CHAPTER I.

METHOD; OR, THE ARRANGEMENT OF TOPICS AND EXERCISES FOR TEACHING.

1. — SAMUEL TAYLOR COLERIDGE, in his treatise on “Method,” says, “It is not solely in the formation of the human understanding, and in the construction of science and literature that the employment of method is indispensably necessary; but its importance is equally felt, and equally acknowledged, in the whole business and economy of active and domestic life. From the cottage’s hearth, or the workshop of the artisan, to the palace or the arsenal, the first merit, that which admits neither substitute nor equivalent is, that every thing is in its place. Where this charm is wanting, every other merit either loses its name or becomes an additional ground of accusation and regret. Of one by whom it is eminently possessed, we say proverbially that he is like clockwork. The resemblance extends beyond the point of regularity, and yet falls short of the truth. Both do indeed at once divide and announce the silent and otherwise indistinguishable lapse of time; but the man of methodical industry and honourable pursuits does more; he realizes its ideal divisions, and gives a character and individuality to its moments. If the idle are described as killing time, he may be justly said to call it into life and moral being, while he makes it the distinct object not only of the consciousness but of the conscience. He organizes the hours and gives them a soul; and to that, the very essence of which is to fleet, and to have been, he communicates an imperishable and a spiritual nature. Of a good and faithful servant, whose energies thus directed are thus methodized, it is less truly affirmed that he lives in Time, than that Time lives in him.”

2. — “Method,” says Coleridge, “literally means a way or path of transit.” But “mere arrangement,” he shews us, “is not method.” “Arrangement, guided by the light of no leading idea,— mere orderliness without method” leads only to a “state of learned and systematic ignorance.” He shews that some of the sciences, especially in their early stages, were “little more than an enormous nomenclature, a huge catalogue,” like Natural History before Cuvier, and like Botany before the natural system of classification was adopted. A true method he shews must be moulded by the object for which it is planned, whether it be to assist the student in thinking, or in doing, or in both, or to help him in communicating to others knowledge, or skill, or both. Hence, for the construction of a method there is demanded not merely a knowledge of the things themselves, but, above all things, “a knowledge of the relations which things bear to each other—to the observer—or to the state and apprehension of the hearers.” Among these relationships the planner of a method has to seek for some leading “idea,” some “master light,” which bears the strongest and widest relation to the facts he has to deal with. He has to study the facts, and put to them what Lord Bacon calls the prudens.
quaeestio, "the forethoughtful inquiry," until he discovers some one fact which, by its superior importance, throws light on all the rest. This "enlightening fact," as Coleridge calls it, is the great joy, the eureka of the methodiser. When once discovered and put into its proper place of dignity, the world wonders that anything else should ever have been tried as the centre of the system. But this leading idea of classification and methodical development is seldom the most obvious to a casual observer. Doctor Thomas Brown beautifully illustrates this by saying: "The rudest wanderer in the fields may imagine that the profusion of blossoms around him may be reduced into some order of arrangement. But he would be little aware that the principle according to which they are now universally classed, has relation, not to the parts which appear to him to constitute the whole flower, but to some small part of the blossom which he does not perceive at the distance at which he passes it, and which scarcely attracts his eye when he plucks it from the stem."

3.—Now, in teaching Music the principal facts we have to deal with may be classified under these three heads—Time, Tune, Force—or, as Nageli (the pupil of Pestalozzi, the first modern methodiser of Music) called them, rhythmic, melodies, dynamics. Of these the methodiser will have to consider which is the more important. The gradations of Force or Expression cannot be taught until Time and Tune are to some extent already mastered. Time may exist without Music, as in the step of a soldier, the click of a pendulum, or the beat of a drum. And Music may exist without Time, — for a single chord is Music, apart from any special proportion of Time. But Tune cannot exist without Music, nor can there be Music without Tune. The subject of Tune, therefore, comes before us as the principal topic of Musical development. It must, therefore, take the lead. Time and Force must fall into their subordinate places while the great subject of Tune is being taught. Of these subordinate places, it is almost unnecessary to say that Time will naturally take the earlier.

4.—Directly we begin to study the development of Tune, we have two relationships standing before us and contending for the mastery;—first, the relationships of a Tone in absolute pitch, that is simply and barely as of a certain height or of a certain lowness in the great indefinite scale of possible sounds, or as standing at a certain interval (as Major, or Minor Third, Diminished Fifth, Augmented Fourth, &c., &c.), from that which preceded it; and secondly the relation of a Tone to a key-tone. A key-tone is a sound which may be of different pitch in different tunes, but which, once given, picks out for itself from the indistinguishable mass of possible sounds around it, just those six others which will either best harmonize with itself, or, differing from it, will best harmonize with the others, and so creates and rules the tune. I need only say that to this key-tone we give the name doh, the tones which best harmonize with it we call soh, fah, me, and lah, and those which, dissonating with doh, best harmonize with the rest we call ray, and te. I will not in this place stop to argue the question—which of these two relationships supplies us with that "enlightening fact," which by its superior importance and wider relationship illuminates all the rest. The mere statement of the question supplies the answer.

