Crile, who has become famous for his important researches on the relationship between emotions and glands, believes that music has a marked effect on the glands, causing either an increased or decreased secretion of their important substances into the blood.

Upon the nervous system music exerts either

THE DOCTOR PRESCRIBES MUSIC

a stimulating or calming effect. As far as the nerve mechanism of the stomach is concerned, only calming agents are desirable. Overstimulation causes spasm of the stomach and the pylorus, and indigestion is the natural result.

Shrill, sudden noises, strident and discordant tones interfere quite markedly with the normal rhythm of the stomach and upset it. This leads us to the observation that an overdose of Wagner is just as disastrous for the stomach as a powerful drug. Selections from *Tristan und Isolde* are quite out of place at the dinner table. Swing music, while good for dancing, is too stimulating for the stomach.

Even classical music must be chosen with care as far as the dining room is concerned. Brahms' *Hungarian Dances* are a fine tonic for a case of the blues, but too distracting for the ordered rhythmic waves of the stomach. Wayne King's soft, restful music is far more suitable for the dinner hour than Cab Calloway's hei-di-ho and Armstrong's muscle-twitching swing.

There is a great deal of suitable music for the dinner hour. Burleigh's *Song of the Brook* has an even, slow rhythm, just the type of movement

MUSIC WITH YOUR MEALS

that a healthy stomach possesses during active functioning. It actually seems to get the digestive processes on their way. Beethoven's *Moonlight Sonata* and Offenbach's *Barcarolle* act as a wonderful tonal sauce to the most commonplace dishes. Raff's *Spinning Maiden* has the right amount of musical condiment. Ware's *Memory Song* and Massenet's *Meditation* from *Thaïs* are splendid. All these are suitable for piano or strings and not for saxophones and trumpets. A drum and brasses are far too noisy and upsetting.

Music may serve either as a strong emotional catharsis or as a mild stimulant or sedative. Each has its place, but for dining, an emotional upheaval is entirely out of place. We must have soothing music. On occasions it may be mildly stimulating. Once this is appreciated music may serve as effectively as tasty food in promoting proper digestion and making life just a little more pleasant. Following are suggestions for suitable numbers:

Symphony in G. Roussel

Italian Street Song. Herbert

Finlandia. Sibelius

Deep River. Burleigh

Symphonie Espagnole. Lalo

Indian Suite. MacDowell

THE DOCTOR PRESCRIBES MUSIC

Clock Symphony. Haydn

The Moldau. Smetana

The Triumph of Neptune. Berners

Concerto in D Minor. Schumann

Merry Wives of Windsor. Nicolai

Prelude from L'Arlésienne Suite. Bizet

CHAPTER VIII

FOR INSOMNIA, TRY MUSIC

DURING the hot, sticky nights of July and August when sleep is long in coming I have found that there is nothing quite like music for overcoming insomnia. The lulling strains of melody coming over the radio or from a phonograph disc act as a positive soporific. When heat and music compete, the one to destroy sleep and the other to induce it, music is generally the winner.

Utter privacy in listening to music may be achieved either by using earphones or the recently invented radio-pillow, specifically designed for those who must have their music in bed. The radio or phonograph may be used with either of these devices, both of which are eminently satisfactory.

The use of music to woo sleep has been known to doctors and others for a great many years. A physician of my acquaintance is in the habit of prescribing Chopin's Waltzes instead of

THE DOCTOR PRESCRIBES MUSIC

drugs to bring about sleep, and he is quite successful. Another carries with him a small music-box which plays Mendelssohn's *Spring Song*. He has found that when this tune is played three times sleep is almost inevitable.

Not long ago a group of music-minded doctors introduced a system of giving bedtime musicals to patients who had difficulty in going to sleep. It proved so successful that the demand for sleeping pills and powders in their community fell off considerably. Nocturnes, lullabies and serenades were the types of melody used.

A musician installed a phonograph in his bedroom to cure his insomnia. Long experience had taught him that music had a great many virtues, chief among them that of lulling one to sleep at the proper time. At first he required nine selections to put him to sleep, but as time went on he was able to cut the number down to three.

Dr. Fournier Pescay used the music of a flute for insomnia in the case of his own son, with very good results. Many other physicians and musicians have made constant use of music to rid themselves and members of their families of sleepless nights.

FOR INSOMNIA, TRY MUSIC

Another interesting fact about listening to music before going to sleep is that it seems to bring vivid dreams, never disturbing or nightmarish, but of a serene and imaginative type.

A good dose of music on a summer evening helps immeasurably to get the mind into a sleeping mood. Within the past two decades summer concerts under the stars have become a national institution. In the summer of 1918 Arnold Volpe began this fad in New York City with a group of musicians drawn from the city's various orchestras. He gave his concerts in the Lewisohn Stadium. These Stadium concerts were a great success and are still a feature of New York's summer recreations. Soon other cities took up the idea and at the present time summer concerts in the open are given in the Hollywood Bowl, on the Charles River Esplanade, at Fairmount Park, in the Cincinnati Zoo, the Lake Shore in Cleveland, and elsewhere. After attending a concert in the open air sleep is not long in coming, no matter how searing the heat or oppressive the humidity.

Just what music does to the body to bring about sleep is not thoroughly understood. It may have

THE DOCTOR PRESCRIBES MUSIC

something to do with the effect of music on the flow of blood and nervous energy. It is known that the circulation of blood in the brain is diminished during sleep. The blood vessels of the brain contract in obedience to a stimulus received through the sympathetic system of nerves. This decreases the supply of blood to the brain, activity is diminished, and sleep is induced.

During sleep nearly all the physiological processes are diminished in activity. The circulation is slower; the pulsations of the heart and the respiration are less frequent. These are all signs of sleep and they are fore-runners of sleep, so that anything that tends to produce these signs will usually bring on normal sleep.

The experiments of Dr. Patrici (discussed in Chapter III) on a youth whose brain had been partly exposed by an accident demonstrated that loud and lively music causes an increase in the circulation of blood in the brain, and slow music a retarding of circulation. It was observed that increased circulation made the youth alert and wide awake, and a decrease brought on drowsiness. Dreamy waltzes, lullabies and low music in general always proved conducive to sleep. Patrici had

FOR INSOMNIA, TRY MUSIC

definitely succeeded in giving us the physiological basis of the sleep-inducing qualities of music.

This brings us to the question of what is suitable music for conditioning sleep. There are a great many sedatives in music, each quite suitable for a night-cap. Brahms' *Lullaby* is as soothing for sleeplessness in adults as it is for children. Victor Herbert's *Ah, Sweet Mystery of Life* is a bit more lively, but soothing nevertheless. Toselli's *Serenade* is very quieting; so is Rubinstein's *Twilight is Lovelight*.

