

THE
CHRISTIAN MINSTREL.

A NEW SYSTEM OF MUSICAL NOTATION;

WITH A COLLECTION OF

PSALM TUNES, ANTHEMS, AND CHANTS,

SELECTED FROM THE

Most Popular Works in Europe and America.

DESIGNED FOR THE

USE OF CHURCHES, SINGING-SCHOOLS, AND SOCIETIES.

BY J. B. AIKIN.

PHILADELPHIA: T. K. COLLINS, Jr., S. E. CORNER SIXTH AND ARCH STS.; E. C. & J. BIDDLE, 6 SOUTH FIFTH ST.;

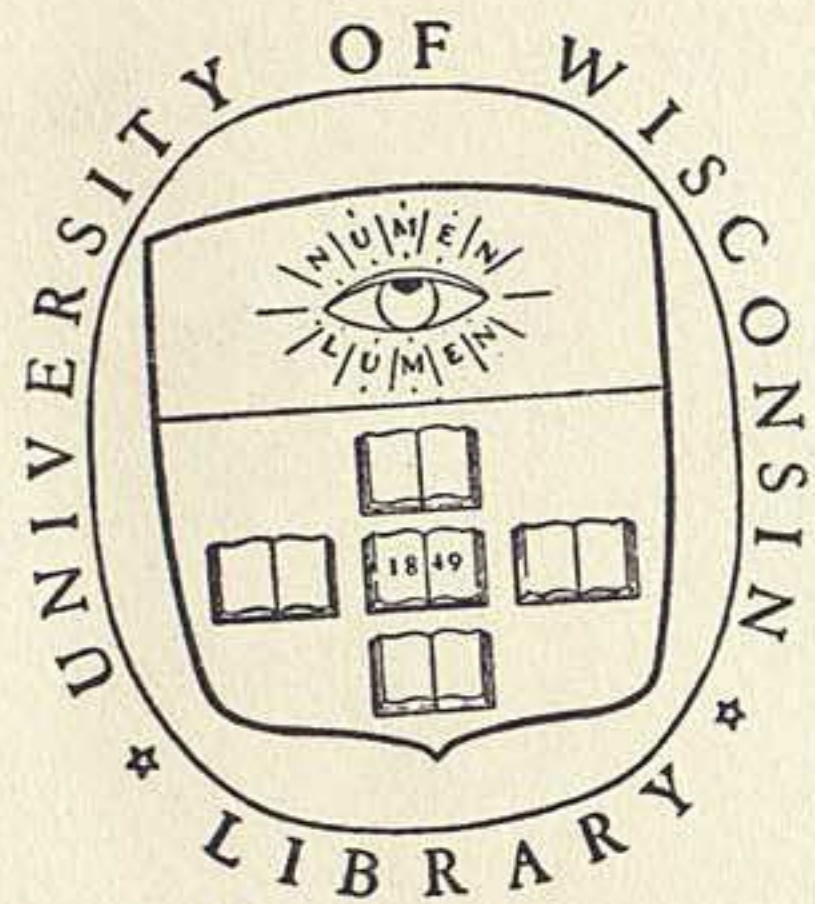
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NEW SYSTEM OF SURGICAL NOTATION

WITH A CORRECTION OF



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PREFACE.

THE number of sacred music books has been greatly multiplied within the last few years. Mason's publications alone have furnished the churches with a rich variety of music, arranged and harmonized in a style of unequalled beauty and sublimity, and characterized by a chasteness, simplicity, and facility of expression, and all that is adapted to dignify and elevate the character of devotional song, which must commend it to the hearty acceptance of the most intelligent and best cultivated minds in the world. And from the number of editions of these publications, which have succeeded each other in rapid succession, and which have been anxiously sought after and liberally distributed throughout the country, it seems fair to infer the existence of a happily increasing interest in the subject.

The fact, also, that the unscientific and trashy publications, which but too lately were held in high popular estimation, and which supplied the churches, especially of the south and west, with nearly all their music, are now being in a great degree displaced by those of a more serious and scientific character, indicates a decided improvement in the popular taste.

It is a singular fact, nevertheless—and one which demands the serious consideration of the friends of music, and which it concerns teachers and guides in the science to account for—that by far the largest portion of the community are altogether unacquainted with the elementary principles of the science, and have no use for written music whatever; and this is the case, not only among the ignorant and unlearned, but among the more enlightened and educated portions of the community. Even among members of the church, a very small minority are able to distinguish one note from another, and two-thirds of the ministers find it more difficult to sing the plainest tune unaided, without having first *heard* it, than to write a sermon. And I must add, though I regret the occasion which requires it, that of the classes that receive the instructions of our most scientific and devoted teachers—however they may sing what they have learned by *the hearing of the ear*—not one half are even able to read and comprehend the simplest passages in the books.

Whence, and how is this? Do the people feel no concern upon the subject? Have they no desire to understand the science, or to acquire the art? Or have our guides been at fault? Have they left the simple path of nature, and constructed a road less inviting and more intricate and difficult? Multitudes,—often those of the first order of intellect, who cannot be suspected of a want of energy equal to any mental enterprise,—are heard to say daily, how much they would give to be able to sing *by note*. They have paid some attention to the subject, but a mist seemed to hang over it. They have, perhaps, entered upon the study with earnestness and zeal, but the first results were unsatisfactory, and the difficulties in attaining any thing like an accurate knowledge of the subject appeared insurmountable, with the time and labour which they were prepared to bestow. The fact is notorious, and these deplorable results follow the most improved system of Pestalozzian analysis.

These results are by no means owing to any want of ability or zeal on the part of those engaged in instruction. The energy and untiring

Mason's Sacred Music

PREFACE.

perseverance of those who have for some years past devoted themselves to the business of instruction, and the preparation of music-books, are worthy of all praise, and command our highest admiration. But with the experience of the past, and a just observation of the present, it requires not the gift of prophecy to foretell, that while the same system is continued, no efforts to extend the boundaries of knowledge in this department of science, however energetic and well directed, will succeed in any degree adequate to the wishes and expectations of its friends.

A radical reform in the mode of writing music is what is required. We must cease to inculcate as elementary principles mere dogmas, arbitrarily imposed upon us by those who have gone before. We must make no factitious distinctions where there are no differences. I have bestowed much time and consideration upon this subject, having had the experience of a number of years in teaching. I have looked at the subject again and again, impartially and independently, as far as possible without reference to existing theories, and uninfluenced by the settled opinions and interesting systems of others; and though conscious that I must hazard the imputation of vanity and presumption, I have ventured to offer to the public a "new book," presenting the subject in a shape less complicated, more simple, and as I conceive more in accordance with nature.

I respectfully ask of musicians a careful examination of this work, and a careful consideration of the particulars in which it differs from others, and which I cannot but believe they will agree with me in denominating *improvements*.

PECULIARITIES OF THIS WORK.

I. VARIETIES OF MEASURE, OR MODES OF TIME.

As music is ordinarily written, the varieties of measure amount to some *nine* or *ten*. Professor Mason says in his *Carmina Sacra*, page 7, "Other varieties also may be used,"—even as many as fifteen or more. In this work only three varieties are used, equal, unequal and compound.

The reasons which induce this change, and the claims it has to be considered an improvement in the mode of writing music, may be estimated from the following considerations.

1st. Other varieties are not necessary. Every variety of *music* may be written intelligibly in one or the other of these three measures—equal, unequal, or compound. All sounds, of whatever relative length, and in every possible combination, may be clearly represented to the eye without the use of any other.

2d. Other varieties are useless. They are of no practical value whatever. They do not define the time. For this the very highest authority may be adduced. "The example $\frac{2}{2}$ is not, necessarily, either slower or quicker than $\frac{2}{4}$; $\frac{3}{2}$ is neither slower nor quicker than $\frac{3}{8}$, &c. The different varieties of time in each of the above examples [the examples specify fifteen] are practically the same. To the *eye* they are different, to the *ear* alike."* These numerous *varieties*, or ways of writing music, then, are of course useless, inasmuch as they are, confessedly, really and in fact *not* varieties of measure at all, but are "practically the same."

* Professor Mason, *Carmina Sacra*, p. 7.

We sometimes find the same music written in different varieties of measure in different books, (and those, sometimes, by the same author,) and when a choir happens to be supplied with a *variety* of books, they are not unfrequently found singing in good time, and together, the same music, each unconscious that one is singing *half-notes* and another is singing *quarters*.

3d. These multiplied varieties are not only unnecessary and useless, they are positively injurious, and only tend to involve the subject in difficulties. "The most important requisite in all good performance," says the respected author quoted above, "is accuracy of time.—To acquire the habit of keeping good time requires much patience and perseverance; and it is in this that those who commence learning to sing are most likely to fail."* Nothing is more true, as the experience of every teacher will testify. But is it strange? Can it be otherwise, when the theory and the practice are so directly at variance? The acquisition of the art must be difficult when the theoretical instruction is so lumbered up with distinctions, without any essential differences. Much time and labour are spent in acquiring a knowledge of the many *varieties of measure*, as indispensable to the keeping of time; but when the pupil comes to practise, he finds that nearly all these varieties which have been so distinctly pointed out to him, are only such theoretically, and on paper; they are *varieties* to the *eye*, but in fact, and to the *ear*, they are the same. The eye readily perceives the distinction, but the ear cannot discern the difference. The *measure* of the eye and the measure of the ear do not agree. Each organ loses confidence in itself or in the other; nature is divided against itself—a conflict ensues—an appeal is made to the books, and each claims the victory; for, "to the eye they are different, to the ear alike"—each organ charges the other with deception and falsehood, and the poor pupil with "confusion worse confounded" despairs of ever finding "patience and perseverance" to carry him through the labyrinth of time.