5.—It is remarkable that this plan of calculating interval from the key-tone was the plan adopted for many centuries before the doctrines of equal temperament prevailed, and the piano began to rule the theory of Music. Guido Arezzo introduced the Tonic principle of teaching and of naming the notes by syllables in the eleventh century, and his plans were continued (with some modifications, retaining always the movable ut or fah for the key-tone) for many centuries afterwards. This accounts for the skill in sight-singing, of which we so constantly read among our Elizabethan ancestors, and those of a later period.

6.—Indeed, the fixing of ut or doh to an absolute pitch is comparatively a very modern invention. It seemed to the French and to the Italian nations a plan so mechanically exact and beautiful—to make
TIME AND FORCE SUBORDINATE. THE KEY-TONE.

the names and signs of the notes correspond precisely with the finger-board of the harpsichord or piano—that they tried to fix the ut or doh, and the more they played and the less they sang at sight the more they liked the fixed ut. If the finger-board of a piano had itself faithfully represented the nature and relation of musical keys this might have been well; but unfortunately the piano is full of faults, and the adaptation of musical notes and musical theory to the exigencies of its finger-board has drawn off the attention of students from the great science of key-relationship, and concentrated that attention on the entirely subordinate relations of absolute pitch. The instrument was thus allowed to rule the science. It is as though the science and art of colour, instead of being founded on the beautiful hues of nature, were subordinated to the necessities of some well-tempered but still most imperfect paint-box!

7.—"Our methods of teaching," says Professor Bryce, "ought always to be founded on a careful consideration of the nature of the thing taught. The husbandman is guided in the nature of his operation by the nature of the seed he has to sow. Even a carpenter varies his mode of putting a nail into a piece of wood, according to the form, size, and material of the wood. In order to do this we must bear in mind that the nature and essence of Music is the relation which all other notes in a tune have to the tonic or key-tone. So long as this relation remains the same, it matters not what the notes are in themselves, the tune is unchanged. Every one knows that we may have the very same melody and harmony in a very high key or in a very low key, or in any intermediate one. It is the relation of the other notes to the key-tone, therefore, that constitutes Music. It follows that this relation is the very first thing to which the learner's attention ought to be directed, instead of making him spend months, sometimes years, in the laborious and fruitless attempts to acquire what perhaps no human ear ever perfectly attained—an accurate perception of the absolute pitch of each note independently and by itself." We do not hesitate, therefore, to adopt "key relationship" as our guiding idea in the study of tune.

8.—To illustrate this principle of "the enlightening fact" by means of other subjects and arts, let us look at that art which appeals to the eye as Music does to the ear—the art of painting. If Mr. Ruskin and another philosopher (who is also an amateur artist), Mr. Herbert Spencer, are right in the following quotations, then the subject divides itself into three branches—Colour, Shading, and Form—and of these, Colour stands out as of first importance, just as in Music Tune stands out from Time and Force; and the methodizer will have to consider what is the leading thing in colour to be first taught, and what next and next, as well as how best he can introduce after or coincident with the steps of Colour—the steps of Shading and Form. He will also have to look at these subjects from two points of view—that of Theory and that of Practice. He will try to give, at each step, all the theory, and no more than all which is needed for the practice. We can thus imagine what are at first rude "blotches of colour" getting more and more of shading and more and more of form at every step, while the pupil's intelligent perception of Nature is growing with his handiwork.

RUSKIN ON PAINTING.

9.—Everything that you can see in the world around you, presents itself to your eyes only as an arrangement of patches of different colours variously shaded. Some of these patches of colour have an appearance of lines or texture within them, as a piece of cloth or silk has of threads, or an animal's skin shows texture of hairs: but whether this be the case or not, the first broad aspect of the thing is that of a patch of some definite colour; and the first thing to be learned is, how to produce extents of smooth colour, without texture.

10.—The perception of solid form is entirely a matter of experience. We see nothing but flat colours; and it is only by a series of experiments that we find out that a stain of black or grey indicates the dark side of a solid substance, or that a faint line indicates that the object in which it appears is far away. The whole technical power of painting depends on our recovery of what may be called the innocence of the eye; that is to say, of a sort of childish perception of these flat stains of colour, merely as such, without consciousness of what they signify, as a blind man would see them if suddenly gifted with sight.