The doctor has his favorite drugs for wooing sleep. The patient may have his favorite songs. Here are some suggestions:

The Skaters. Waldteufel
Blue Danube. J. Strauss
Wedding of the Winds. Hall
Love's Eternal Waltz. Brooks
Serenade. Schubert
Moonlight Sonata. Beethoven
'Twas April. Nevin
Rockin' in the Wind. Neidlinger
Souvenir. Drdla
Humoresque. Dvořák
Wotan's Farewell from Die Walküre. Wagner
Andante from the 8th Symphony. Beethoven
Largo from New World Symphony. Dvořák

THE DOCTOR PRESCRIBES MUSIC

Quintet for Clarinet and Strings. Mozart
Woods in Autumn. Hildreth
Afternoon of a Faun. Debussy
Air for the G String. Bach
Slow Movement from The Firebird. Stravinsky
Chanson Hindoue. Rimsky-Korsakov

CHAPTER IX

MUSIC AND WARPED PERSONALITIES

THE subject of personality has long been an interesting one. A great many environmental and accidental factors go into the make-up of the personality, and as many may be responsible for its warping. Personality is, however, to a great degree dependent upon many physical qualities and conditions. It is related to the integrity of the internal glands of secretion, to the structure and chemic well-being of the brain, and to various physical and mental habits which enter into the daily life of every one of us.

Music has a definite influence on many of these factors. This is now being realized more than ever before. According to a report of the Federal Music Project in New York City, which has for several years been conducting classes in seven city hospitals and two women's prisons, music can be utilized as a means of treating the maladjusted.

THE DOCTOR PRESCRIBES MUSIC

More than sixty-five hundred patients are treated monthly with music, either as listeners or through active participation.

Children of low intelligence-quotient and disturbed personality who cannot be approached in any other way are susceptible to musical influence. It has been found that such youngsters often have a strong sense of rhythm and can be taught to follow a conductor's beat.

Interest in opera and operettas has been aroused by means of music in maladjusted adolescents. When induced to take an active part in music-making the results have been sometimes remarkable. This method has been found of great value in dealing with reformatory inmates.

As the musical treatment is continued a perceptible improvement occurs. Miss Ruth E. Collins, Superintendent of the House of Detention for Women in New York City, where piano instruction and courses in musical appreciation are given, said: "We definitely observe that as a better taste in music is developed, a general improvement in personal appearance, courtesy and morale takes place. Time after time a complete change in both manner of conduct and purpose in life is evinced,

MUSIC AND WARPED PERSONALITIES

proving beyond a doubt the therapeutic value of music in adult personality adjustment.”

Some time ago a serious insurrection was in progress at a New York women's prison. Dr. Willem van de Wall, who has been investigating the beneficial effects of music all his life, happened to be visiting the prison at this time. He thought that music might prove helpful in calming the inmates. He was told that the women were in no mood for singing, but he insisted upon being given a chance to see what he could do. After he had succeeded in getting their attention, Dr. van de Wall began the singing with the *Battle Hymn of the Republic*, a song of quick movement, lively melody and in harmony with the excited state of the inmates. Gradually he worked down into a group of less belligerent songs and ended up with *She Sleeps, My Lady Sleeps*. By this time he had succeeded in calming the rebellious women.

Maladjusted children are very susceptible to music. A violent ten-year-old child, mentally deteriorating, a menace to other children, was a young bull in a china-closet until he was taken into a music class. There he was able to enjoy himself, to sing with his fellows and even came to

THE DOCTOR PRESCRIBES MUSIC

express concern as to whether the other children were having a good time.

An eight-year-old boy who had driven his parents frantic—they had been forced to lock doors and windows and disconnect the gas when he was home—became the music teacher's darling for his exemplary behavior.

A nine-year-old defective girl, whose mother had threatened to kill any one who tried to put her in school, and who spent her four days in the ward crying, shed all signs of mental deficiency when she was permitted to play in a rhythm band.

Nervous disorders are particularly amenable to musical therapy. Arthur Futz of Boston University, studying the application of music to cases of personality disorder, insists that music can make the whole personality smile, and foresees wider use of this medium for the treatment of warped men and women.

In the treatment of hopelessly maladjusted children, music has proved particularly helpful. Dr. Laura S. Bender, head of the Children's Psychiatric Ward at Bellevue Hospital, believes that music therapy reaches the child's brain closed to other group-therapy treatments such as the plastic

MUSIC AND WARPED PERSONALITIES

and visual arts, dramatics and play activities. She has offered some case histories which indicate that music may divert potential criminals into normal pathways.

Many correctional institutions now provide a complete program of musical activities.

One such institution has gone to the extent of including the following in its regimen:

1. Instrumental and vocal group practice and performance with orchestra, band and chorus.
2. Individual music study, supervised by the leader. This instruction may comprise sight-reading, instrumental and vocal work, music appreciation and history, and theory.
3. Creative work in composing songs and elementary types of instrumental works.
4. The making and repair of various instruments.
5. Participation in performances for purposes of institutional service, such as band or choral work at religious services, sports events, assemblies, and stage shows.

While many persons cannot play any instrument or may find it impossible to make much progress

THE DOCTOR PRESCRIBES MUSIC

when given the opportunity, everyone can sing in some fashion. Even this type of participation in making music goes farther in correcting personality defects than does merely listening to music. Singing has proved a fascinating activity for thousands of inmates of correctional institutions who cannot read notes or who have no aptitude for performance on instruments. Those who have good, sonorous voices will usually take considerable trouble to memorize songs. Once the interest in singing is aroused, a very important step has been taken.

There are many simple part songs that inmates can learn to sing together in an acceptable fashion. The everyday, well-known songs are best. Dr. van de Wall found that the following program of twelve songs is not beyond the ability of the average person. They can be learned easily in a short time.

Patriotic	<i>America</i>
Plantation	<i>Old Folks at Home</i>
Negro	<i>Swing Low, Sweet Chariot</i>
Italian	<i>Santa Lucia</i>
Comical	<i>Old Zip Coon</i>
Popular	<i>The Old Spinning Wheel</i>
Operatic	<i>Anvil Chorus from Il Trovatore</i>

MUSIC AND WARPED PERSONALITIES

Lyrical	<i>Ah 'Tis a Dream</i>
Regional	<i>Cowboy Song</i>
Popular	<i>Peggy O'Neill</i>
Round	<i>Lovely Evening</i>
English	<i>Sally in Our Alley</i>

A session of song-singing at frequent intervals will make life more tolerable during confinement. It will give the inmate a feeling of freedom and pleasure. Certainly it will not permit the harboring, at least temporarily, of anti-social thoughts.