But the evil may be rendered still more intelligible to all, and the advantage of the improved method will be fully justified by considering another particular. "Every person learning to sing should give strict attention to beating time. Experience proves, that where the habit of *beating* time is neglected, the ability to keep time is seldom acquired."† Such is doubtless the fact, as all teachers must know. To keep time, we must beat time, and when one mode of each measure only is used, correctness in keeping time is soon attained. The habit is soon formed of appropriating one beat to each half-note, or its equivalent, whether in equal or unequal measure.

This is the method adopted in this work. The music is so written that the measure and the counting, or beating, are always the same, whatever may be its character; and the habit once formed is never to be changed. To this most *common mode of time* teachers generally first introduce their pupils, and all is well until a variety is introduced; then the difficulty commences, and *patience* begins to be tried. The habit sedulously cultivated, and already well formed, is now to be directly contravened; and instead of appropriating a beat to each half-note, and one to two quarters, each quarter claims its beat, and the half-note two. The difficulty is not in giving a beat to each quarter, or two beats to the half, but is produced by the breaking up of a fixed habit, and the formation of another, which is so directly the opposite of the first. The more fixed and decided the first habit, the better is the pupil prepared for the performance of the first mode; but the formation

* Carmina Sacra, p. 5.

† Ibid. p. 4.

of the second is proportionally difficult. This much is at length accomplished; then the pupil is put back upon his trials in the first measure, and he finds, to his discomfiture, that the second habit has almost displaced the first, and so he must address himself to that again. This, however, is only the beginning of his troubles; he must go through all the varieties, learning and unlearning, advancing and retreating, forming habits and again effacing them from his mind, to make room for the formation of others—forgetting as far as possible the first, in order to embrace the next; and forgetting the last in order to remember the first. Surely much patience and perseverance are required in such a work as this; and yet it is a labour which satisfieth not—nothing whatever is gained by it.

The method of writing music, adopted in this work, avoids all the evil, and accomplishes every purpose that can be needed or desired.

II. THE MINOR SCALE EXCLUDED.

The same general considerations which were offered in reference to the varieties of measure, may with equal propriety and force be urged against the usual distinction of major and minor scale, or major and minor mode. There is no ground for such a distinction in nature—such a distinction is not necessary. It answers no practical purpose whatever; and it is difficult to conjecture why it was invented, unless it were to confound the uninitiated, to puzzle the student, and to involve the whole subject in mystery.

The natural scale, with the sharp fourth, fifth, &c., contains all the sounds and all the intervals that can be furnished by the artificial minor scale. Every conceivable variety of music, bold and cheerful, soft and plaintive, may be written upon the natural scale. All music is in fact written upon it. The minor scale itself (so called) is founded upon it, or more properly is not really any thing different from it. The minor scale, it is evident, is neither more nor less than portions of two octaves of the natural scale—commencing with the sixth in the octave below the key, and ending with the sixth in the octave above. It is a part of the scale embracing such a proportion of half-intervals, as to secure a plaintive effect, and when a certain amount of this plaintive influence is introduced, it has been called the minor scale, or minor key. But why object to it? Because it is a distinction without a difference. We might, with equal propriety, commence a scale with the third, another with the fourth, another with the fifth, and so on, and name them from the peculiar musical effect—the sub-major where the tune is half as plaintive as the minor, and the super-major where the effect is peculiarly cheerful.

But the objection to this distinction is not merely that it answers no valuable purpose. Its effect is to produce confusion in the mind, and to hinder the progress of the student by introducing two keys into the theory, and fixing a double set of numerals to precisely the same sounds and syllables.

The *key*, or *one*, of the natural scale, is the basis or governing sound: it governs or determines the pitch of all the other sounds in the scale. It is of the first importance that the key, and the relation of other sounds to it, and their dependence upon it, be well understood and firmly fixed in the mind. Hence all authors and teachers are obliged to devote special attention to the exposition of this

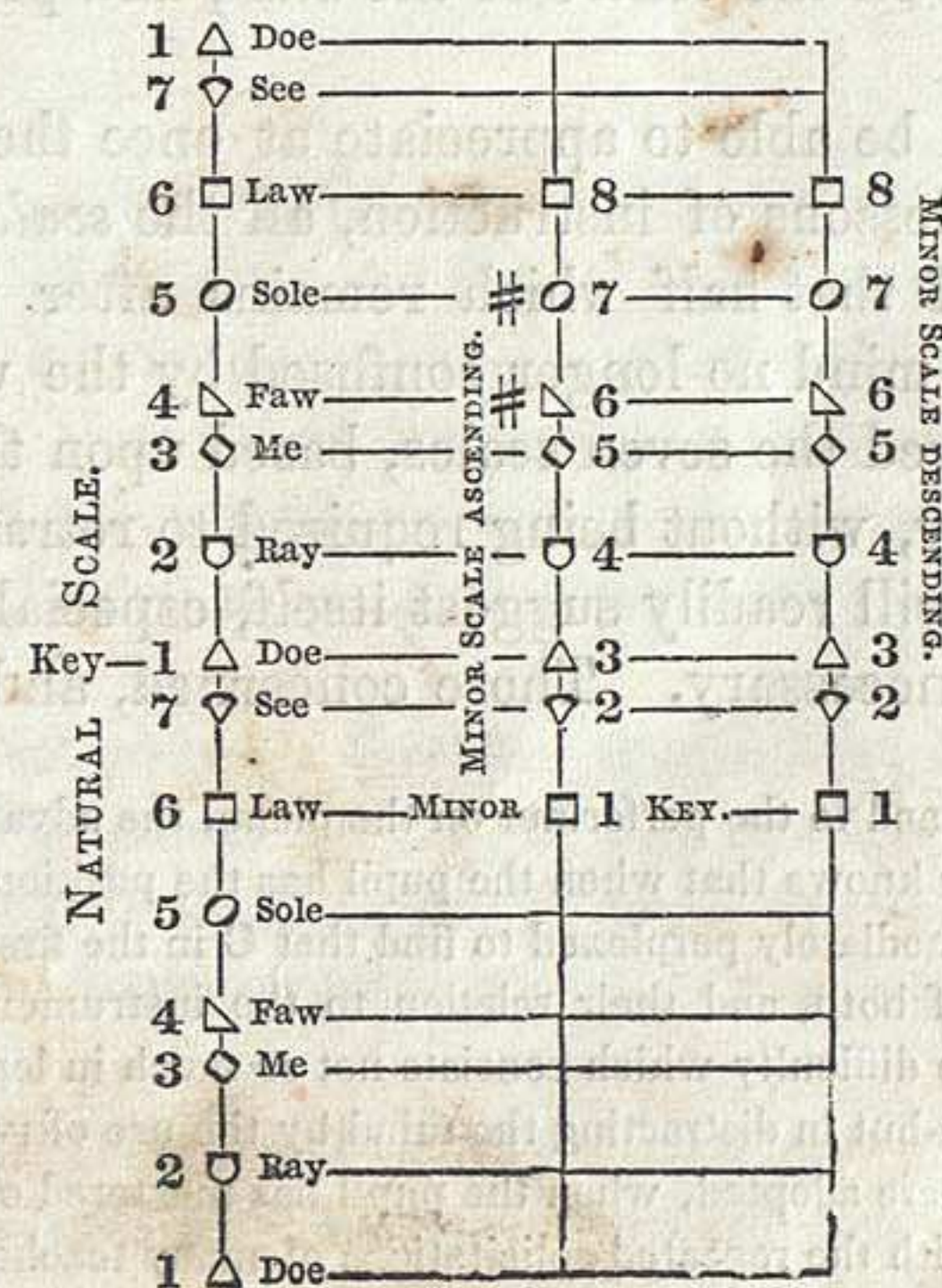
point, and to the practice of singing the scale by numerals, by skips, &c.; and this must be persevered in until, the key being given, the learner can with ease produce any sound of the scale when designated by its numeral.*

But when this is accomplished, and the situation of the half-intervals as always occurring between *three* and *four*, and between *seven* and *eight*, has become familiar to the pupil; and pleased with the ease with which he is able to recognise the high and low sounds by their numerical relation to the key, he fancies himself just prepared to *read music* with some satisfaction, his mind is at once and suddenly upset by the introduction of another scale, whose numerals conflict throughout with that which had been so firmly fixed in his mind. Now *three* is no longer *three*, but *five*; *five* is metamorphosed into *seven*; *two* has become *four*; *four* is *six*; *seven* is *two*; and one, yes, ONE, the *key*, which he supposed to be *fixed*, independent and immovable, sitting as a monarch on his throne, marshaling and locating his subjects around him, is now dethroned, and made to take the place of a slave. And to add to his confusion, he finds that even the "semitones" are represented as unfaithful servants to their master, now in duress, and as having in the general confusion left their places and taken their stations elsewhere. Inquiring earnestly for their whereabouts, he learns, to his amazement, and to the utter undoing of his confidence, that their location is uncertain; they have no abiding-place—that "in the minor scale, the tones and semitones do not occur in the same order, ascending, that they do in descending."†

In this work the minor key is not reckoned as belonging to the principles of the science; and by its entire exclusion, deceptive distinctions are avoided, the subject is divested of some of its mysteries, and presented in a manner at once natural, simple, and intelligible to all.

* "It is very important, and we repeat it, that the situation of the tones and semitones be firmly fixed in the mind of the scholar."—*Mason's Manual*, p. 110.

† The error of introducing into the theory of music another scale, separate but not distinct from the natural scale, and based upon a separate and imaginary key, called the minor key, may be demonstrated to the satisfaction of any one who will take the trouble to examine it. The justness of this thought may be tested by a reference to the illustration here presented. It is manifest that the numerals conflict, while the sounds agree. There is a double set of numerals to the same sounds and syllables. In excluding the imaginary minor key, the number of scales is not only reduced one-half—at least from twenty-eight to fourteen—but especially it should be noticed, the confusion of numbers is avoided.