11.—Now, a highly accomplished artist has always reduced himself as nearly as possible to this condition of
METHOD; SPENCER ON PAINTING. EASY BEFORE DIFFICULT.

infantine sight. He sees the colours of nature exactly as they are, and therefore perceives at once in the sunlighted grass the precise relation between the two colours that form its shade and light. To him it does not seem shade and light, but bluish green barred with gold. — "The Elements of Drawing," Ruskin, pp. 5, 6, 7.

HERBERT SPENCER ON PAINTING.

12. And which of the processes of representation gives the child most delight? Colouring. Paper and pencil are good in default of something better; but a box of paints and a brush—these are the treasures. The drawing of outlines immediately becomes secondary to colouring—is gone through mainly with a view to the colouring; and if leave can be got to colour a book of prints, how great is the favour! Now, ridiculous as such a position will seem to drawing-masters, who postpone colouring and who teach form by a dreary discipline of copying lines, we believe that the course of culture thus indicated is the right one. The priority of colour to form, which, as already pointed out, has a psychological basis, should be recognized from the beginning; and from the beginning also, the things imitated should be real. That greater delight in colour which is not only conspicuous in children but persists in most persons throughout life, should be continuously employed as the natural stimulus to the mastery of the comparatively difficult and unattractive form: the pleasure of the subsequent tinting should be the prospective reward for the labour of delineation. And these efforts to represent interesting actualities should be encouraged; in the conviction that as, by a widening experience, simpler and more practicable objects become interesting, they too will be attempted; and that so a gradual approximation will be made towards imitations having some resemblance to the realities. The extreme indefiniteness which, in conformity with the law of evolution, these first attempts exhibit, is anything but a reason for ignoring them. No matter how grotesque the shapes produced; no matter how daubed and glaring the colours. The question is not whether the child is producing good drawings. The question is, whether it is developing its faculties. It has first to gain some command over its fingers, some crude notions of likeness; and this practice is better than any other for these ends, since it is the spontaneous and interesting one. — "Education," H. Spencer, pp. 89 to 90.

13. In arranging the details of our method, considering the order in which its main subject, key-relationship, is to be developed, and the places at which the subordinate topics of time and force are to be introduced, we have to obey several principles of the art of teaching, which I will now briefly explain.

14. First, let the easy come before the difficult. It is not always very plain which is the easy and which is the difficult, especially in the first steps of an art,—because we, who are enquiring into the matter, have forgotten our first steps, and perhaps never had the opportunity of trying the best road. Thus it is that I have been puzzled to arrange the early steps in ear exercises. In the "Grammar" I introduced them at a later stage, and framed a course which worked well at that stage. In the Intermediate Courses I introduced them earlier still, and arranged a progression which I found useful to Intermediate students. But now that I wish to introduce them in elementary work, the earlier steps must be far more delicately chosen.

15. First comes the question, Which is easier?—to tell the name of a single tone after the chord has been fixed in the ear (as is now required in the Elementary Certificate), or listening to a whole phrase sung to figures to tell which figure falls to a certain note. In the first case, you have only one sound to listen for, but you have to carry in mind all the mental effects, and choose from them to which the sound belongs. In the second case you have six or eight or more sounds to listen to, but you have to carry in mind only one mental effect, and choose from the figures sung those which fall in with your preconceived mental effect. In lecturing to mixed audiences I have always found the last plan most easily appreciated, and therefore agree with our friends who recommend it for a first step. Then comes another question. Is it easier to copy by ear one single note or a simple phrase of notes? But on this I need not dwell. It is always the earliest steps that require most care. But with this beginning I think we can easily arrange a practical course of ear exercises, beginning with the earliest lessons of our pupils.

16. As in Music, we have to train both the understanding and the skill, and what is easy for the understanding may be difficult to the skill, mutual accommodation of plan and management will be sometimes necessary. For example, in considering the place at which lessons and exercises in transition should be introduced, we soon find that there are many tunes with transition to the first sharp key, which are even more easy to the singer's skill than many other tunes which have no transition at all. But it is plain that the understanding requires to comprehend one key before it can even begin to
comprehend the relationship of keys. We, therefore, keep back even the easy transition tunes till the whole scale with its mental effects has been mastered. Mr. Bourke in his admirable Paper on the "mental effects of transition" (Re:porter 1867 p. 36), has shown that one great cause of the success of the Tonic Sol-fa method is the application of Pestalozzi's principle, that "whatever is learnt intelligently is sooner and more correctly acquired than anything learnt mechanically." The skill must therefore in this case wait for the understanding.

17.—On the other hand, in arranging which shall come first, the study and practice of Transition or of the Minor Mode,—we find that to the understanding it is quite as easy to explain the minor mode as the simpler relationship of keys, and as far as the understanding is concerned, there is no reason why the minor mode should not come before transition. But in the skill of execution the minor mode is far more difficult than the simpler transitions. The minor mode offers what may be called "an imitation tonic," while the easier transitions give a new, real tonic just like the first. We, therefore, introduce transition first, and in this case the understanding has to wait for the skill.