Within the past few years rhythm-bands have become popular in correctional institutions for maladjusted children who are incapable of learning to play the regular musical instruments. These rhythm-orchestras are made up of drums, cymbals, triangles, tambourines, double castanets, bells, clogs, sand-blocks and rhythm-sticks. All are percussion instruments and are capable of making pleasing music.

Dr. van de Wall has found that rhythm-orchestras are capable of exerting much good in helping emotionally unstable and disturbed children and even young adults to find themselves. These simple rhythm-bands have now been employed in many correctional institutions with exceedingly good results.

THE DOCTOR PRESCRIBES MUSIC

It is quite an easy matter to organize a simple rhythm-band. Such equipment as rhythm-sticks, jingle clogs, sleighbells, cymbals, triangles, wood blocks, are all that is required and can obviously be adapted in number and variety to the size of the band, as there is no limit to the number of members in a rhythm-band. A 45-piece band can be arranged with a little thought. A number of rhythm orchestra scores have been published, and can be used to develop a sense of rhythm in even the most backward.

Of course, after sufficient progress has been made attempts may be made to learn the standard musical instruments. A well-organized orchestra in a prison is now considered a vital necessity. It plays a very important part in prison life.

Music for the maladjusted is as good medicine as can be obtained. The following works have been found valuable in straightening out warped personalities:

Dances from The Bartered Bride. Smetana
A Night in Tripoli. Rodgers
Bacchanale from Samson and Delilah. Saint-Saëns
Prelude to Faust. Gounod
Now Let All the Heavens Adore Thee. Bach
Iron Foundry. Mosolow

MUSIC AND WARPED PERSONALITIES

Swing Sinfonietta. Gould

The Trojan Prince. Holmes

Morning, Noon and Night. Suppé

Colosseum. De Lamater

Overture to William Tell. Rossini

Overture to The Flying Dutchman. Wagner

CHAPTER X

SINGING FOR HEALTH

SINGING is not only a joyous experience; it is also a most valuable health measure. As a rhythmic experience it has undoubted benefit to both mind and body. It promotes proper breathing, aids digestion and improves the circulation; the result is a sense of great exhilaration, a smoothing out of emotional wrinkles and a genuine recovery of good spirits. The very act of singing is a mild but stimulating activity. The increased and deeper breathing stimulates all bodily processes. The oxygen supply of the body is increased. The blood becomes purer and more chemically active. Cellular activity is stimulated. And the sum total is an increased sense of well-being.

Mentally, singing is the vocal expression of the emotions. A happy man gives voice to a joyous song. An unhappy man sings a low, moany tune. Both are healthy outlets. Pent-up emotions are

SINGING FOR HEALTH

undesirable, and vocalizing is a most satisfactory vent.

Even minor pain is dissipated before song. Hearing a community-sing on the radio, a man who was suffering extreme pain joined in. "It was like a dream," he said. "I was suffering pain from the extraction of a tooth. When the people were laughing I joined in with them. You would have thought it would have cracked my swollen jaw, but at the end my pain was all gone." The success of these community-singing programs on the radio indicates that this activity should be employed more widely. People naturally love to sing. For ordinary occasions a good song fest is a most desirable form of amusement.

Community singing can be one of the most valuable therapeutic measures in children's homes, homes for the aged, and correctional institutions. The joyous fusion of voices in song is productive of the most kindly and neighborly feelings, seeming not only to lift the spirits of the individual but to erase petty differences and to promote cooperation and brotherly love.

At a highly successful Music Supervisors' National Conference held in Philadelphia some years ago, one of the foremost speakers was Dr. Russell

THE DOCTOR PRESCRIBES MUSIC

H. Conwell, founder of Temple University. Dr. Conwell recounted some remarkable experiences resulting from experiments carefully conducted at the Samaritan Hospital. He related the case of a man who for a long time had lost his memory completely, an elderly man whose relatives were very anxious to find out where he had placed certain important papers. After trying every imaginable expedient to restore his memory, Dr. Conwell suggested: "Why not try singing?"

A quartet from the Baptist Temple of which Dr. Conwell was pastor was secured. The names of songs familiar to the old man were procured, and the quartet rehearsed these songs and then went to his bedside and sang them. While they were singing the old man's memory returned, and his mind was clear and expressive. He told them where he had secreted all his papers, and conversed intelligently with his relatives.

X Many physicians have made a thorough study of the effects of singing on health. One of these, Dr. Thausing, of Hamburg, is of the opinion that singing is a cure for many ailments. He believes that more people should fall into the habit of singing—the louder the better. According to Dr. Thausing's theory, the motion of singing actually

SINGING FOR HEALTH

has a disinfecting action on the organs, and children suffering from certain gland inflammations can be cured by regular vocal exercise.

✦ Another German physician, Dr. Biehle, of Berlin, has found that singing is of value in cases of high blood pressure. According to Dr. Biehle, not one of all the professional singers whom he examined had high blood pressure. From this he concluded that singing prevented and lessened the disease. Accordingly he placed several of his patients suffering from this condition on a singing regimen. He found that following this unusual prescription the blood pressure fell several points.

In the musical pharmacopeia songs which everybody can sing will always hold the highest rating as general tonics. Singing and listening to singing are both healthful occupations, but singing is the more enjoyable and beneficial.

There is an immense wealth of singable tunes, and even merely to enumerate them would require a great deal of space. Of course, each one of us has a favorite song we like to sing. Unconsciously we sing the song that happens to fit our mood at the moment. Too often the average person's acquaintance with appropriate tunes is too limited.

THE DOCTOR PRESCRIBES MUSIC

There are so many good songs he should know, in addition to the popular songs of the day, and many of these classical or traditional songs are even more suited to group expression.

A step above ordinary singing is action singing, which requires bodily activity as an accompaniment to the song. This is a somewhat primitive form of opera. It is particularly suited to those who are depressed both physically and mentally. Inmates of curative and correctional institutions respond most favorably to this type of singing and very often are greatly benefited.

Recently psychiatrists have found that acting is a valuable curative measure. The therapeutic theater is becoming an integral part of the mental hospital. Acting out one's inner struggles brings them into the light and effects a cure. Similarly singing out our difficulties is very helpful. When both singing and acting are used the results are sometimes remarkable.