PREFACE.

III. POSITION OF THE LETTERS ON THE STAFF.

A new position has been assigned to the letters on the staff. Heretofore, and apparently without reason, so far as the author has been able to discover, the staff has been located, so to speak, *on one side of the voice*. The more appropriate location, doubtless, is to give G, the letter representing the central sound of the compass of the voice, a central position upon the staff. In this work, G is accordingly placed upon the middle of the staff, and the other letters occupy their places in due order.

By this arrangement, a great advance has been made towards simplifying and reducing to a more complete system the mode of writing music for the various classes of voices, and for various instruments. Heretofore the letters upon the staff have been located variously for the treble, the counter, and the base. The C *cleff*, indicating the position of the letters upon the alto staff, has of late years, however, gone nearly out of use in this country; and modern authors generally letter the alto staff in the same way as that of the treble. This was one step towards reform—rendering the subject less complicated, and easing the art of *reading* music of one of its unnecessary burdens.

In this work, the use of the cleff is entirely dispensed with, the new lettering of the treble staff rendering it perfectly convenient to write all music, for the base voice as well as for base instruments, on the same staff, or one similarly lettered. Thus, the central G of the base voice is fixed on the centre of the staff, and perfect uniformity is attained in the mode of lettering the staves for all the parts in which music is written.

Teachers will be able to appreciate at once the advantage gained by this arrangement. It supersedes entirely the necessity of introducing into their lessons of instruction, all the *scales* based upon the F cleff, or base staff, and relieves them of all further concern in regard to just *one-half* of that half which remains after the carrying away of the fourteen by the exclusion of the so-called *minor-key*. And the pupil will find his mind no longer confused by the various positions of seven letters; and his memory burdened with endless distinctions. But having mastered the seven scales, based upon the seven letters occupying seven fixed places on the staff, he will find his way short and comparatively easy, without being required to retrace his steps or to cross his path. Much might be said in favour of this mode of writing music, and much will readily suggest itself, especially to the instrumental performer, to whom alone it will be an immense gain,* but further remark here is unnecessary. Those concerned, and the public, will judge for themselves.

* To the organist, and to the performer on the piano, the advantages of this method of lettering the staff will be incalculable. The labour of the pupil will be comparatively trifling. Every teacher knows that when the pupil has the position of the letters of one staff, and their relation to his instrument once fixed in his mind, he is, according to the method heretofore adopted, immediately perplexed to find that C in the first staff is not C in the base staff, but E; that the central line of one staff is B, and the central line of another is D; in short, that the letters of both, and their relation to the instrument, conflict throughout; and all this while the octaves on the instrument are exactly alike. Any one can, in some measure, appreciate the difficulty which consists not so much in learning the position of a number of letters, virtually amounting to fourteen—which would be objectionable enough, since it is unnecessary—but in distracting the mind by the use of two staves, so much alike, and yet so much unlike.

Upon the method here adopted, when the pupil has mastered one staff, he has accomplished all in this department. The author designs, should the present work meet with public favour, in accordance with the repeated solicitations of many teachers, to publish a work upon this plan expressly for the piano-forte.

IV. THE SIGNATURE.

The signature ordinarily used, consisting of *flats* and *sharps* at the commencement of a tune, indicating the position of the key, has been laid aside, and its place supplied by the use of the word *key* itself. This mode of designating the place of the key has been adopted as being more simple, and less liable to misconstruction than the use of the *flats* and *sharps*. It is well known to all musicians, that the flats and sharps at the beginning of a tune are not designed to affect the *voice* in any manner whatever. The singer has no concern with them—except so far as they serve to indicate the place of the key; and yet it is amazing how many persons—who are by no means entire strangers to music books—have utterly misconceived the design of flats and sharps when used as a signature, and have supposed that they really affect the character of the music to which they are prefixed!—that the *flats* and *sharps* fix the place of the key, &c.

Now, as the *key* constitutes a sufficient and most intelligible signature; and as the performer on instruments, to whom alone they can be of any possible service, should make himself thoroughly acquainted with the rules for performing each *scale*, and is supposed to know immediately when the *key* is given, what letters are to be played *flat* or *sharp*: these characters have been entirely excluded from the signature, and the direct method of signing the key has been adopted.

V. FIGURED NOTES.

The system of seven syllables used as *names* for the different notes in the octave, now so deservedly popular in every part of the world, has been adopted in this work. Nothing is more easily demonstrable than the superiority of this to the four syllable system. For, if any thing at all is gained by giving names to the sounds of the octave—and of this there can be no question—it is easy to perceive that the nomenclature which appropriates to each sound in the octave a distinct name, must have the decided advantage over that which requires the same name to be applied to different sounds. On this plan, the association of the *name* and the *sound*—which is the great object designed in the use of names—is necessarily more complete; and universally, where this system is adopted in singing schools, the intonation is much sooner formed.

But this work differs from all others in the use of seven figured notes, each of a peculiar shape. Every singer knows how difficult it is to learn to apply the seven syllables to the notes all of one shape. The learner must know whether the note is *doe*, *ray*, or *faw*, by the lines and spaces on the staff. This he must learn in all the seven scales: for example, in the key of C, or in the C scale, *doe* is on C, *ray* on D, *me* on E, &c. And in the key of A, *doe* is on A, *ray* on B, *me* on C, &c. In short, in the seven scales, *doe*, as well as every other syllable in the octave, is on every line and space on the staff.

The system adopted in this work will be found to have the double advantage of giving to each sound its own name, and to each note or name its own form. As seven different *syllables*, or names, are used for the purpose of attaining the seven different *sounds* in the octave with

greater facility; so seven different *figures*, or forms, are used for the purpose of obtaining the *names* immediately and with perfect certainty. The key, and the name of any note, and also its pitch and relation to the key, as well as its length, are all written and clearly presented to the eye of the reader by the *figured* symbol. The name, the shape, and the sound of a note, and its relative pitch, are thus perfectly associated.

The *round* notes teach nothing which is not taught by the use of the seven *figured* notes. But the *figured* notes do teach what the round notes *do not*. The musical *ideas* are the same, whether the notes be round or figured. But as the ideas are *expressed* unambiguously, and with equal precision, and, withal, may be *read* with greater facility when written in *figured* notes, seven characters are used in this work, as best adapted to increase the number of readers of music.

The peculiarities above specified embrace the chief characteristics of this work, and constitute its principal claims to public patronage. Whether to them shall be awarded the merit of being considered *improvements*, must be submitted to the decision of a liberal and enlightened community.

The vain design of thrusting before the world useless innovations upon the established *principles* of science, and of making unnecessary inroads upon the customary *modes* of instruction, has had no share in getting up this work. With the firm conviction that the science, as ordinarily presented in the books, might be divested of some of its mysteries and subtleties, and a sincere desire, if possible, to contribute something towards multiplying the number of those—alas! now too few—who shall be prepared to lift up their voices in harmonious strains of praise to HIM before whom “the morning stars sang together,” the editor has done what he could, and now earnestly praying, that the day may not be far distant when the multitude of those who shall be able to “sing unto the Lord a new song” may be such as “no man can number,” he cheerfully leaves the result of his labours in the hands of an impartial public.

ELEMENTS OF MUSIC.

MUSICAL sounds may be considered in reference to their *Pitch*, *Length*, and *Force*. And upon these are founded three departments, which embrace the whole of the elementary principles of music.

Pitch regards a sound as *high* or *low*. *Length*, as *long* or *short*. *Force*, as *loud* or *soft*.

FIRST DEPARTMENT.—PITCH.

At the foundation of the high and low sounds, lies a series of eight sounds called *the octave*.

The distance between two sounds is called an *interval*.

The intervals throughout the whole variety of pitch are always uniform, though not equal to one another.

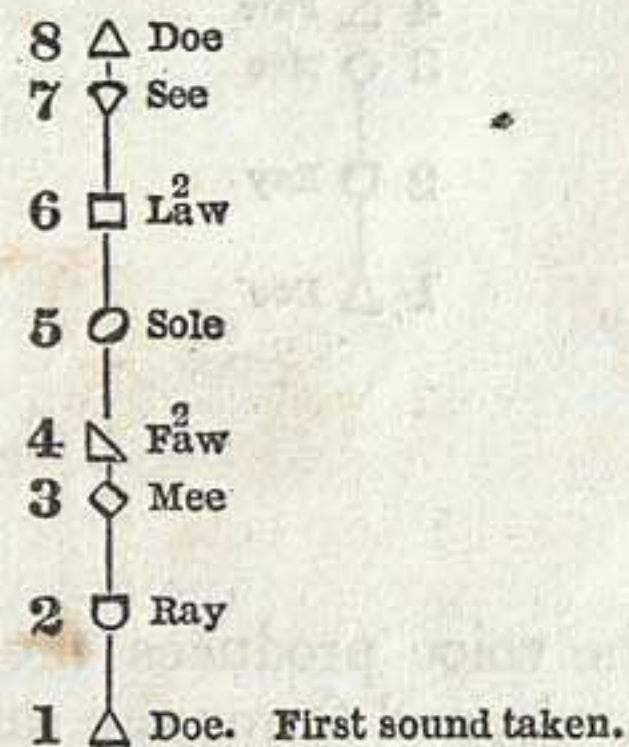
Certain of these intervals are only half as great as others. Hence we have what are properly called the greater and the less intervals, which, for the sake of convenience, are denominated *whole-intervals* and *half-intervals*.

The voice, in producing the eight sounds ascending, naturally passes from the first sound taken, a whole-interval to the second sound; from the second sound, a whole-interval to the third; from the third sound, a half-interval to the fourth—then proceeds to the fifth, sixth, and seventh, by whole-intervals;

QUESTIONS.