18.—Second, in training the mind—introduce the real and concrete before the ideal or abstract—Mr. Ruskin says "nothing is of the least use to young people (nor, by the way, of much use to old ones) but what interests them." And young people are interested in actualities, in the things and occurrences around them. If we wish to come to the abstract and the ideal, we must begin by leading our pupils to examine objects just as they are presented to us in nature, and to discover their parts, their qualities, and their relations. If we begin Geometry with Euclid's abstract axioms and his ideal points and lines, the process may be very interesting to us who know how much of fine demonstration and useful truth there is wrapped up in these dry elements, but to the pupil the case is very different. He does not see the beauty that is coming. He would rather handle a cube and measure it every way, and analyze it into its angles and corners and squares,—and then pass on to some other form which he can analyze in like manner and compare it with the last. In other words, he would like to pass through such exercises as Reiner's "Lessons on Form," and if he is young he would like to employ his fingers in actually making the shapes he studies as in the Kinter-Garten system. Having taken his first ideas from the real and concrete he would pass on to Euclid and find it a charming book.

19.—If we were teaching Botany we should not begin by defining the petal and the stamen, &c.; but we should place a real plant before the eyes of our pupils in all its concrete completeness, and help them to analyze its parts and to observe their functions. It is true that, guided by the last rule, we should choose a plant which was easy to examine, reserving those of more complex nature for after studies; but we should always bring real things before our pupils, and lead them to observe, to generalize, and to define. This is the principle on which Miss Youmans proposes to teach this subject. Mr. Herbert Spencer truly describes the tendency of modern education when he says, "While the old method of presenting truths in the abstract has been falling out of use, there has been a corresponding adoption of the new method of presenting them in the concrete. The rudimentary facts of exact science are now being learnt by direct intuition, as textures, and tastes, and colours are learnt. Employing the ball-frame for first lessons in arithmetic, exemplifies this. It is well illustrated, too, in Professor De Morgan's mode of explaining the decimal notation. M. Marcel, rightly repudiating the old system of tables, teaches weights and measures by referring to the actual yard and foot, pound and ounce, gallon and quart; and lets the discovery of their relationships be experimental. The use of geographical models and models of the regular bodies, &c., as introductory to geography and geometry.
METHOD : TEACHING FROM REAL THINGS.

respectively, are facts of the same class. Manifestly, a common trait of these methods is, that they carry each child’s mind through a process like that which the mind of humanity at large has gone through. The truths of number, of form, of relationship in position, were all originally drawn from objects; and to present these truths to the child in the concrete, is to let him learn them as the race learnt them. By and by, perhaps, it will be seen that he cannot possibly learn them in any other way; for that if he is made to repeat them as abstractions, the abstractions can have no meaning for him, until he finds that they are simply statements of what he intuitively discerns.”

20.—It was upon this plan that Jacotot proceeded. He taught his pupils French, not by vocabularies, and declensions, and moods, and tenses, and grammatical rules, but by putting into their hands copies of “Telémaque,” and making them familiar with the pronunciation and meaning of a single passage, and leaving them to discover for themselves verbs and substantives and adjectives. In every new sentence they thus analysed, something was explained by what had gone before. His fundamental precept was, “let the pupil learn some one real thing, and refer all the rest to it.”

21.—It may be well in some circumstances, and especially for a professional pupil, to learn his science by means of abstract propositions which he will afterwards know how to apply with great facility, or to learn his art by means of dry exercises faithfully performed, which will give him a complete and wonderful skill for actual work when he enters upon it. But for the non-professional pupil, reality is everything. Two books have recently appeared on the theory of sound, one by the Astronomer Royal, Professor Airey, which constantly deals with the abstract statement of fact and rule. The other is by Professor Tyndall, which is eminently realistic, and in its explanations keeps itself always in contact with the common things of life. The first of these gentlemen is a good professor, but the second, in my humble opinion, is the teacher. When at twenty-one years of age I kept a little school of boys I became very successful in teaching arithmetic. The reason was that I did not tease my pupils at first with the abstract ideas of the tables, but followed Mr. Horace Grant’s plan. I had a box of peas, a box of beans, a box of shells, and a box of wooden bricks. With these I made the little children work out sums in adding, and taking away, and multiplying, and dividing. When they had worked out a sum with the shells, they worked the same with the bricks, and the same again with the beans and peas, and so gradually formed for themselves abstract ideas of number, and prepared their minds for a real enjoyment of the tables.