Within the last decade there has been a rather widespread revival of the old custom of group singing of carols at Christmas time. Easter dawn services, out of doors, on some hilltop or broad plain, attract hundreds of thousands of people in many cities. And everyone knows how choral

SINGING FOR HEALTH

singing at a big football game will send the warm blood through chilled bodies and provide just the right outlet for keyed-up emotions. But apart from these occasions community singing in the United States today is confined almost entirely to church services. This is a great pity, for we have many opportunities—national holidays, sports events of all kinds, political meetings, memorial services, large picnics and festivals—where group singing would bring everyone into active participation in the special spirit of the occasion. Harvest celebrations, historical anniversaries, the dedication of civic parks and monuments suggest the possibilities for community music. In some towns of mixed population successful festivals have been held in which each national group—Irish, Italian, Hungarian, Polish, Norwegian, as the case may be—contributes singing and dancing of its traditional kind. A listing of the types of songs adapted to choral presentation—martial songs, sentimental songs, regional, devotional, juvenile, plantation, etc.—will show that we could make much greater use of group singing than we do. The old American village custom of young people at private gatherings singing *Old Zip Coon*, *Juanita*, *Pop Goes the Weasel* and *Massa's in de*

THE DOCTOR PRESCRIBES MUSIC

Cold, Cold Ground was as wise as well as a jolly one.

[There is no doubt that there is great healing and comfort in song. Everyone should learn to sing. Sing your troubles away and sing to celebrate your joy. In either case body and soul will be strengthened.]

CHAPTER XI

MUSIC AS A HEALTHFUL HOBBY

MERELY listening to music is a joyful and healthful pastime, but making music is capable of giving even greater pleasure. It is not necessary to be an accomplished musician to get the most out of music. There are a great many amateur musicians who derive just as much happiness and benefit from a musical get-together as do the experts and professionals.

A few years ago a group of well-known men organized a band to make music simply for their own amusement and delight. There was not a professional musician among them. The group was made up of jurists, doctors, theologians, jewelers, college professors and others. They gave concerts at regular intervals, and they obtained a great deal of healthful exercise. The regular rehearsals served as a very satisfactory vent to pent-up emotions and nervous trouble incident to their daily, work-a-day existence. While making

THE DOCTOR PRESCRIBES MUSIC

music they forgot the domestic cares and business worries.

Quite often these amateur orchestras are so good that they get time on the air. Over the NBC network some years ago the Musical Hobby Program was a very popular feature. It was launched by Richard Simon, the publisher. In time the group was enlarged but none of the members were professionals. This program proved a powerful impetus in encouraging others to take up music-making as a hobby.

Mr. Hendrik van Loon, the well-known writer and critic, gives an occasional violin recital on the radio. He has insisted that creative work, however elementary, or an interpretative performance, in which one directly participates in art, is far more important than passive appreciation. Professor Vladimir Karapetoff, one of the world's greatest electrical experts, plays the piano and cello. He also is a great believer in making music. Dr. Karapetoff values music because he finds that playing helps to cultivate mental processes necessary to successful living. It sharpens the sense of hearing, sight and touch. It requires quick thinking and quick action. It develops concentration and physical reflexes.

MUSIC AS A HEALTHFUL HOBBY

Van Loon and Karapetoff are but two of the many prominent men who enjoy music as a hobby. Dr. Albert Einstein and his violin are almost as well known as Dr. Einstein and his theory of relativity. But it is not generally known that Dr. Einstein also plays the piano. Many a mathematician has said that music is a sort of mathematics in lively motion. Music is a favorite hobby among mathematicians.

Former Vice-President Charles Dawes is a competent violinist. He is also a composer of note, and his *Melody In A* is a favorite among many violinists. The cello is the favorite instrument of the actor Walter Hampden, as it is of Dr. Frederick B. Robinson, President of the College of the City of New York. The steel magnate, Charles Schwab, has been playing the organ for a great many years.

Quite often music as a hobby leads to something which affords the amateur musicians and the public great pleasure. Judge Leopold Prince of New York has been a violin enthusiast all his life. His son was an apt pupil, and together they played many a violin duet at home. Soon they were joined by the janitor of their apartment house with his big bass violin. A little later the butcher joined, and

THE DOCTOR PRESCRIBES MUSIC

then the grocer. Soon the Judge had a respectably sized orchestra. They hired a hall. In the summer they gave concerts in the parks, to audiences of twenty thousand or more. What started out as a hobby giving pleasure to a few was soon giving pleasure to thousands.

There are countless others unknown to the public who get a great deal of pleasure from making music. A life-insurance agent finds that playing his violin is a daily necessity, like eating and sleeping. A man occupying an important position in a large corporation is a flutist of talent. Even after he became stone deaf he continued his playing. He found great joy in making music, even though he could not hear it. He has given many radio recitals and no one has ever suspected that he was deaf. This man has found his chief happiness in music.

What if you cannot make music with the conventional musical instruments? Then use out-of-the-ordinary ones. You can learn to play through a comb. Take a light, fine-toothed comb, cover it with tissue paper and hum through it. At first it may sound silly to you, but this is quite an acceptable way of making music. Franz Schubert enjoyed making music through a comb. Paul

MUSIC AS A HEALTHFUL HOBBY

Whiteman even featured the musical comb in his radio broadcasts. With a little practice you can learn to make surprisingly good music.

Somewhat more complicated, but still requiring no great technical skill, are the kazoos, bazookas, jewsharps and jugs. With ingenuity you can learn to make very pleasing music with any of these instruments.

Even if you cannot carry a tune you can still enjoy the pleasure of actively making music. Any one can learn to make rhythm. There are various simple rhythm instruments for sale, cymbals, drums, triangles, sand-blocks, rhythm-sticks, etc. You will not get much music out of them, but try accompanying a band on the air and you will be astonished at how much they contribute in emphasis and adornment. You will have the pleasure of making music with some of the best bands on the radio.

The harmonica has been the favorite instrument of many who had neither the money nor the time to learn to play the more difficult types of instruments like the violin or piano. It is very easy to learn to play. Among noted men who loved to play the harmonica were Lincoln, Coolidge, and Hoover. Irving Berlin was very fond of

THE DOCTOR PRESCRIBES MUSIC

this simple instrument. With a little practice almost anyone can acquire a knack of getting good tunes from a mouth-organ.

Music is an expression of one's inner feelings. If you can give vent to these feelings by actively making music you can get a load off your mind and feel that much better. You can extemporize as you go along. You need not be able to read a note to do it. Just let yourself go.

Two fundamental types of harmony in our music are the major and the minor chords. By melodies built upon these, in large measure, the expression of particular emotions depends, though rhythm, time, accent, instrumentation of course play their part. In general the major chords express happy, positive, exalted emotion, the minor chords somber, meditative and subjective emotion. The major chords can express joy and excitement. The major triad is bright, clear, sweet and hopeful; the minor triad sounds restless and mysterious. With study and imagination you can attempt composing for your own fun.