What three qualities belong to every musical sound? Into how many departments are the elements of music divided? What is pitch? What is length? What is force? What does the first department embrace? [Ans.—Every variety of pitch, or all the high and low sounds.] What is an interval? Are the intervals or steps in the voice uniform and equal to one another?

and from the seventh, the next step is a half-interval, to the eighth, making five whole-intervals, and two half-intervals. These eight sounds and the seven natural intervals form the scale of an octave; thus:



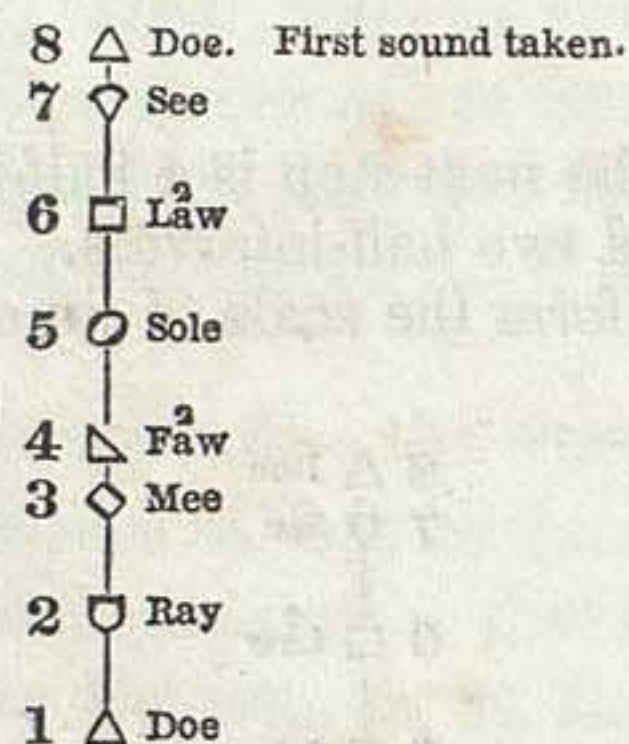
These notes called Doe, Ray, Mee, &c., represent the sounds; and the spaces between the notes represent the whole and half-intervals. From 1 to 2, from 2 to 3, from 4 to 5, from 5 to 6, and from 6 to 7, are whole-intervals—from 3 to 4, and from 7 to 8, are half-intervals.

QUESTIONS.

What are the greater intervals called? What the less? In what order do the intervals occur when the voice produces the eight sounds ascending? Is this order natural or artificial? What is an octave? What do notes represent? What interval occurs between 1 and 2? 2 and 3? 3 and 4, &c.? What is the distance between 1 and 3? Between 1 and 4, 1 and 8, 3 and 8, &c.?

In descending, the voice naturally falls from the first sound taken a half-interval—then three whole-intervals in succession—then another half-interval—then two whole-intervals in succession—making five whole-intervals and two half-intervals.

These eight sounds and seven natural intervals form the scale of an octave descending, thus :



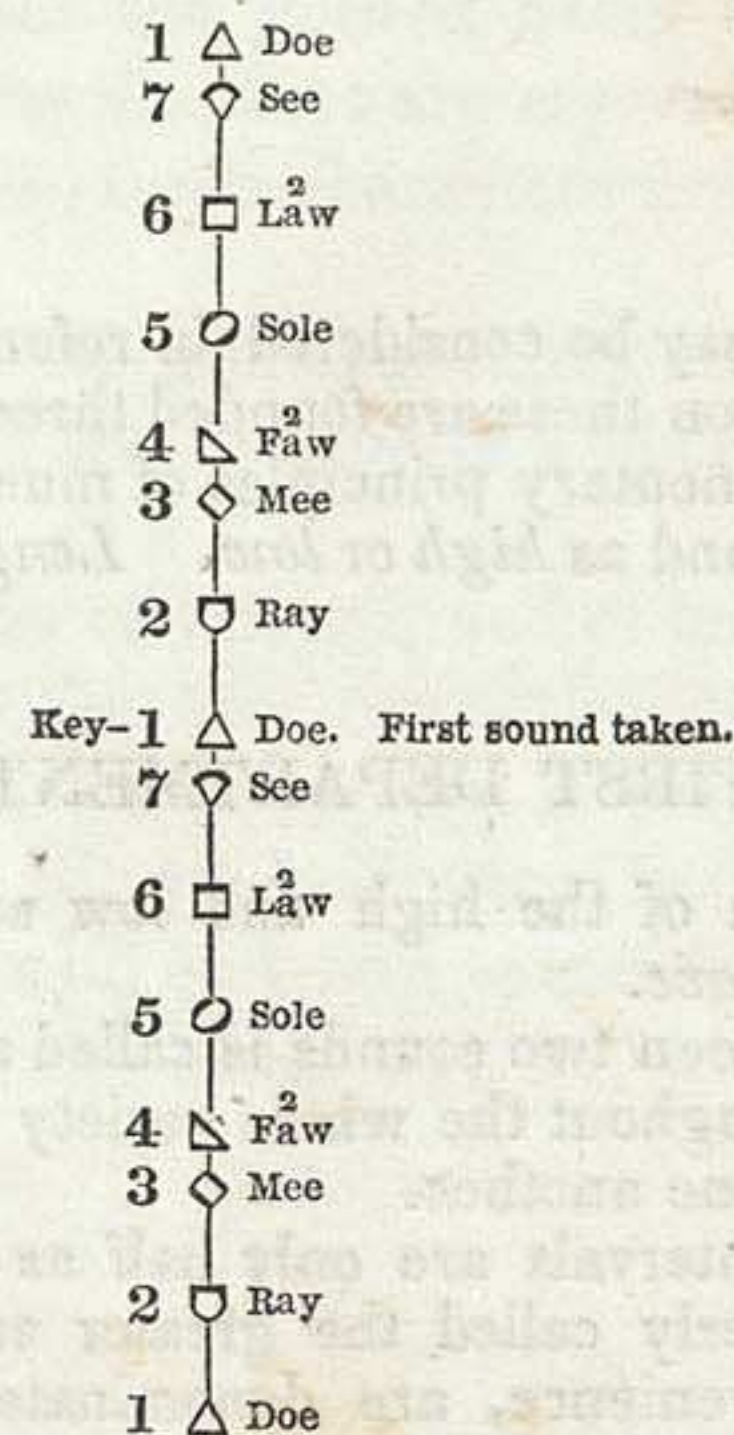
Thus it may be seen, the voice produces the same series of sounds, and passes over the same intervals, and forms the same scale, whether in ascending or descending an octave.

If the voice is extended either above or below the octave, it will naturally pass over the same gradation of sounds and intervals, as far as the compass of the voice extends. For example, take *any* sound, and raise the voice by the regular intervals an octave—then descend the octave, by the same steps, to the first sound taken—proceed an octave below—and you have a scale of two octaves in all respects similar, in each of which are eight sounds and

QUESTIONS.

By what steps does the voice proceed in forming an octave descending? Is this order of sounds and intervals natural or artificial? [Ans. Natural.] What will be the result if the voice is extended above or below the octave?

seven natural intervals. The voice thus naturally forms, upon the first sound taken, two octaves; and this (the first sound taken) becomes the key or governing sound in the ear and voice; thus,



The figures 1, 2, 3, &c., are used to distinguish the different sounds in the octave, and designate precisely the distance of each sound from the key, and its relation to it.

QUESTIONS.

What is the key? [Ans. The governing sound in the ear and voice.] How does the voice form a scale of two octaves? Is this gradation of sounds and intervals natural or artificial? What is the use of the figures 1, 2, 3, &c.?

The key is always called 1, and the other numbers are appropriated to the sounds of the octave ascending.

The eighth sound of the octave ascending is always the first, or key of the octave above, and is therefore called 1, and the key or 1 is always the eighth of the octave below.

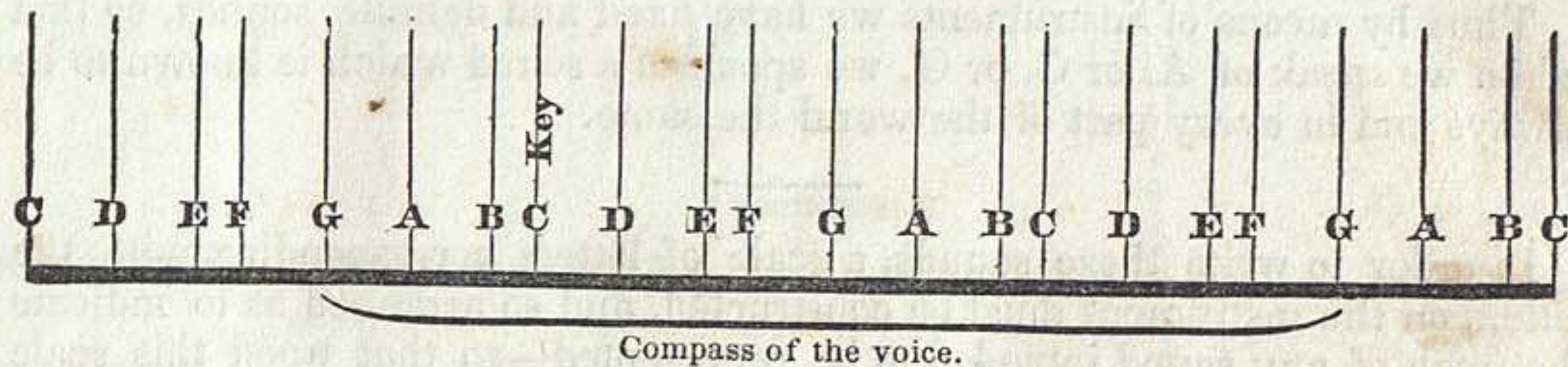
The key is not any particular sound; it may be of any pitch, higher or lower, and the natural rise and fall of the voice will be the same.