22.—“As soon as practicable,” says Dr. Bryce, “let the learner derive some pleasure or advantage from the knowledge he has acquired.” Now, there is no pleasure which will encourage the learner of a language so much as that of being able to speak in his new tongue, and there is no pleasure to the student of singing like that of finding himself able to read a real tune. Hence it is that almost from the beginning our Tonic Sol-fa exercises are real tunes. Very often these exercises might be greatly improved as exercises on the particular point in hand; but I dare not make them better exercises at the expense of making them worse tunes. Another advantage arises from using actual tunes as your exercises. It is that you thus insensibly cultivate taste as well as ear and voice.

23.—I had Miss Glover’s example in adapting this principle to teaching singing. She taught from the beginning by real tunes, rather than by dry exercises. Mr. Hickson did the same. I shall have presently to show the proper place of dry exercises; but I have always seen so much pleasure come to the pupil’s mind from the feeling that he was doing a real thing, that I must ever keep this in view as a main object of an educational method. It is undoubtedly important that the tunes should be introduced to the pupil in the order of their difficulty, but it is even more important that they should be real tunes.
24.—In this connection the words analysis and synthesis are often used. Analysis is the taking to pieces—dividing into its parts, qualities, &c., of a concrete whole; and synthesis is beginning with these parts and qualities and placing them properly together so as to reproduce that whole. In the following quotations the reader will find, first, an illustration of analysis and synthesis by the great mental philosopher, Dugald Stewart; second, a statement of M. Marcel in his “Language as a means of mental culture”; third, a description of his own Pestalozzian method of teaching by that master of the art, Dr. Lowell Mason; fourth, the plan pursued by the best writer of educational methods that I have known, (Mr. Horace Grant), as described by his biographer, Mr. Edwin Chadwick; fifth, Mr. Herbert Spencer’s view of systematized object-lessons and grammar; sixth, Mr. Wyse’s proposal for the teaching of geometry. All these, while illustrating the point in hand, will show many other things in the art of teaching. See also Mr. Abbott, at p. 38.

DUGALD STEWART’S ILLUSTRATION.

25.—“Suppose a knot of a very artificial construction to be put into my hands as an exercise for my ingenuity, and that I was required to unravel it, a rule, which others, as well as myself, might be able to follow in practice, for making knots of the same sort. If I were to proceed in this attempt according to the spirit of a geometrical Synthesis, I should have to try, one after another, all the various experiments which my fancy could devise, till I had, at last, hit upon the particular knot I was anxious to tie. Such a process, however, would evidently be so completely tentative, and its final success would, after all, be so extremely doubtful, that common sense could not fail to suggest immediately the idea of tracing the knot through all the various complications of its progress, by cautiously undoing or unknitting each successive turn of the thread in a retrograde order, from the last to the first. After gaining this first step, were all the former complications restored again, by an inverse repetition of the same operations which I had performed in undoing them, an infallible rule would be obtained for solving the problem originally proposed; and at the same time, some address or dexterity, in the practice of the general method, probably gained, which would encourage me to undertake, upon future occasions, still more arduous tasks of a similar description.” — “Morrison’s Manual of School Management,” pp. 55, 56.

MARCUS ON ANALYSIS.

26.—“Analysis, the method of Nature, presents a whole, subdivides it into its parts, and from particulars infers a general truth. Analysis, consistently with the generation of ideas and the process of nature, makes the learner pass from the known to the unknown; it leads him by inductive reasoning to the object of study, and is both interesting and improving, as it keeps the mind actively engaged. Synthesis, on the contrary, which imposes truths, and sets out with abstractions, presents little interest, and few means of mental activity in the first stages of instruction. It is, however, necessary for completing the work commenced by analysis. In a rational method we should follow the natural course of mental investigation; we should proceed from facts to principles, and then from principles down to consequences. We should begin with analysis, and conclude with synthesis. In the study of the arts, decomposition and recomposition, classification and generalization, are the groundwork of creation [i. e. of invention].” — “Lectures on Education,” Payne, pp. 51, 52.

DR. LOWELL MASON’S SYSTEM.

27.—The ability to acquire knowledge is more valuable than mere knowledge acquired, just as a living spring is of greater value than a vessel of water. The latter is limited, exhausting; the former, limitless, inexhaustible. One is a possession; the other, the everlasting ability to acquire possessions. Hence the superior object of the right method of instruction is to secure to the pupil the power to acquire knowledge; the inferior object (however important) being to impart knowledge. In the acquirement of knowledge the pupil is so directed and trained to the constant and vigorous use of his powers that they may be developed, strengthened, and made most efficient; thus accomplishing in the best manner the higher as well as lower end of school education.