CHAPTER XII

MUSIC AND COLOR

THE five senses: sight, hearing, smell, taste, and touch are closely bound up with the problems of health. The greatest number of sensory impressions are possible through sight and hearing. The most pleasing auditory sensations are music, while the most delightful visual sensations, to the average person, are color. And, like music, color exerts a profound effect.

A most interesting experiment with color was recently made by Samuel G. Hibben, illumination engineer. Mr. Hibben gave an unusual dinner party. Food and drink were of a quality for connoisseurs. There was gay music and story telling. But the dinner was far from enjoyable, and the reason was this:

The host had arranged special lighting for the evening. Instead of ordinary clear or frosted bulbs, he had substituted specially designed filter

THE DOCTOR PRESCRIBES MUSIC

lamps which cut out all the ordinary range of spectrum colors except greens and reds.

When the guests strolled in leisurely, they were laughing and in high spirits. But as soon as they were in the dining room they began to see things, strange things. Steaks were whitish gray. Celery was a gaudy pink. Milk had the color of blood, and salads were an ashen violet. Lemons had the color of oranges and the coffee a sickly yellow tinge. Fresh green peas looked like black caviar, and peanuts were a bright red.

Most of the guests could not eat. Some who did became violently ill, although the food was good and the taste perfect. The experiment, if not the dinner, was a complete success. This party was a demonstration of the effect of colors not only upon the sense of sight, but also upon the related senses of taste, touch and smell.

With the carefully calculated use of color in advertising of all kinds, we are pretty well aware, today, that color is considered an important psychological influence. Howard Ketchum, color engineer, who is devoting himself to the task of promoting travel via color, explains that certain colors are conducive to nausea, others to confidence and cheer. He is advising his airways clients not

MUSIC AND COLOR

to serve mayonnaise and to avoid coffee, if possible. Yellow and coffee-color may have unpleasant effects on the stomach. Yellow, likewise, is to be avoided, if possible, in the interior decoration of a plane. On the other hand, Mr. Ketchum found, a green which is neither bluish nor yellowish has a cheerful effect on plane passengers, and is particularly agreeable when slightly grayed. "Green is appropriate for all climates," he says. "In summer it looks cool, and yet in winter does not look cold."

New planes which are being built for Pan American Airways, for service to South America and across the Pacific, will have detailed interior and exterior color schemes worked out by Mr. Ketchum. "Everything in them is keyed to green," he declares. "We have used also certain exact shades of brown and red." Sheets, blankets and almost all details of furnishings will be specially colored.

Color has been used in the treatment of various ailments, and has been found to act in three different ways: as a sedative, as a stimulant and as a recuperative. For years doctors have been using color in the treatment of diseases at the Light Research Institutes at Munich and at Bad

THE DOCTOR PRESCRIBES MUSIC

Aussie. This work interested Dr. Noel Scott, Surgical Assistant at the Royal Waterloo Hospital in England, who carried out an intensive study on a series of cases with very interesting results. Some of his case reports are reproduced here to show the remarkable effects that color exerts in a variety of conditions.

Case No. 1. Mr. B. was suffering from a duodenal ulcer. Began to suffer pain 1½ to 2 hours after food; relieved by taking more food. He was treated for some weeks in a hospital on a milk diet. The pain decreased considerably but although he dieted very carefully he was never absolutely free from discomfort. However, as time went on the pain after food appeared to be increasing and he was steadily losing weight. His general condition was poor and he was somewhat emaciated.

Dr. Scott decided to subject the patient to chromopathy (the treatment of disease with colors), and for this purpose a 1,000-watt Sollux lamp was used, fitted with yellow and red filters, and also a Kromayer ultra-violet water-cooled lamp. The whole of the affected area was first of all radiated for ten minutes with the yellow ray

MUSIC AND COLOR

at a distance of 24 inches, then the red filter was applied at the same time for a period of 8 minutes, followed by compression radiation by the Kromayer lamp for 15 seconds. Compression radiation is the close application of the lamp to the skin of the patient so that the rays are prevented from passing through the air. Finally, in order to give penetration of the ultra-violet rays, a blue filter was placed between the Kromayer lamp and the skin of the patient and the stomach area radiated for three minutes.

A series of eight color-treatments was given, at the end of which the patient stated that he felt perfectly well. He had also gained in weight.

Case No. 2. Mr. H. was suffering from low blood pressure. He complained of mental depression, lack of appetite, and loss of memory. The slightest effort left him feeling very fatigued. He was treated by a general body color-bath with the open Sollux lamp until his skin assumed a ruddy glow. Yellow light was used on the exterior of the throat and the back of the neck. At the end of the sixth treatment the patient's blood pressure had risen to normal and he felt fine in all respects.

Case No. 3. Mrs. W.'s complaint was high

THE DOCTOR PRESCRIBES MUSIC

blood pressure. She complained of dizziness, occasional severe headaches and shortness of breath. She was treated by a general body color-bath with the open Sollux lamp. Then blue light was applied over the heart and neck. After the sixth treatment the blood pressure had dropped 10 points. Mrs. W. was now free from headaches, although still suffering from some dizziness.

Case No. 4. Miss T., aged fifty, was afflicted with deafness. She had had a nervous breakdown five years before and since then had been gradually becoming deaf. First the left ear was affected and shortly afterwards the right ear. Treatment consisted of a general body color-bath, followed by the application of green light over both ears. After eight treatments there was a perceptible improvement in hearing.

Dr. A. H. Sabin of New York University reports several cases of mental irritation caused by harmful color combinations. He relates the case of a woman who was nervous and fretful, and who complained of ill health generally. An examination by the family doctor could reveal nothing organically amiss. It was noticed, however, that on her visits away from home she was improved.

MUSIC AND COLOR

This gave the doctor a clue, and he sent the woman and her daughter on an extensive trip to Europe. The daughter wrote back saying that her mother's mental condition and health had improved noticeably.

The doctor called in an interior decorator and the two made an inspection of the woman's house. The decorator was at once struck by the violent display of color in this patient's bedroom. It was a disturbing combination of deep violets and purples. Lighter colors were substituted, calming greens and yellows. After the patient returned home from her European trip she never again had those black moods. There is no doubt that living in a room of such violent, irritating color had a great deal to do with upsetting her emotionally and mentally.

Dr. Sabin reports another interesting case in which the influence of colors was significant. The office of a factory had been a warm bright yellow. An efficiency expert was called in and he decided that a slate blue would need less cleaning and repainting. This expert knew nothing about and totally ignored the psychology of color. When winter came the stenographers began complaining about the cold, which they had not done in previ-

THE DOCTOR PRESCRIBES MUSIC

ous winters. The janitor protested that the thermometer showed 72 degrees, the customary winter temperature of the office. But the complaints continued and the temperature was raised to 75 degrees. Still the girls in the office kept wearing their coats until the cold blue slate color walls were again painted a warm yellow. After this repainting the room felt warmer at 72 degrees than it had at 75 degrees with blue walls.