Neither is 2, or 5, or any other number in the scale, a particular sound except with reference to the key. Whatever may be the pitch of the key, 2 will always be one whole-interval above the key, 3 will be two whole-intervals, and 4 will be two whole-intervals and one half-interval above the key, &c.

From the fact that the voice assumes no particular pitch as the key, and always distributes all the other sounds of the octave with reference to the key, throughout the whole range of its compass, arises the necessity of having fixed or stationary sounds by which to be governed.

is ascertained what sounds are embraced within the usual extent of its compass; and thus the sounds which the voice is capable of producing are located and specified, so that one sound may be compared with another, the instrument always being the standard of comparison.

The names of instrumental sounds are those of the first seven letters of the alphabet, as in the following illustration:



In this illustration, the lettered lines represent the sounds on instruments, and the spaces between the lines represent the whole and half-intervals.

The compass of the voice is indicated by the brace which extends from G to G, embracing two octaves.

In the application of these seven letters as names to the several sounds of the octave on instruments, it was necessary that one of the seven should be applied to the key. Any letter might have been selected; but C was the letter applied to the key.

The half-intervals, therefore, on all instruments occur between E and F, and between B and C.

The *fixed* or *stationary* sounds are obtained by means of instruments, which are put in tune by the ear—and, of course, are made to correspond with the sounds and intervals of the voice.

But as the ear readily distinguishes sounds both higher and lower than the compass of the voice extends, instruments are made to embrace a much wider range, extending often to six or seven octaves.

It is found by experience, that the ordinary compass of the human voice embraces about two octaves—but it is by means of instruments alone, that it

QUESTIONS.

What numeral is always applied to the key? How are the other numbers appropriated? Explain the connection of the octaves? Do you mean by the key a sound of any particular pitch? Whence arises the necessity of having fixed sounds? How are fixed sounds obtained? How are instruments made. May instruments be made higher and lower than the compass of the voice? What is the ordinary compass of the human voice? How is it ascertained what sounds are embraced within its compass? Why study instrumental

QUESTIONS.

sounds when you only desire to learn vocal music? [Ans. Because it is only by means of fixed or stationary sounds that music is reduced to a science.] What are the names of instrumental sounds? What sounds are embraced within the compass of the voice? What letter is applied to the key or governing sound on instruments? Was this arbitrary? Where do the half-intervals occur on instruments?

C is the same sound on all instruments. D is the same sound; A; and so of all the other letters.

An instrument that produces but one sound, if it produces that sound at all times without variation, will furnish the means of ascertaining all the other sounds. If the instrument, for example, gives C, and the sound D is required—D is obtained by rising one whole-interval above the sound given; if B is required, it is always found a half-interval below C, &c.

Thus by means of instruments we have fixed and definite sounds, so that when we speak of A, or C, or G, we speak of a sound which is known to be always and in every part of the world the same.

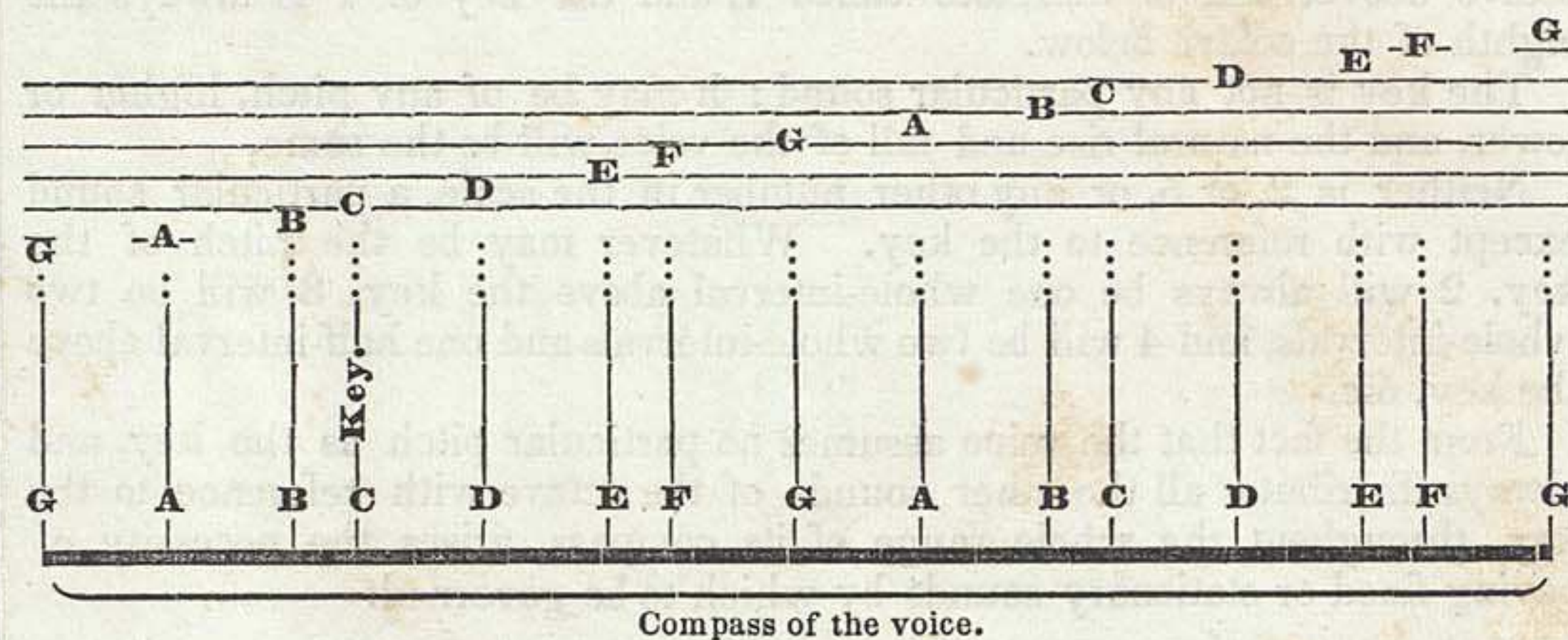
In order to write these sounds, a scale of letters corresponding with the letters on the instrument must be constructed, and so arranged as to indicate the pitch of any sound intended to be represented—so that upon this scale each sound upon the instrument shall have its own fixed position upon the

QUESTIONS.

Do the sounds on all correct instruments correspond? [Ans. They do.] Are the numbers 1, 2, 3, &c., ever appropriated as names to the sounds of instruments? [Ans. No. It is only when we speak of the voice that we use the numbers.] Could you arrive at the true sound of any number or letter by means of an instrument that produces invariably a given pitch? If an instrument gives the sound C, how do you obtain the pitch D?

What is necessary in order to write music? What is the staff? Why are the lines and spaces named after the first seven letters of the alphabet? [Ans. Because the sounds on instruments are thus named.] How many places for notes does the staff furnish? Does the compass of the voice extend above and below the staff? Why is the staff constructed of five lines only? What is the use of added lines? Why is G placed on the middle line of the staff? [Ans. Because the sound called G on instruments is found to be about the central sound of the compass of the voice.]

paper, and be known by its own name. For this purpose a staff is used which is composed of five lines and the spaces between them, thus:



The letters or names of the sounds on instruments are thus transferred to the staff; each line and space having its corresponding name, and representing a particular sound. The first line of the staff is C; the first space is D; the second line is E, &c. These five lines with their spaces constituting the most convenient staff, furnish nine places for notes.

The compass of the voice is from G second space below the staff, to G second space above it; and when music is thus written, the spaces immediately above and below the staff are used; also the short lines called *added lines*.

C SCALE.

The diagram shows a musical staff with a treble clef and a key signature of one sharp (F#). The notes of the C scale are written on the staff: G (first space), A (second space), B (third space), C (fourth space), D (first line), E (second line), F (third line), G (fourth line), A (fifth line), B (first space above), C (second space above), D (third space above), E (fourth space above), F (fifth space above), G (sixth space above). Below the staff, the notes are labeled with letters G through G. Fingerings are indicated by numbers 1 through 5. A vertical line labeled 'Key' is placed between B and C. To the right of the staff, the notes are labeled 'Voice' and 'Instrument'.

This scale of notes occupying the places of the letters on the staff, represents the fixed or stationary sounds on instruments.

C is the key or governing sound; this is therefore called the C scale.

To assist in obtaining with accuracy and fixing in the ear each sound of the scale, seven distinct names are applied to the notes in the octave. In singing the scale, 1 (the *key*) is called Doe; 2 is called Ray; 3 is called Mee; 4 is called Faw, (à as in *far*;) 5 is called Sole; 6 is called Law, (à as in *far*;) and 7 is called See. The same syllable

and the same note being always applied to the same number of the scale.

This C scale, and the succeeding scales, should be practised first continuously, and then by skips, as 1, 3, 5, 8;—1, 5;—1, 5, 8;—1, 8, &c., until (the key being given) the pupil can give the sound of any number required, or of any note pointed out on the staff.

QUESTIONS.

How is the pitch of sounds indicated? [Ans. By the position of the notes on the staff.] What is this scale called? What do you understand by the key? What do the numerals under the staff show? [Ans. The natural rise and fall of the voice.] In singing the scale,

QUESTIONS.

why use seven syllables? What names are used? Is the same name or syllable always given to the same number? On what line or space is Doe in this scale? On what is Mee? On what is Sole? Sing the scale.

G SCALE.

Key of G

1 2 3 4 5 6 7 1 2 3 4 5 6 7 1

Voice.

Instrument.

G A B C D E F # G A B C D E F # G

This is called the G scale, because G is the key or governing sound of the scale.

The natural rise and fall of the voice is the same, whatever may be the key.

Different letters or sounds are taken as the key, in order to produce a greater variety in the combination of sounds.

INSTRUMENTAL.

In this scale G is taken as the key, consequently the voice, which naturally produces the half-intervals between 3 and 4 and between 7 and 8,

QUESTIONS.

