

Review

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ingenious orchestral combinations. Little or no "development," in the ordinary acceptation of the term, is attempted; the composer choosing to leave the simple melody supreme, and confining himself within the limits just described. Upon the manner in which he has discharged his task we are bound to compliment him. The orchestration is everywhere piquant and charming; while the treatment of the melodies, without lacking plenty of musicianship, rarely fails to be in harmony with their character. As to the melodies themselves, those who know the "native wood-notes wild" of Scandinavia, with their strange mixture of joy and sadness, need not to be told how fresh and attractive they are. Passing over the details of each work, only to be made intelligible by copious use of music-type, we will content ourselves by assuring orchestral Conductors who desire new music adapted to interest learned and unlearned alike that in these Rhapsodies they may find it.

*Novello's Music Primers.* Edited by Dr. Stainer.

*The Scientific Basis of Music.* By W. H. Stone, M.A., M.B., Oxon., &c.

[Novello, Ewer and Co.]

To seize the spirit of this useful treatise we should, as the author indicates, accustom ourselves to look upon any musical instrument as a scientific apparatus. Setting aside for a moment its legitimate purpose, it is well to think of the instrument as a means of demonstrating modes of vibration or wave-motion.

Beginning, as he tells us, with the measured beat of the pendulum, vibration is traceable in the most complex phenomena of heat and light. Its operation, however, can be made more obvious in a coarser medium like water, and to a less degree in the atmosphere. The effects of those atmospheric vibrations on our organs of hearing we call *sound*. In spite of popular scientific works and "Music Primers," it is not every one yet who habitually thinks of light and sound as only relatively existent and dependent on the sensibility of specific nerves in the eye or the ear.

What Dr. Stone refers to as the "great modern generalisation of *vibration*" was foreshadowed a century and a quarter ago by Dr. Robert Smith in the preface to his "Harmonics." He said, "Almost all sorts of substances are perpetually subject to very minute vibrating motions, and all our senses and faculties seem chiefly to depend upon *such motions excited in the proper organs* either by outward objects or the power of the will."

"Modern generalisations" have only confirmed, and have not exceeded, what Dr. Smith so plainly predicted in the words we have placed in italics. In reading treatises on the scientific basis of music we cannot therefore too clearly understand that the basis assumed is purely a question of *sensation*; that is to say, in the first instance of the crude, rudimentary effects of atmospheric vibrations. Dr. Stone is of opinion that the vibration theory "will one day with certainty embrace the marvellous manifestations of electricity." Very likely; and it will probably get beyond even that. Meantime we have to make certain arbitrary distinctions between the sensation excited by the "outward object" and our perception of the sound as affected by the mind or the will. For example, the brilliancy of the prismatic colours and their complementaries, being a question of vibration and ratio, completely illustrates the effect of pure and agreeable sensation, just as a chord in music will when mathematically correct. But the artist generally rejects brilliant colours; and it is not because they are brilliant or agreeable as separate sensations, but because his first care is what he calls the "general tone" of his picture—that is, the co-ordination of the whole to some central point of attraction; and if necessary he will sacrifice scientific detail to that end.

Considering then the "scientific basis of music" to be primarily a question of sensation, we will religiously follow Dr. Stone within those limits, and we wish for no better guide.

We are at once reminded by the author of the difficulty of conceiving the form and mode of propagation of an aerial vibration. "A bell," he says, "when rung in open air or deep in still water, throws off spherical shells of alternate condensation and rarefaction, expanding equally

and simultaneously in all directions until they meet with an obstacle." Supposing the atmosphere, we might say, to be the clear deep water, those of us standing in any direction in the neighbourhood of the bell would be enveloped in a tremor or fog *visible only to the ear*, the words *visible* and *audible* being merely linguistic expressions to convey the result of more or less the same process as affecting different organs. Hence when by a figure of speech we speak of the direction of a ray of light or of a radius of sound from its source to the corresponding organ of sight or hearing, we illustrate our meaning in both cases by straight lines when the media are homogeneous, although, as Dr. Stone says, "the wave of sound emitted by a sonorous body is ill represented by the ordinary conception of a straight line."

He explains to us that the sound-wave does not involve the transmission of a material substance; "it is not like the flight of a cannon-ball from point to point; it does not move as a whole. Each particular atmospheric molecule moves only an infinitely small distance." We are to understand that when the "particular molecule" has given its nudge to its neighbour it returns—as exemplifying what we call the elasticity of the air or whatever the medium is—to its original place. The succession of nudges causes that "thrill" we perceive even by another sense, the touch, and call "vibration." The extent to which the vibrating particle moves out of its original place to nudge its neighbour is called the *amplitude* of the vibration, and determines the *loudness* of the sound. The rapidity or velocity with which it moves determines the *pitch* of the sound.