There are many case histories on record of how intelligent use of color helped pave the way to mental health. There was, for instance, the case of the soldier who had sustained severe shell-shock in Flanders. His nervous system became so seriously affected that the sudden closing of a door or an unexpected voice caused nervous prostration. Gradually his mental health also began to fail, and in time he was seized with black fits of depression. It occurred to the doctors who were treating him that chromopathy might prove of benefit. The soldier was admitted to a hospital and placed in a color room the dominating motive of which was sunlight. The room suggested open fields, a wide expanse of sky, and the freshness of spring. The ceiling was blue, the upper portion of the walls were yellow and the lower

MUSIC AND COLOR

portions light green. The floor covering was of green felt toning in with the walls. Window hangings were of deep yellow, and the artificial light was diffused by means of orange electric bulbs placed around the walls behind a cornice. The patient lived in this room for several days, supplied with light literature and appetizing food. Within a month he was so visibly improved that all signs of nervous irritability had gone.

An almost similar case was that of a young officer who as a result of the horrors he had passed through sustained a severe shock to his nervous system which took the form of acute insomnia. The color scheme of the private ward used in this case was carried out in mauves, blues and greens, all of which have a sedative action. The patient entered the ward in the morning and spent the whole day there under the influence of these colors. That night he had his first unbroken and refreshing sleep since the onset of his nervous ailment.

Colors can, of course, have directly the opposite effect and be highly energizing. Red, for instance, is a most stimulating color. Scarlet rooms for lazy boys have been tried with great success. There is the case of a young woman who was sub-

THE DOCTOR PRESCRIBES MUSIC

ject to a serious type of melancholia. When she felt a fit of depression coming on, she went into a red room and turned on red-colored lights. The melancholia was effectively dispersed. She then passed into a room the color scheme of which was yellow and gold, a combination producing a mild stimulation. This brought her back to her normal state of mind.

Many physicians who specialize in the treatment of mental diseases have been particularly interested in the psychology of color. They have experimented with various combinations and have brought many interesting and valuable facts to light. Dr. Zeller was among the first, about twenty-five years ago, to use color treatments. He cites the cases of two hospitals in Switzerland where eight verandas were provided, three enclosed with ruby glass, three with violet, one with opal and one with amber, each type of solarium being designed for the treatment of a different mental disease.

In music, certain combinations of notes, certain rhythms and melodic patterns, produce certain more or less well defined physiological effects. Specific colors and combinations of color are hardly less definite in their effect. Some persons

MUSIC AND COLOR

have a stronger sensitivity to oral impressions, some to visual, but even those who are not primarily of an aesthetic temperament are far more subject to color in their surroundings than they realize. The application of color principles to interiors is often a matter which requires the trained services and market experience of a professional decorator. For instance, a good many people have a fondness for blue and want a "blue" room. Now blue may be a brilliant and exhilarating color seen in masses out of doors—where the blueness is partly an effect of sunlight and shadow. The laws of light-color are very different from those of pigment color. Small quantities of pigment-blues, in fabrics and objects, may also be refreshing or stimulating. But masses of artificial blue, even a dominant blue effect though relieved with other colors, is almost invariably not only cold but lifeless and depressing. What decorators usually do for clients who want a blue room is to create an actually green room, a blue-green, of course, or perhaps apply a strong green underpainting to the walls, with an almost transparent over-painting of blue. To most people such a room will appear blue, but being actually more

THE DOCTOR PRESCRIBES MUSIC

green than blue, will not have the depressing effect of a true blue interior.

Such problems are in the province of the decorator. Yet all of us can study the principles of color design and endeavor to make our personal environment both harmonious and pleasing in itself and an expression of our special tastes and concept of living. It is impossible in this chapter and outside of our purpose or ability to discuss color as decoration. What is relevant is to bear in mind, in using color, some of the therapeutic results which, time and again, certain colors have been found to produce.

RED: This is of course a stimulating color of high intensity, which excites and increases the working power of the brain. Too much can disturb the mental balance of delicately poised minds. The circulation of the blood is quickened and melancholia is dispersed. Red is also invaluable in the treatment of paralysis and other dormant chronic conditions. It is, however, injurious when there is an inflammatory condition of the system.

YELLOW: This color is cheery and stimulating, though not as violently stimulating as red. It suggests sunlight and hope and is very valuable in cases of mild mental depression. Clear lemon

MUSIC AND COLOR

or greenish yellows are usually preferable, and these tints of yellow with masses of gray and accents of white, make one of the most serene, cheerfully quiet effects imaginable. Soft yellow and a light or subdued blue together are always refreshing and gay. The "ochraceous" yellows, and those tending toward citron, olive or brown are apt to have a heavy, bilious effect unless expertly used.

BLUE: This color possesses cool and sedative properties, but is to some people depressing and too quiet. Beware of it in quantities. Its obvious use is for cases of extreme excitability. Perhaps the most difficult color to use in decoration because of the wide range of different basic pigment blues and the subtle, inharmonious hues among them.

GREEN: Green possesses cooling properties. It is useful in nervous ailments as it has a tendency to calm, and an effect of naturalness and normalcy. It acts in much the same way as does an opiate. It excites the eye less than any other color.

BLACK and WHITE: Not strictly colors, these are best used for definition and emphasis and contrast. A restrained and balanced use of black will often give just the right degree of organization and structure to a room, enhancing its archi-

THE DOCTOR PRESCRIBES MUSIC

tectural form. Stripes or strong patterns of black against another color make one of the most violent contrasts, arousing a sense of menace or agitation. White, on the other hand, is always a welcome alleviation to any strong color. In quantity, alone, its long association with the sick-room and sanitation makes it undesirable for many nervous patients.

BROWN: If used alone brown tends to have a sickening or depressing effect. Much depends on the exact hue and shade; and the right or wrong furniture color can complete or utterly nullify an otherwise carefully contrived interior. The lighter browns are more generally desirable. Rich browns with orange, yellow or gold are cheering and satisfying to some people, oppressive to others.

VIOLET and *LAVENDER* are sedative and soothing as well as productive of sleep. They are very useful in cases of mental instability.

RED-VIOLETS are usually too rich, and should be used sparingly.

Within the past few years attempts have been made to establish an independent art of color. In order to do this, appropriate means of projecting colors must exist. Through his color organ, which he calls the Clavilux, Mr. Thomas Wilfred

MUSIC AND COLOR

has created an astonishing art of mobile color forms. He has founded the Art Institute of Light at Grand Central Palace in New York City. The Clavilux is a complicated affair of lights and lenses. These are ranged in a battery, and on a series of keyboards the performer can manipulate switches, rheostats and levers which throw different colors, shapes and tones, in astonishing and exciting variety, and in moving patterns, upon a silk screen.