What letter or sound is taken as the key in this scale? Does the voice rise and fall from G in this scale precisely as it does from C in the C scale? Why take different letters or sounds as the key? On what line or space is D in this scale? On what line or space is Sole? Sing the scale.

Instrumental.—Between what letters do the half-intervals occur in this scale? Does the

will produce them between B and C, and between F and G; the half-interval between B and C on the instrument will correspond with the voice between 3 and 4, but the half-interval between E and F will not correspond with the whole-interval between 6 and 7 in the voice. Instruments, therefore, in order to perform this scale, must be constructed so as to produce an intermediate sound between F and G, conforming to the whole-interval between 6 and 7 in the voice.

A sound thus raised a half-interval is said to be *sharped*, marked thus #. Hence the rule, ♯ When G is the key, F must be played sharp to form the seventh of the scale.

NOTE.—A flat 7th in the key of G is played on F.

QUESTIONS.

instrument ascend and descend the octave from G in this scale as it does from C in the C scale? What sound or sounds not introduced in the C scale are required in order to form the scale on G? What letters are performed differently? Why is F played sharp? [Ans. To make the instrument correspond with the voice.] What is meant by F #? What is the rule for performing this scale?

D SCALE.

Key of D

Voice.

Instrument.

In this scale, D is the key or governing sound ; it is therefore called the D scale.

The gradation of sounds as produced by the voice is the same whatever may be the key.

INSTRUMENTAL.

In this scale D is assumed as the key.

From D=1 to E=2 is a whole-interval on the instrument. From E=2 to F#=3 is a whole-interval. From F#=3 to G=4 is a half-interval.

QUESTIONS.

What letter is taken as the key or governing sound in this scale? Does the voice produce the same gradation of sounds when it assumes D as the key, as when it assumes C? What name or syllable is applied to the note on D in this scale? How often does Doe occur in this scale? How often does Faw? Sing the scale?

Instrumental.— Between what letters does the ear require the half-intervals in this scale?

C

From G=4 to A=5 is a whole-interval. From A=5 to B=6 is a whole-interval. From B=6 to C=7 is a half-interval. But the voice naturally rises a whole-interval from 6 to 7.

Instruments therefore, in order to perform this scale, must, in addition to being capable of making F#, be constructed so as to make an intermediate sound between C and D called C#. Then from B=6 to C#=7 is a whole-interval, and from C#=7 to D is a half-interval, which completes the octave.

Rule. When D is the key, F and C must be played sharp.

QUESTIONS.

What sounds different from those necessary in the C scale are required to perform this? What letters are required to be performed differently? Why? [Ans. To make the instrument please the ear and correspond with the natural rise and fall of the voice.] What is the rule for performing this scale?

A SCALE.

Key of A

Voice.

Instrument.

In this scale, A is the key or governing sound; it is therefore called the A scale.

The voice ascends and descends the octave by the same steps, whatever may be the key.

INSTRUMENTAL.

In this scale A is taken as *one*, or the key; consequently, as may be seen at once, an additional intermediate sound will be required between G and A.

QUESTIONS.

Why is this called the A scale? What do you understand by the key? On what line or space in this scale is Doe? What name do you give the note on the third line? Sing the scale?

Instrumental.—What sounds additional to those necessary in the C scale are required in

Instruments, therefore, in order to perform this scale, must be capable of elevating G a half-interval, or of making G# as well as F and C.

Rule.—When A is the key, F, C, and G must be played sharp.

This scale may be performed by assuming A b as the key or governing sound, then observe the following

Rule.—When A b is the key, B, E, A, and D must be played flat.

QUESTIONS.

this? Where does the ear require the half-intervals in this scale? What letters are performed differently? What is the rule for performing this scale? What is the second rule? Do the numerals, syllables, and notes occupy the same lines and spaces when this scale is performed with three sharps as with four flats? [Ans. They do.]

F SCALE.

Key of F

Voice

Instrument.

This is called the F scale, because F is the key or governing sound of the scale.

The natural rise and fall of the voice is always the same.

INSTRUMENTAL.

In this scale F is taken as the key. F is 1. From F to G is a whole-

QUESTIONS.

What letter is the governing sound in the ear and voice in this scale? Does the voice rise and fall from F in this scale as it does from C in the C scale? Where is *Doe* in this scale? On what line or space is *Sole*? Sing the scale.

interval—from G to A is a whole-interval. From A to B is a whole-interval; but this will not correspond with the voice, which naturally rises and falls a half-interval between 3 and 4. We must therefore have an intermediate sound between A and B, called B flat—marked thus *b*.

Rule.—When F is the key, B must be played flat to form the fourth of the scale.

NOTE.—A sharp 4th in the key of F is played on B.

QUESTIONS.

Instrumental.—What sound or sounds besides those introduced in the C scale are required to perform this? What letter is to be performed differently? When a letter is performed a half-interval lower what is it called? What is the rule for performing this scale?

ELEMENTS OF MUSIC.

B \flat SCALE.

Key, B \flat

Voice.

Instrument.

In this scale, B flat is the key or governing sound ; it is therefore called the B \flat scale.

The voice naturally rises and falls by the same intervals, whatever may be the pitch of the key.

INSTRUMENTAL.

In this scale B \flat is taken as the key or governing sound. And to

QUESTIONS.

On what line or space is *Doe* in this scale ? What note is on the second line and first space above ? How many times does *Doe* occur in this scale ? What is the name of the note on the added line above ? Sing the scale.

Instrumental.—What is the pitch of the key in this scale ? Does the inst. ascend or de-

perform this scale an intermediate sound between D and E is required, called E \flat .

Rule.—When the *key* or governing sound is B \flat , B and E must be played flat in every octave.

[NOTE.—This scale is played with B \flat and E \flat as a convenience to the instrumental performer.

Take B as the key or governing sound, and it will be necessary to play five sharps, in order to make the instrument correspond with the natural rise and fall of the voice.]

QUESTIONS.

ascend the octave by the same degrees from B \flat as it does from the key of C ? What sounds different from those in the C scale are required to perform this scale ? [Ans. Intermediate sounds between A and B and between D and E.] What letters are performed differently ? What is the rule for performing this scale ?

E \flat SCALE.

In this scale, E flat is the key or governing sound ; it is therefore called the E \flat scale.

The voice rises and falls by the same intervals, whatever may be the pitch of the key.

In the preceding scales, the *key-note*, *Doe*, has been so varied as to occupy every letter on the staff.

INSTRUMENTAL.

In this scale the pitch assumed is E \flat . To perform this scale no additional sound is required different from those in the preceding scales. A

QUESTIONS.

Is the natural rise and fall of the voice always the same, whatever may be the pitch of the key? In the preceding scales has the key-note been on every letter on the staff? Why are only seven letters used? [Ans. Because seven are all that can be used on an instrument, which limits seven to the staff.] What is the use of taking different letters or sounds as the key? [Ans. It produces a greater variety in the combination of sounds.] Is it easier or more natural to sing in one scale than another? On what line or space is *Doe* in this scale? Is the syllable *Doe* always applied to the key or governing sound? What syllable is always applied to the 3d sound of the scale? What to the 5th? What to the 7th? What to the 2d? Sing the scale.

must be played flat, but G \sharp has been already introduced and is precisely the same sound.

Rule.—When the key or governing sound is E \flat ,—B, E, and A must be played flat.

This scale may be performed by assuming E as the key or governing sound, then observe the following

Rule.—When E is the key, F, C, G and D must be played sharp.

Instruments, in order to perform the scale based on every letter, must, it is evident, be constructed upon a scale of half-intervals. Accordingly all correct instruments are so made.

QUESTIONS.

Instrumental.—What is the key or governing sound of this scale? Is any sound different from those already introduced necessary to perform this scale? Is A \flat the same as G \sharp ? Is the sharp of any letter the same as the flat of the one next above it? What sounds different from those in the C scale are necessary to perform this? [Ans. An intermediate sound between A and B, D and E, G and A.] What letters must be performed differently? What is the rule for performing this scale? Must an instrument be constructed upon a scale of half-intervals, in order to perform the scale based on every letter? Can instruments thus made perform this scale of notes by assuming E as the key? What is the rule? Do the numerals, syllables, and notes occupy the same lines and spaces when this scale is performed with three flats as with four sharps? [Ans. They do.]

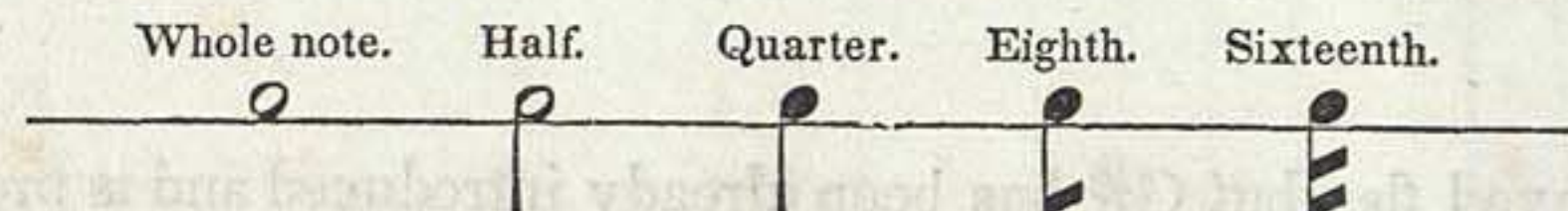
SECOND DEPARTMENT.—LENGTH.

THE consideration of the length of sounds naturally follows that of pitch. The first question in regard to notes is, What sounds do they represent? Or what is their pitch? The second question is, How long are these sounds to be continued?

We have heretofore considered sounds in reference only to their pitch, and their relation to each other as high or low.

The pitch of sounds is not affected by their length. The same sounds, of whatever pitch, may be continued for a longer or shorter time.