Dr. Stone quotes from Dr. Haughton's "Natural Philosophy" an amusing and familiar illustration of the production of a musical note by regular and periodic vibrations at a certain velocity. Their regularity or periodicity distinguish them from vibrations which are unmusical or which create mere noise. "The granite paving-stones of London are four inches in width, and cabs driving over the pavement at eight miles an hour cause a succession of noises at the rate of thirty-five in the second which correspond to a well-known musical note, and one that has been recognised in the silence of the night by many competent observers. Nothing can be imagined more purely a noise, or less musical, than the jolt of the rim of a cab-wheel against a projecting stone; yet, if a regular succession of such jolts takes place, the result is a soft, deep, musical note that will bear comparison with notes derived from more sentimental sources."

The *quality* of the sound depends on the shape of the wave, which may be a simple curve, like that given by a stroke of the pendulum, or a compound of several simple curves. The varieties of amplitude and velocity—that is to say, the different intensities and differences in pitch of those constituent simple vibrations in the compound wave—determine the peculiarities in quality of tone between one voice and another or one instrument and another.

It is that part of the question relating to *partial tones* or "harmonics," together with the effects of third sounds, "difference tones," and summational tones, produced by the conflict of the vibrations of two sounds, which form the newest and the most interesting part of the "Scientific Basis of Music," as far as musical people are concerned. Under the heads of "Musical Tone," "Harmonics," "Consonance," "Quality," "Concord and Discord," and "Resultant Tones," those two parts of the subject are treated clearly and, we may add, completely for all ordinary purposes in the Music Primer we are reviewing. When the latest acoustical facts and theories are thus picked out and, from a musical point of view, presented in so convenient a form to the amateur or musician, there can be no excuse for any further absolute ignorance on such topics. Without some knowledge of these questions, a great deal of the musical literature of the day is unintelligible, as must be a great deal of the common conversation in the more cultivated musical circles. An advantage in Dr. Stone's Manual is that it gives the scientific matter in the proper shape of a compact digest of the best authorities on the specific points treated, whether they be questions of acoustics or of different kinds of temperament, of scale or of keyboard; and he refers his readers to the responsible authorities, whether those

authorities be Helmholtz, or Mr. Ellis, Mr. Bosanquet, Mr. Curwen, or Mr. Colin Brown. As in all the Primers we have seen of the same series, there is a laudable effort on the part of the author to sink his individual opinion. The rule, however good in principle, need not be followed too implicitly. Indeed, one of the best chapters in the present book consists of a reprint of an article on just intonation in the orchestra, written by the author in a now defunct journal, *Concordia*. When we once pass the pure scientific basis, when we get beyond, let us say, "summational tones," and follow the Primer into questions of scale and temperament, we are on the dubious border-land between music and science. Dr. Stone gathers together from several and original sources the explanations as well as the graphic illustrations of finger-boards adapted for playing in more or less just intonation on keyed instruments. The illustrations represent those invented by Colonel Perronet Thompson, Mr. Poole, Mr. Bosanquet, and Mr. Colin Brown. As they all slightly differ, and only very slightly, in regard to their mathematical principles, the question becomes which of the six systems alluded to in the text is the least inconvenient for practical purposes. That matter must be left to individual appreciation.

We cannot attempt to point out a tittle of the information contained in this Primer on the specially scientific questions, such as, for instance, the "sources of sound" in pipe, string, membrane, &c. That particular subject is exceedingly well treated; and on some of those points Dr. Stone is himself a practical experimenter and an authority. Apart from its merits we strongly recommend the book to musicians, as well as amateurs who do not wish to horrify Dr. Macfarren by taking up music merely as an "amusement;" or to remain apart from the musical world, as they assuredly will in these days, if they cannot at least understand the elementary questions of the scientific basis of the art.

*Mass (Regina Cæli) in D major.* By Thomas Wingham (Op. 14). [Novello, Ewer and Co.]