These color concerts have now been a regular feature at the Art Institute of Light for the past five years. A concert is given every Friday night to an audience which pays a dollar per ticket for admission.

"The hall is darkened," reads a recital program, "and a strange world unfolds, creating mood after mood, releasing all tension, from the mystery of a deep forest to the strong rhythm of moving girders of steel." Mr. Wilfred is perhaps the only living composer in colors. His *Elliptical Prelude* is described as "intense color sequences between static white flutings." Another of his color symphonies, *Horizontal Study*, is composed of "color moods of ocean, rhythm of waves," etc. A third color poem is his *Abstract*, a composition

THE DOCTOR PRESCRIBES MUSIC

of "multiple swinging forms, a crescendo of white on blue."

Mr. Wilfred is perhaps the first of the disciples of a new sensory art, which he has named Lumia. Lumia does with colors what music does with sounds.

But to return to music. Music is coming into its own in physical and mental therapy. The forces inherent in song, symphony and swing are being turned into practical therapeutic account by modern medicine.

Music has definite, measurable effects on the body and mind. It has, as exhaustive tests have proved, a direct effect on the pulse, respiration, and blood pressure, these accelerating or retarding, rising or lowering, in response to different rhythms. It also has an effect on the ductless glands, thus influencing the emotions. Music harmonizes conflicting moods which depress the nervous system. The healing value of music in the treatment of mental disorders and cases of social maladjustment has been well demonstrated, and herein lies its greatest contribution to solving the problem of modern living.

Not only is music doing valuable work in hos-

MUSIC AND COLOR

pitals, asylums and prisons. It is of great value in industrial life. In shops and factories it is being used more and more to relieve the tedium of monotonous tasks. It speeds up work and affords relief from the din, as well as combating fatigue. It increases efficiency.

Today, with the radio and perfected phonograph recordings we can have the benefits of music in our home, almost when we will, at very little cost. Music should become as much of a daily factor in building and maintaining health as proper diet and sleep.

BIBLIOGRAPHY

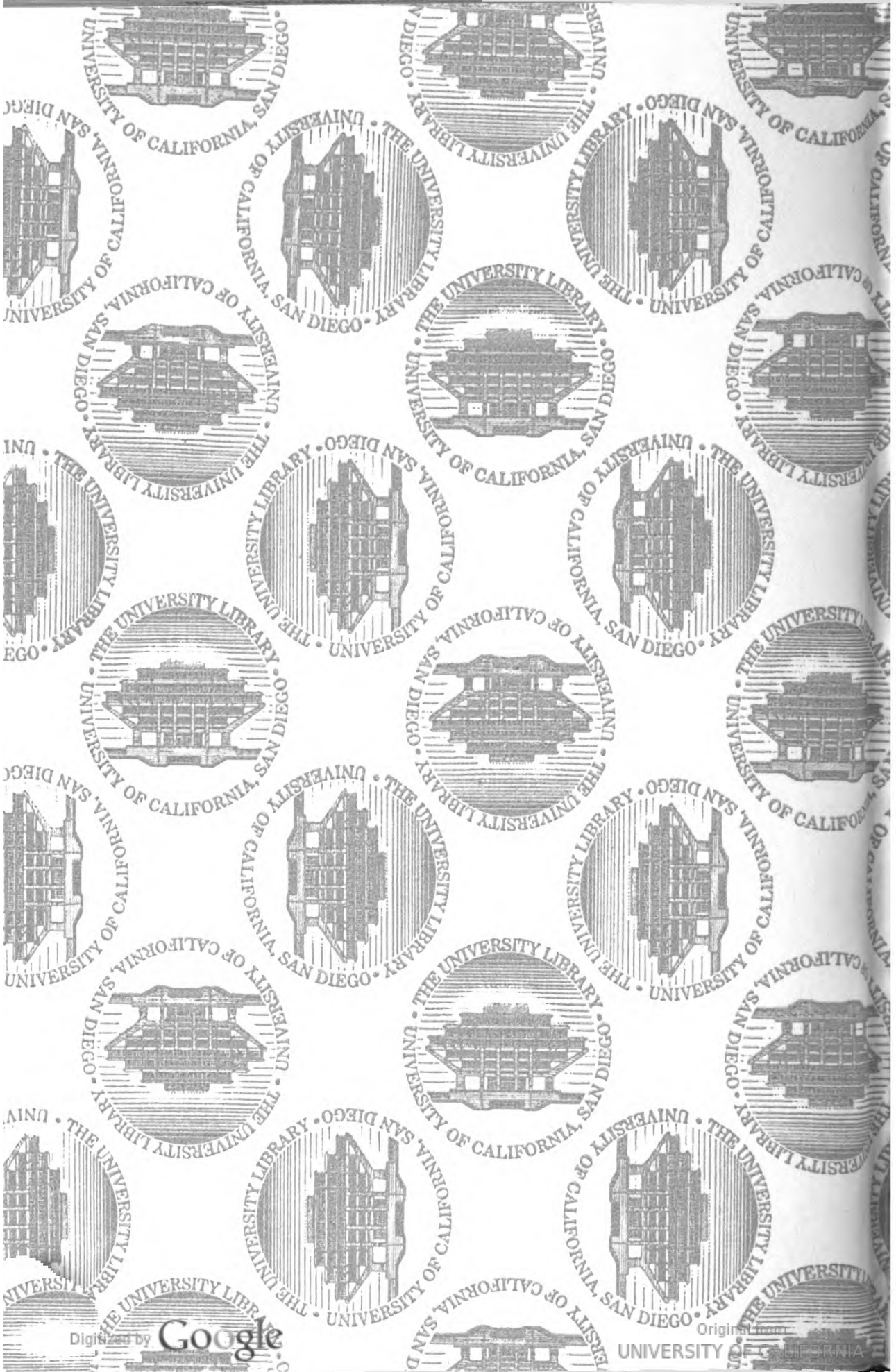
- Beardsley, G. L.: THE MEDICAL USES OF MUSIC. *New England Medical Monthly*, vol. ii, 1882.
- Benedict, M. E.: WHAT MUSIC DOES TO US. Boston, 1924.
- Brayton, Q. W.: MUSIC AS A THERAPEUTIC AGENT. *N. Y. Med. News*, Oct. 29, 1904.
- Britain, H. H.: THE POWER OF MUSIC. *Jour. Phil., Psychol. and Scien. Methods*, vol. v, 1908.
- Brocklesby, R.: REFLECTIONS ON ANCIENT AND MODERN MUSICK WITH THE APPLICATION TO THE CURE OF DISEASES. London, 1749.
- Brown, R.: MEDICINA MUSICA. London, 1729.
- Davidson, J. T. R.: MUSIC IN MEDICINE. *The Lancet*, vol. ii, 1889.
- Eastcott, R.: SKETCHES OF THE ORIGIN, PROGRESS AND EFFECTS OF MUSIC. Bath, 1793.
- Edwards, E. M.: TREATMENT OF DISEASES BY MUSIC. *American Medicine*, 1905.
- Foster, E., and Gamble, E. A. M.: THE EFFECTS OF MUSIC ON THORACIC BREATHING. *Amer. Jour. of Psychol.*, vol. xvii, 1897.
- Hadden, J. C.: MUSIC AS A MEDICINE. *New Mus. Rev.*, vol. xviii, 1920.
- Harford, F. K.: MUSIC AND ILLNESS. *The Lancet*, vol. v, 1891.