The notes (Doe, Ray, Mee, Faw, Sole, Law, See) which represent *pitch*, also represent *length*, by adding a stem, &c., as in the following illustration:



These notes represent five varieties of length, each having its appropriate name expressive of its relative length.

A *dot* (·) adds to a note one half its length.

Thus, a dotted half-note ♩· is equal to three quarters ♪♪♪ or ♩ ♩

A dotted quarter ♪· is equal to three eighths ♪♪♪ or ♪ ♪

It should be observed that these notes, whole, half, quarter, &c., do not indicate the positive, but only the relative length of the sounds which they represent. Thus, if the whole note be considered as representing a sound to be continued four *seconds*, the half-note must have two seconds; the quarter, one

QUESTIONS.

What is the first consideration in regard to sounds? What is the second? Are we now to consider the same high and low sounds as long or short? Does the pitch of a sound affect its length? How is the length of sounds designated? How many kinds of notes are used? What are their names? What one note is equal to two halves? What note is equal to two quarters? What note is equal to two quarters and four eighths, &c.? Have

second; the eighth, half a second; the sixteenth, the fourth of a second; and the dotted whole note, six seconds; the dotted quarter one second and a half.

Or if to the quarter be given two seconds, the half-note must be four, the whole note eight, the dotted quarter three seconds, &c., each note claiming its relative length in comparison with the others.

The time occupied in the performance of a piece of music, or of any particular passage, is governed by the nature of the music or the character of the sentiment; according to the taste, judgment, or habit of the performer.

A general idea of the movement of a tune, or of a particular passage, is suggested by the use of the following terms, viz.: Moderate—slow—very slow—lively—very lively, &c.

Measures.—To regulate the time, and to preserve equability throughout, written music is divided into equal portions called *measures*.

Bars.—The measures are marked off by straight lines drawn across the staff, which are called *bars*.

Each measure, or portion between the bars, must occupy the same time in the performance, whatever may be the number of the notes.

Measures are divided into smaller portions, called *parts of measures*. There are two kinds of measures, equal and unequal.

A measure with two parts is called *equal measure*.

A measure with three parts is called *unequal measure*.

Music written with equal measure is in equal time, and is marked $\frac{2}{2}$ because two half-notes constitute a measure.

Music written with unequal measure is in unequal time, and is marked $\frac{3}{2}$ because three half-notes constitute a measure.

The unequal measure is sometimes doubled, and forms what is called *compound time*. It is marked $\frac{6}{4}$ because six quarter-notes constitute a measure.

QUESTIONS.

notes any positive length? How then? What is to be our guide as to the time to be occupied in singing a piece of music? How is an idea of the time suggested? What are measures? For what are they used? What are bars? How are measures divided? How many kinds of measures are there? What is equal measure? What is unequal measure? How is a quarter note known from an eighth? [Ans. The eighth has one mark on the stem.]

To aid in the computation and equal division of the time, certain regular motions of the hand are made; this is called *beating time*.

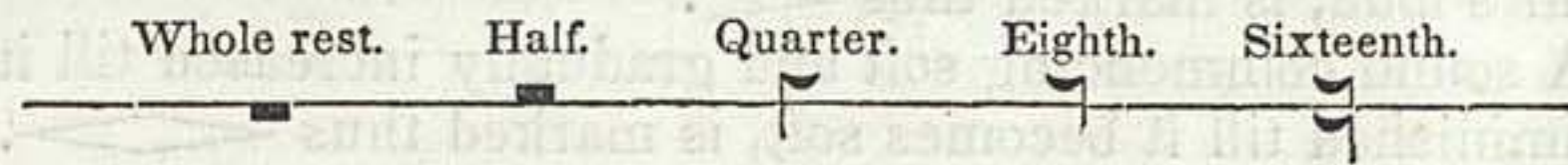
Equal measure has two beats, one to each part of a measure; the first *down*, the second *up*.

Unequal measure has three beats, one to each part of a measure; the first *down*, the second *horizontally*, to the left, the third *up*.

Compound time has two beats to the measure, with three quarter-notes, or their value, to each beat.

Rule.—The downward beat always begins the measure.

Rests.—There are five different *rests*, or marks of silence, corresponding in time to the five different kinds of notes, as follows:



A *dot* (·) adds to a rest one half its length.

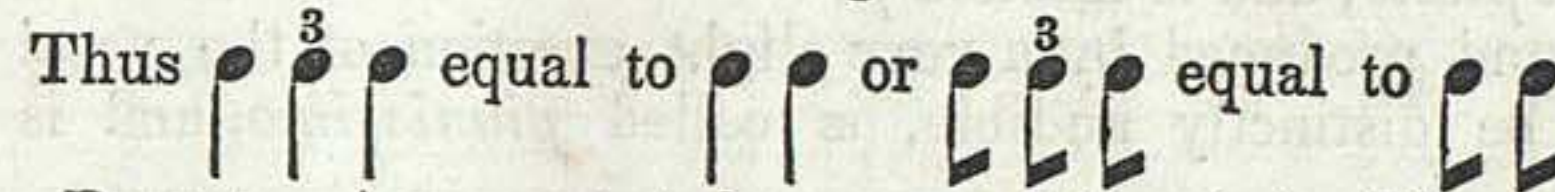
A *pause* (⤿) is sometimes used. The notes over or under which it is written are to be prolonged indefinitely at the pleasure of the performer.

Staccato.—When a note or several notes are to be performed in a short, pointed and distinct manner, the *staccato* (†) is used.

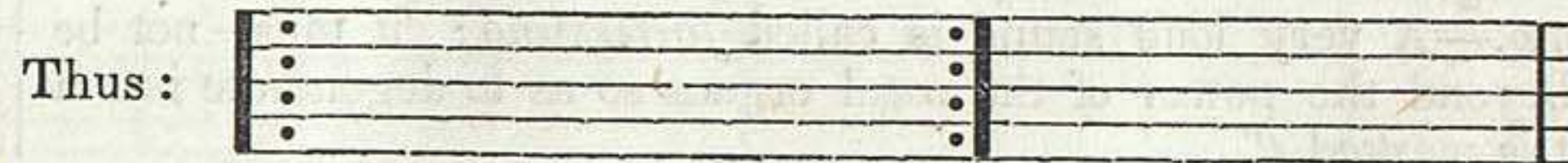
Slur.—When one syllable of poetry is to be applied to two or more notes, a *slur* is drawn over or under them, or the stems of the notes are connected.



Triplets.—When three notes are to be performed in the time of two of the same nominal value, the figure 3 is written over or under them.



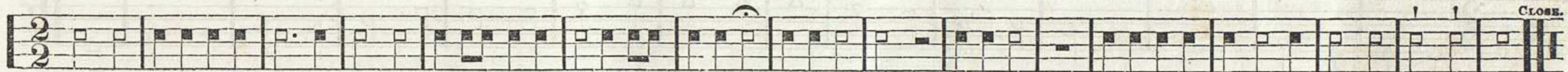
Repeat.—A passage to be repeated is embraced between two dotted lines across the staff.



A *double bar* (||) shows the end of a strain of the music, or of a line of the poetry.

PRACTICAL EXERCISES.

EQUAL TIME.



UNEQUAL TIME.



QUESTIONS.

What is the use of beating time? How many beats has equal time? How many has unequal? In what part of the measure does the hand descend in beating time? What are rests? How many are used? For what is the pause used? For what is the staccato used?

QUESTIONS.

What is the use of a slur? What effect is intended by the figure 3 over or under three notes? When a passage is to be repeated, what sign is used? What is the use of the double bar? What is the sign of equal time? What of unequal time?

THIRD DEPARTMENT.—FORCE.

MUSICAL sounds may be loud, very loud, soft, very soft, moderate, or ordinary as to force, without effecting their pitch or length.

Medium.—A sound produced by the ordinary action of the organs of voice or of an instrument is a medium sound, and is marked *m*.

Piano.—A sound produced by the vocal organs, somewhat restrained, is a soft sound; it is called *piano*, and is marked *p*.

Pianissimo.—A sound produced by a very slight exertion of the vocal organs, yet so as to be distinctly audible, is called *pianissimo*, and is marked *pp*.

Forte.—A loud sound called *forte* is produced by a strong and full exertion of the vocal organs. It is marked *f*.

Fortissimo.—A very loud sound is called *fortissimo*; it must not be attempted beyond the power of the vocal organs so as to degenerate into a scream. It is marked *ff*.

Accent.—*General rules*. 1st. The first note in every measure must be accented.

2d. When there is more than one note to a beat, the first is accented.

3d. In unequal time, when the measure is filled with two quarters and two half-notes, the first half-note is accented.

Organ sounds.—A sound which is commenced, continued, and ended with an equal degree of force is called an organ sound.

Diminishing sound.—A sound commencing loud, and gradually diminished until it becomes soft, is marked thus \rhd .

Increasing sound.—A sound commencing soft, and gradually increased until it becomes loud, is marked thus \triangleleft .

Swell.—A sound commencing soft and gradually increased till it becomes loud, then diminished till it becomes soft, is marked thus \diamond .

Pressure tone.—A very sudden swell is marked thus \diamond .

Explosive tone.—When a sound is to be struck with very great force, and instantly diminished, it is marked thus \triangleright .

PRACTICAL EXERCISES.

The first staff is in 2/2 time, key of C. It contains 12 measures with dynamics: *pp*, *p*, *m*, *f*, *ff*, *pp*, *p*, *m*, *f*. The notes are: C4, G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4.

The second staff is in 3/2 time, key of C. It contains 12 measures with dynamics: *p*, *m*, *p*, *ff*, *f*, *m*, *p*, *pp*, *m*, *f*, *ff*. The notes are: C4, G4, A4, B4, C5, B4, A4, G4, F4, E4, D4, C4.

QUESTIONS.