It is some recommendation for this work that on its title-page we read, "Composed expressly for, and first performed at, Antwerp Cathedral, August 15, 1876." We know at once that it has passed successfully through an ordeal not lightly applied, and that it has received the approval of competent musical authority. Mr. Wingham may consider himself fortunate in being able to send forth his Mass under such circumstances; but we are more disposed to felicitate him upon the manner in which, having an opportunity that falls to few, he discharged the task of its composition. Young men are fond—and the instinct is, on the whole, healthy and natural—of striking out new paths; wherefore, had Mr. Wingham sought at any cost to be startlingly original he would have given no cause for surprise. But he restrained himself within the bounds of classic precedent, and hence we have before us a work strictly orthodox alike in outline and detail—one which almost ostentatiously declares itself inspired by the masters of art. As, however, there are masters and masters, Mr. Wingham had to make a choice of schools. He might, for example, have followed in the wake of M. Gounod with his sensuous effects, or emulated the free and passionate outpourings of modern Italians. But he did wisely to reject these in favour of the style of Haydn and Mozart, with certain modifications to suit the graver taste of our day. In choosing this he not only secured the well-accustomed English ear, but also opportunities of exhibiting the solid musicianship which previous works had shown him to possess. His musicianship, however, is somewhat too exclusively exhibited in the "Kyrie," the contrapuntal treatment of which, though clever, is dry, and takes from the opening prayer the deep sentiment it ought always to possess. But no analogous criticism can be passed upon the first portion of the "Gloria," which breathes the frank and joyous spirit, relieved by the occasional tenderness and grace, of Haydn. The "Qui tollis" touches a chord of deeper tone, and is altogether a worthy and interesting feature of the Mass. At the "Tu quoniam" Mr. Wingham returns to the music of the opening "Gloria," by way of preparation for an animated fugue, "In gloria Dei patris." The fugue, though not elaborated at great length, is well wrought, and does credit to its composer's contrapuntal studies. We may hint nevertheless that it

exhibits rather too great a fondness for the cheap device of sequence—one which should be used with all the more care because so easily abused. The opening movement of the "Credo," a smooth piece of work, calls for no particular observation; but the "Et incarnatus" is worthy of notice as what it should be—a striking and impressive episode. The entrance of the unison voices on the word "Crucifixus," and against repeated diminished seventh chords in the orchestra, is happily managed with a view to the desired effect; but, indeed, the entire movement speaks well for Mr. Wingham's skill and illustrative power. The "Credo" ends, according to classic precedent, with a fugue, "Et vitam venturi," which, like its predecessor, is not extended, but supplies a good example of clear and fluent contrapuntal writing. Adopting a plan for which there are few, if any, precedents, Mr. Wingham employs in his Offertory three solo violins only (*adagio*). Whether anything save novelty is gained by this as against a movement for full orchestra is open to question; nor is the movement of such a character as to incline us in the composer's favour. It is a plain straightforward piece of work enough, without any specially interesting features. There are good points in the six-part "Sanctus," more especially in the treatment of the words, "Pleni sunt cæli," which is bold and striking; while the "Benedictus" has precisely the needed spirit of entreaty and restful hope. In the first part of this movement Mr. Wingham follows a plan Schubert loved to adopt, by giving the *solo* voices in succession the same extended theme. Subsequently the chorus joins the *soli*, and the movement receives considerable expansion, retaining its interest to the end. The "Hosanna" is curious as being constructed, with the exception of a few opening and closing bars, upon a dominant pedal bass, above which a short movement in fugal style disports itself. Finally, the "Agnus Dei," copying illustrious models, reverts to the music of the "Kyrie," and a brief *alla breve* movement for *soli* and chorus, written in a plain massive style, ends a work which, taken for all in all, does credit to English art, and deserves a place among the worthy things.

*God goeth up with shouting.* A Sacred Cantata, composed by John Sebastian Bach. Pianoforte accompaniment arranged by Robert Franz. Text translated and adapted by the Rev. W. H. Milman, M.A.

[Novello, Ewer and Co.]

EVERY lover of music will welcome this addition to Church Cantatas by Sebastian Bach which the publishers are placing within the reach of the humblest. We cannot have too many of them, for even the least valuable contains something worth possessing, or contributes its quota to our knowledge of the illustrious composer's genius and method. The Cantata before us is certainly not the least valuable; indeed we should prefer to rank it among the best, inasmuch as the noblest characteristics of the master are exemplified. It sets out with a fugal Chorus, "The Lord goeth up," in Bach's clearest, most vigorous, and most effective style. Here there are no complications, such as elsewhere in the composer's works suggests that he sometimes forgot the difference between music for voices and music for instruments. The fugue is eminently vocal throughout, and its important dimensions qualify it for use with advantage as an Anthem at the approaching Easter-tide. A Recitative, "To day the Highest," separates this number from a tenor Air, "Ten thousand times thousand," belonging to the robust and, if the word may be pardoned, rollicking class which counts so many examples in Bach's works. It taxes heavily both the endurance and skill of the vocalist; but the effect of it as illustrating the jubilant text is great and worth the pains of securing. A second short Recitative describing the Ascension follows, leading to a soprano Air, "Our Jesus hath for aye," which we class among the loveliest in all Bach's works, as marked not only by his unflinching inventiveness but by a grace and expression more than common. Every musician as he first makes the acquaintance of this solo will dwell upon it with delight. An "accompanied" and grandiose bass Recitative, "He comes, the Lord of lords," next introduces an Air of the same character for the same voice, "'Tis He who all alone hath trodden well the winepress." This is a favourable example of the master's florid style, and, like its prede-