28.—For it is true that the right method of instruction secures the best of the inferior as well as the superior object; it tends to the most rapid possible progress in the attainment of the pupil of accurate and thorough knowledge. While being trained in the ability to acquire, he most rapidly and surely acquires. It is not, therefore, sacrificing the less object in any degree to the greater; both are advanced and promoted; the pupil obtains the greatest amount of real knowledge in a given time, while his powers are developed and trained in the best manner.

29.—The following are characteristics of such a method of instruction:

The phenomena to be studied are brought under the actual observation of the pupil. Thus his powers of perception and observation are exercised and cultivated.

The pupil is guided to the attainment of general knowledge, first; then, by analysis, of particular knowledge. This is Nature’s method; whole things are first observed and considered, and then the parts, which can be understood comprehended only by their relation to the whole.

The teacher assists the pupil to combine the particulars which he has learned, in the whole from which they were taken.

The constant effect is to exercise the powers of the pupil; to interest him to observe with care and accuracy, and reason rightly from analogy and causality; thus it teaches and trains.

30.—It may be said, familiarly, that the thing to be understood is to be first examined, then taken to pieces, then put together again,—the whole being done with interest, thought, understanding. The pupil is to investigate, learn and know; not merely to read, commit to memory, and take for granted without comprehending. The thing investigated and understood will be remembered. This process is not the
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more committing to memory of words; it is the acquisition of knowledge, the enlarging of the understanding. It does not begin by giving signs, directions, or rules for right action, but it investigates, searches into realities, and by so doing, ascents what is right, and why it is so; thus it derives and establishes rules from whence signs follow.—"The Music Teacher," Dr. Mason, pp. 7, 8.

BAILLIE GRANT'S PRINCIPLES OF INSTRUCTION.

31.—His leading practical ideas may be further stated in his own terms, which I have marked with my own italics, though they are inadequate to the magnitude of the principles involved in his instruction to teachers:—

"Children ought not to be perpetually harassed with dry questions. The grand object is to cause them to exert their minds with pleasure; and for this a lively conversation is the most effectual means."  

32.—His principles of instruction being deduced from observation of the young mind, and its state of preparation for the impressions to be made on it, he was careful about the order in which ideas should be communicated, so that the concrete should come before the abstract, the corporeal before the incorporeal, the near before the remote, the particular before the general idea, and always that the illustration should be an interesting one. Thus he instructed teachers, in teaching geography, instead of pressing young minds, as is common, with the geography of remote countries, and the limits of the occupation of ancient races—to begin with the position of their own rooms, the geography of their own house and garden; the street, and the roads leading to it; their parish, its roads and rivers; thence the county, and thence the country, interesting them in what is about them before going into what is beyond them. He urged upon teachers that they should consider how to lead children, from raised model maps, clear ideas of the forms denoted by the names and the outlines represented by the common map; and in geometry give them clear ideas from models, or real forms, before exercising them in abstractions. It is not pretended that this was so far an original course, but by him it was more clearly perceived and familiarly and successfully executed than by most others. He avoided the avalanche of formal dogmas in his works, and it is only the experienced teacher who discovers, in pursuing his instructions, the principles they involve, and who finds that his exercises in arithmetic and geometry are, in fact, exercises of the mind in branches of logic.

33.—He states on the question of the priority of the immediate to the remote, —"Although we should not forget that we ought to teach knowledge for the purpose of improving all our faculties, still we must remember that we should also teach it because it is wanted for use in the world. We must teach it in the way in which it will be wanted and used in the world, and also in conjunction with those things that will render it useful. We should not teach any subject so as to separate it from everything else and render it practically useless, merely because the entire abstraction or separation of a science from all other things happens to be best for some other purpose. A child, if sent to a foreign country, will learn the language in a few months. Instruct him at home by means of scientific works on grammar, by plans and books suited only to the learned or the initiated, and he shall learn less in as many years. The memory is refreshed, and the mind is to a certain extent instructed, by looking over an ordinary scientific work; but it is little of the real nature of a subject that can be learnt by the beginner from this external labelling and ticketing. A science may be arranged and prepared for the instruction of youth; it may also be arranged in the most compact and logical form for the use of the philosopher. These arrangements may be equally scientific, but they must be materially different, because they have a very different purpose to serve."—"Grant's Arithmetic," pp. 18, 19, Pref.

"Mr. H. Spencer on Object-Lessons.