How are musical sounds distinguished in regard to force? What letter is used to signify medium? What letter is used to signify soft? What letter is used to signify very soft?

QUESTIONS.

What does *f* signify? What does *ff* signify? What is the first rule for accent? What is the second rule? What is the third rule? What is an organ sound?

ELEMENTS OF MUSIC.

PRACTICAL EXERCISES.

1. *Key of C*

2. *Key of C*

3. *Key of C*

4. *Key of C*

5. *Key of C*

6. *Key of G* **Written.**

7. *Key of C* **D**

ELEMENTS OF MUSIC.

The diagram illustrates the human voice compass and its relation to musical staves. It features four staves: Treble & Alto, Tenor & Base, and a chromatic scale below. The chromatic scale consists of 24 notes: G, A, B, C, D, E, F, G, A, B, C, D, E, F, G, A, B, C, D, E, F, G. Brackets above the staves show the range of notes for different voice parts: Alto (G to G), Treble (G to G), Tenor (G to G), and Base (G to G). A key signature of C is indicated. Below the chromatic scale, two brackets define the voice compasses: 'Compass of the male voice after the change' (from G to G) and 'Compass of the voice of females, also of boys before the change' (from G to G).

In the preceding scales, we have already seen that an instrument, in order to perform tunes written in all the various keys, must be constructed upon a scale of half-intervals.

But this figure in connection with the staff, &c., is introduced with a view of illustrating the relations of the different voices.

The human voice is divided into four classes. The treble or highest voice of females, the alto or lowest voice of females. The tenor or highest voice of males, and the base or lowest voice of males. The brackets above and below the staves show the range of sounds from which the different parts are ordinarily written.

The sound called G on instruments is about the centre of the compass of the voice; it is, therefore, written on the middle of the staff, and the other sounds or letters located accordingly. It must be remembered, however, that

QUESTIONS.—Into how many classes of sounds is the human voice divided? Why is the letter G placed on the third or middle line of the staff? What is the relation of the male voice to that of the female? [Ans. The male voice after the change is an octave lower.] Does an instrument require three octaves to play two octaves of written music?

the voice of boys—which corresponds with that of females, and is classed with the alto—undergoes a change before they arrive at maturity, and is depressed an entire octave. The voice after the change is on the tenor and base staff.

On referring to the tunes, it will be seen that the music for the four classes of voices is written on four staves, marked *base*, *treble*, *alto*, and *tenor*. The G on the middle line of the base and the tenor staves, representing the centre of the ordinary compass of the voice of males, is an octave lower than G on the treble and alto staves. Performers on the organ, piano-forte, melodeon, &c., should not forget that the notes written upon the base and tenor staves are to be played an octave lower than the notes written upon the treble and alto staves. Instruments must have a compass of at least three octaves, to embrace these voices, or to play two octaves of written music.

NOTE.—Instruments may be constructed or tuned to different sounds. For example, the German flute is based upon D, some of the clarinets upon B_b, and others upon E_b. The church organ, piano-forte, and several other leading instruments are constructed or tuned to the sound called C. This key, or scale, is therefore called *natural* to instruments, and is made the universal standard of reference and comparison.

CHROMATIC SCALE.

Key of C

△	♯△	○	♯○	◇	△	♯△	○	♯○	□	♯□	▽	△	▽	♭▽	□	♭□	○	♭○	△	◇	♭◇	○	♭○	△	
1	♯1	2	♯2	3	4	♯4	5	♯5	6	♯6	7	8	8	7	♭7	6	♭6	5	♭5	4	3	♭3	2	♭2	1
Doe	Dee	Ray	Ree	Mee	Faw	Fee	Sole	See	Law	Lee	See	Doe	Doe	See	Say	Law	Lay	Sole	Say	Faw	Mee	May	Ray	Raw	Doe

It is proved by instruments that the less intervals which occur between 3 and 4, and between 7 and 8, are precisely half as great as those which occur between the other sounds of the octave.

Now between the other sounds of the octave it has been found by experience that the voice, by an effort, may produce intermediate sounds. Thus intermediate sounds may be produced between 1 and 2, 2 and 3, 4 and 5, 5 and 6, and between 6 and 7; but not between 3 and 4, and 7 and 8, because the intervals between those sounds are naturally half-intervals, and no smaller interval is practicable.

The notes representing intermediate sounds may be written on the same line or space of the staff with either of the notes between which they occur. Thus, the note representing the sound between 1 and 2 may be written on the same line or space with either of those notes. 1 may be elevated a half-interval, or 2 may be depressed a half-interval, and the same sound will be produced.

If it is proposed to elevate the lower sound, a ♯ is used, and the sound is called a sharp 1st, a sharp 4th, &c.

If it is proposed to depress the upper sound, a ♭, (the sign of depression,) is used, and the sound is called a flat 3d, a flat 7th, &c.

☞ A sharp (♯) elevates the pitch of a note a half-interval.

QUESTIONS.

How is it proved that the less intervals are half as great as the whole-intervals? Between what numbers of the octave may the voice produce intermediate sounds? Are the intervals thus produced natural? Why may we not have intermediate sounds between 3 and 4, and between 7 and 8? What is a Chromatic scale? [Ans. A scale of half-intervals.] How are intermediate sounds written on the staff? What character is a sign of elevation? What is the sign of depression? Where a note appears on the staff with a ♯ prefixed, how is it

☞ A flat (♭) depresses the pitch of a note a half-interval.

In the application of names to the intermediate sounds, the voice is assisted in producing the proper elevation or depression by changing the vowel sound of the syllable used. Thus when a sharp occurs before Doe, Ray, Faw, &c., these syllables should be pronounced Dee, Ree, Fee, &c. When a flat occurs before a note, the intermediate sound should be attempted by pronouncing See, Mee, &c. thus, Say, May, &c.

In attempting to sing this scale, it will be difficult to obtain the artificial sounds perfectly without the aid of an instrument.

In the practice, therefore, an instrument should always be introduced as a guide, that shall give the intermediate sounds with accuracy and certainty.

In the preceding scales the key has been so varied as to occupy every letter on the staff and every variety of high and low sounds exhibited, requiring only to extend the scales higher and lower in order to reach the widest range of instruments. From these scales all music is written, of whatever character, and from them every possible combination of sounds may be made.

NOTE.—A tune may be written upon two or more scales; that is, a piece of music may commence in one key, and during its progress be changed into another key, which is called modulation. When the change is continued several measures, the syllables should be changed, (see page 332,) but when the change is made for one or two notes only, the ♯4th, or ♭7th, &c., should be introduced; hence the necessity of singers practising the chromatic scale.

to be sung? How when a ♭ is prefixed? Is it any advantage in singing sharped or flatted notes to change the pronunciation of the syllables? What change is recommended?

Instrumental.—When a note appears on the staff with a ♯ prefixed, how is it to be played? [Ans. The sound is to be raised a half-interval in the key in which the tune is written.] When a ♭ how? [Ans. The sound is to be lowered a half-interval in the key in which the tune is written.] When a ♯ 4th occurs in the key of F, how is it to be played? [Ans. On B.] When a ♭ 7th occurs in the key of G, how is it to be played? [Ans. On F.]

CHAPTER IV

OF THE NATURE OF SOUND



The nature of sound is a subject of great importance in the study of acoustics. It is a phenomenon that has fascinated mankind since the beginning of time. The study of sound is a branch of physics that deals with the production, propagation, and reception of sound waves. Sound is a form of energy that travels through a medium in the form of longitudinal waves. The particles of the medium vibrate parallel to the direction of the wave's travel. The frequency of the vibration determines the pitch of the sound, while the amplitude determines its loudness. Sound waves can travel through solids, liquids, and gases, but they cannot travel through a vacuum. The speed of sound varies depending on the medium and the temperature. In air at room temperature, the speed of sound is approximately 343 meters per second. The study of sound has many practical applications, including the design of musical instruments, the development of soundproofing techniques, and the use of sound in medical diagnostics. The human ear is a complex organ that is capable of detecting a wide range of sound frequencies. The ear consists of three main parts: the outer ear, the middle ear, and the inner ear. The outer ear collects sound waves and directs them into the ear canal. The middle ear contains three small bones that amplify the vibrations and transmit them to the inner ear. The inner ear contains the cochlea, which is a spiral-shaped structure that converts the mechanical vibrations into electrical signals that the brain can interpret as sound. The study of the human ear has led to the development of hearing aids and other devices that help people with hearing impairments. Sound is also an important part of our daily lives. It allows us to communicate with each other and enjoy music. It is also a warning system that alerts us to danger. The study of sound is a fascinating field that continues to expand our understanding of the natural world.

DEFINITIONS

Sound is a form of energy that travels through a medium in the form of longitudinal waves. The particles of the medium vibrate parallel to the direction of the wave's travel. The frequency of the vibration determines the pitch of the sound, while the amplitude determines its loudness. Sound waves can travel through solids, liquids, and gases, but they cannot travel through a vacuum. The speed of sound varies depending on the medium and the temperature. In air at room temperature, the speed of sound is approximately 343 meters per second. The study of sound has many practical applications, including the design of musical instruments, the development of soundproofing techniques, and the use of sound in medical diagnostics. The human ear is a complex organ that is capable of detecting a wide range of sound frequencies. The ear consists of three main parts: the outer ear, the middle ear, and the inner ear. The outer ear collects sound waves and directs them into the ear canal. The middle ear contains three small bones that amplify the vibrations and transmit them to the inner ear. The inner ear contains the cochlea, which is a spiral-shaped structure that converts the mechanical vibrations into electrical signals that the brain can interpret as sound. The study of the human ear has led to the development of hearing aids and other devices that help people with hearing impairments. Sound is also an important part of our daily lives. It allows us to communicate with each other and enjoy music. It is also a warning system that alerts us to danger. The study of sound is a fascinating field that continues to expand our understanding of the natural world.