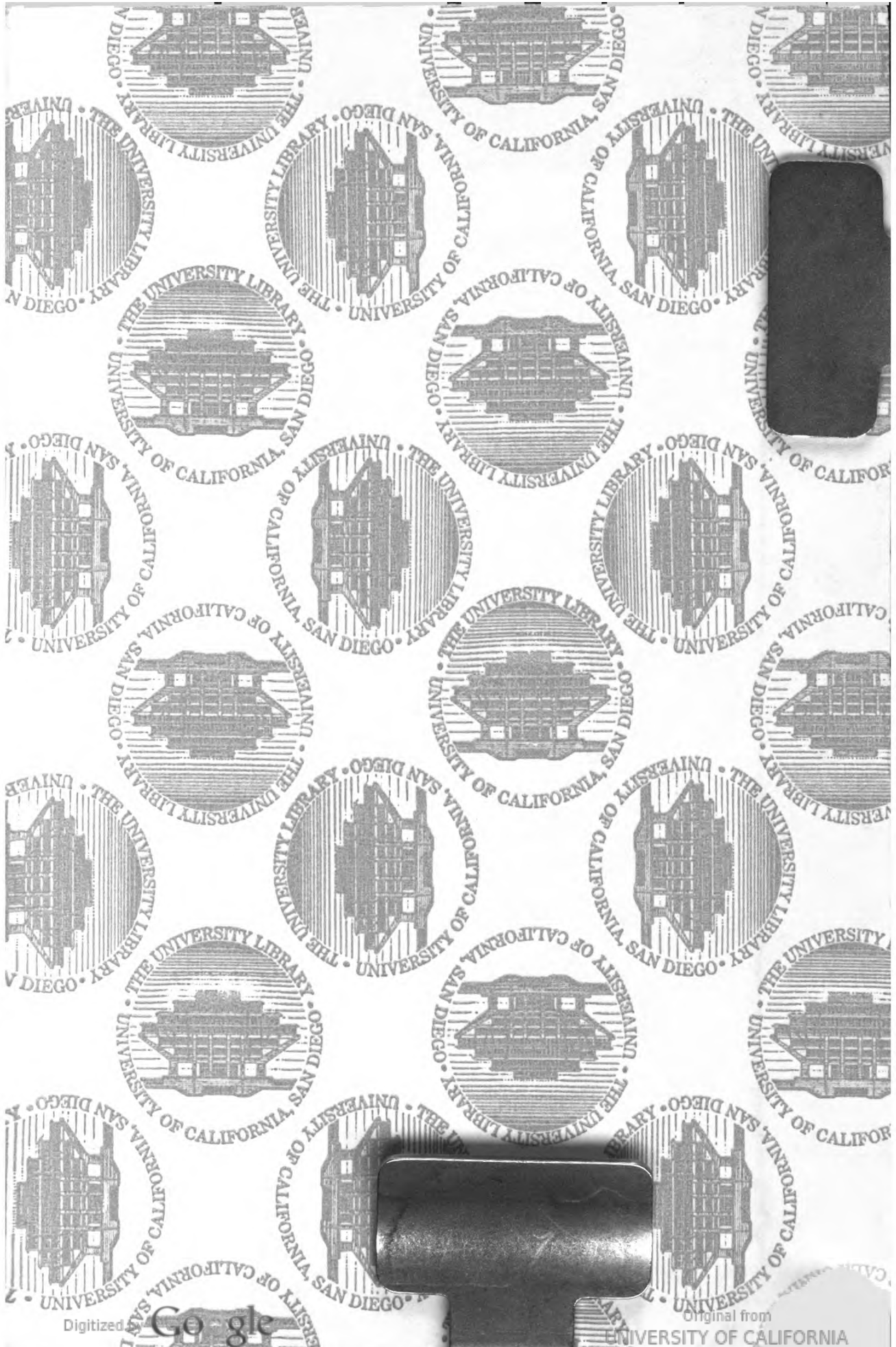
THE DOCTOR PRESCRIBES MUSIC

- Hyde, I. H., and Scalapino, W.: INFLUENCE OF MUSIC ON ELECTROCARDIOGRAMS AND ON BLOOD PRESSURE. *Amer. Jour. Physiol.*, April, 1918.
- Knott, J.: MUSIC AS A THERAPEUTIC AGENT. *New York Medical Jour.*, vol. xciv, 1911.
- Mays, W.: THERAPEUTIC VALUE OF MUSIC. *New York Med. Jour.*, August 19, 1918.
- Merz, C. H.: MUSIC IN MEDICINE. *Lancet-Clinic*, vol. xxiv, 1902.
- Niecks, F.: MUSICAL THERAPEUTICS. *Month. Mus. Rec.*, vol. xlii, 1912.
- Rogers, J. F.: MUSIC AS A MEDICINE. *Mus. Quarterly*, vol. iv, 1918.
- Smith, E. A.: THE INFLUENCE OF MUSIC UPON LIFE AND HEALTH. *Music*, vol. viii, 1895.
- Sumwalt, R. L.: MUSIC AS A THERAPEUTIC MEASURE. *Musical Courier*, vol. lxxxv, 1923.
- Vescelius, A.: MUSIC AND HEALTH. *Music. Quart.*, vol. ix, 1926.
- van de Wall, Willem: THE UTILIZATION OF MUSIC IN PRISONS AND MENTAL HOSPITALS. New York, 1924.
- MUSIC IN INSTITUTIONS. New York, 1936.
- Wimmer, D. J.: THE INFLUENCE OF MUSIC AND ITS THERAPEUTIC VALUE. *New York Med. Journ.*, vol. i, 1889.

535 115
1011 989

003C754





Digitized by Google

Original from UNIVERSITY OF CALIFORNIA