34.—Object-lessons should not only be carried on after quite a different fashion from that commonly pursued, but should be extended to a range of things far wider, and continued to a period far later, than now. They should not be limited to the contents of the house; but should include those of the fields and the hedgerows, the quarter and the sea-shore. They should not cease with early childhood; but should be so kept up during youth, as insensibly to introduce investigation into the class of the naturalist and the man of science. Here again we have to follow Nature's leadings. Where can be seen an intenser delight than that of children picking up new flowers and watching new insects; or hoarding pebbles and shells? And who is there but perceives that by sympathizing with them they may be led on to any extent of inquiry into the qualities and structures of these things? Every botanist who has had children with him in the woods and lanes must have noticed how eagerly they joined in his pursuits, how keenly they searched out plants for him, how intently they watched while he examined them, how they overwhelmed with questions. The consistent follower of Bacon—"the servant and interpreter of nature,"—will see that we ought modestly to adopt the course of culture thus indicated. Having become familiar with the simpler properties of inorganic objects, the child should by the same process be led on to an exhaustive examination of the things it picks up in its daily walks—the less complex facts they present being alone noticed at first: in plants, the colours, numbers, and forms of the petals, and shapes of the stamens and leaves; in insects, the numbers of the wings, legs, and antennae, and their colours. As these become fully appreciated and invariably observed, further facts may be successively introduced: in the case of the flowers, the numbers of stamens and pistils, the forms of the flowers, whether radial or bilateral in symmetry, the arrangement and character of the leaves, whether opposite or alternate, stalked or sessile, smooth or hairy, serrated, toothed, or crenate; in the other, the divisions of the body, the segments of the abdomen, the markings of the wings, the number of joints in the legs, and the forms of the smaller organs. The system pursued throughout, being that of making it the child's ambition to say respecting everything it finds, all that can be said.

35.—From the substitution of principles for rules, and the necessarily co-ordinate practice of leaving abstractions untaught till the mind has been familiarized with the facts from which they are abstracted, has resulted the postponement of some once early studies to a late period. This is exemplified in the abandonment of that intensely stupid custom, the teaching of grammar to children. As M. Marcel says:—"It may without hesitation be affirmed that grammar is not taught to children: it is the finishing instrument." As Mr. Wyse argues:—"Grammar and Syntax are a collection of laws and rules. Rules are necessary to show the bones of the grammar and to form them; but the results of induction to which we come by long observation and comparison of facts. It is, in fine, the science, the philosophy of language. In following the process of nature, neither individuals nor nations ever arrive at the science of grammar. A language is spoken, and poetry written, many years before either a grammar or prosody is even thought of. Men did not wait till Aristotle had written his Logic, to reason." In short, as grammar was
made after language, so ought it to be taught after language: an inference which all who recognize the relationship between the evolution of the race and that of the individual, will see to be 'unavoidable.'...—Spencer on Education," pp. 85, 87, 82.

Mr. Wyss on Geometry.

38.—"A child has been in the habit of using cubes for arithmetic; let him use them also for the elements of geometry. I would begin with solids, the reverse of the usual plan. It saves all the difficulty of absurd definitions, and bad explanations on points, lines, and surfaces, which are nothing but abstractions. . . . A cube presents many of the principal elements of geometry; it at once exhibits points, straight lines, parallel lines, angles, parallelograms, &c., &c. These cubes are divisible into various parts. The pupil has already been familiarized with such divisions in numeration, and he now proceeds to a comparison of their several parts, and of the relation of these parts to each other. . . . .

From thence he advances to globes, which furnish him with elementary notions of the circle, of curves generally, &c., &c.

37.—"Being tolerably familiar with solids, he may now substitute planes. The transition may be made very easy. Let the cube, for instance, be cut into thin divisions, and placed on paper; he will then see as many plain rectangles as he has divisions; so with all the others. Globes may be treated in the same manner; he will thus see how surfaces really are generated, and be enabled to abstract them with facility in every solid.

39.—"He has thus acquired the alphabet and reading of geometry. He now proceeds to write it.

38.—"The simplest operation, and therefore the first, is merely to place these planes on a piece of paper, and pass the pencil round them. When this has been frequently done, the plane may be put at a little distance, and the child required to copy it, and so on."—"Spencer on Education," pp. 93, 94.

40.—Third, in developing physical skill—teach the elemental before the compound, and do one thing at a time. This appears, at first sight, a contradiction of the last rule. It seems like placing synthesis before analysis—putting the elements together before we have taken the compound to pieces. But this rule applies not to the teaching of subjects or of objects, but to the training of physical skill, and the placing of it under the mind's control. We must suppose the concrete tune to have already interested the mind, and the pupil to have analyzed it and to have noticed its time difficulties, its tune difficulties, and its expression or force difficulties. Having done this, it is not wise for him to encounter all the difficulties in the concrete at once, but to take them piecemeal; to master, first the time difficulties from the Time Chart; then from Time exercises; next the tune difficulties from the Modulator; next the putting of the two together from the book; and last the points of force or expression which need to be added. The tune being thus learned—put together after analysis—the words should be separately taught, with due attention to pronunciation and expression. Then, and not till then, words and music can be joined together in a perfected song. If the pupils are young, these separate abstract and elemental exercises should never be given to them until they have first been interested in the tune itself, so that they may know why the elemental exercises are given and have a motive given to them for going through the dry drill. But if the pupils are older they will know that the dry drill will have a quick application to the pleasant tune they are about to sing, and will accept the teacher's discipline in faith and confidence. A good method must therefore provide separate exercises for each element of the thing taught.

41.—Some compounds are so familiar that at first sight it seems more easy to take the compound at once than to take its elements piece by piece.

42.—But in the first steps of any art, for the sake of thoroughness of understanding, and clearness of perception (which are wonderful aids to skilful and ready execution), it is important that the elements of each compound subject should be taught separately. When once the mind has learnt to conceive each element as a separate existence it can be safely trusted with the compound in its real embodiment.

43.—The elements of time and tune are so familiarly heard together that it is difficult to separate them. The common mind does not do so. But to make the common mind into a cultured mind it is necessary that this be done. The common mind in looking at an object of sight (whether it be a church, a horse, or a peasant's dress), does not stop to separate it into its elements of colour and form, but takes only a rough impression of the whole thing just as it stands. This may do very well for common, careless observers; but if it is a young painter that we want to train, we must cultivate in him the habit
of looking well into the parts and qualities of things, in order that their wholes may stand out more fully and clearly before his imagination. The work of the music teacher is to apply culture to the rough perceptions of music which common minds already possess.

44.—When I returned from Germany, and introduced the elementary time exercises in the old "Standard Course," I had to contend with the strong and general opposition of those unskilled teachers who fancied that it was really easier to teach time and tune together than to teach them separately. They found that their pupils did not like the trouble of analysis. It compelled them to observe and to think far more closely than they had ever done before. But a few trusting, believing friends fairly tried this experiment of distinct elemental teaching in the first development of each subject. They soon had their reward. Mr. Sarli, who tested the "Standard Course" faithfully in one of his classes, kindly sent us his testimony (Reporter vol. iii., p. 176) to the effect that "the progress seemed at first slower, but was far more thorough, and incomparably more satisfactory."

45.—This principle of teaching the elements before the compounds is much the same as that which Professor Bryce has expressed in the following words:—"Be content to do one thing at a time. In teaching grammar it would be absurd to carry a learner forward to the verb before he knew the difference between an adjective and a substantive. It is equally absurd to attract the attention of a beginner in Music by the beating of time, while he has full employment for all his powers in training his ear to distinguish, and his memory to retain the comparative pitch of the tones of the Scale. Let his whole mind be bent to the Scale, till he can sing it perfectly, or nearly so. Meanwhile, keep him as near to correct time as possible by imitation, and make all his early exercises consist of notes of equal length, so that he will require no direction as to time, but to preserve that equality as nearly as he can." This is admirable: but it would be well to add that time also can be treated in the same ele-

46.—The teacher will naturally give renewed attention to this rule of one thing at a time when he introduces the subject of transition, and again when he commences to teach the principles of force or expression, and yet again when he begins to teach the subject of harmony. The analytical introduction of the subject of force or musical expression given in "Standard Course," and copied from Nageli, is often neglected by our teachers, but it may be worked out very beautifully. Those who had the pleasure of hearing Dr. Lowell Mason give this lesson years ago in good Mr. Read's school-room, at Mile End, will never forget it.

47.—In the region of action and skill, this rule, of one thing at a time, is of very manifest importance. Two practices (we might call them two divorces) which our Tonic Sol-fa method has introduced into the teaching of singing, have proved exceedingly useful. I mean, first, the separation of the teacher's singing from that of the pupil, and the consequent teaching by "pattern;" and second, the separation of beating in time from singing in time. If the mind has to superintend the operations of listening and singing, or of beating and singing at the same time, this complex effort is very confusing. The analytical, or elemental plan, seems to impatient people very slow, but it is really very quick as well as very perfect.

It was our knowledge of this principle which made us in the “String Band-Book” seize with avidity Mr. Purdy’s plan of divorcing the first steps of bowing from those of fingering on the violin. And Mr. Marks’ plan of separating (by the “Digitarium”) the first attempts to stretch the hand and practise the muscles of the fingers from the first attempts to play music on the piano. The Modulator, the Time Chart, the Time Exercises, Transition Exercises, Ear Exercises, and Voice Exercises are some of the testimonials that in the Tonic Sol-fa method, we give the teacher many facilities for training in the elements.

48.—A good illustration of this subject I find in Mr. Charles Baker’s admirable essay in “The Schoolmaster” on teaching reading, which is the more valuable because Mr. Baker is a strong advocate for teaching reading by presenting at first the full concrete word, even though it be a polysyllable, with its meaning, and, if possible, its very picture. But though he thus lays hold of the interest and the understanding of his pupils, he is none the less willing to help them analyse the physical exercises of pronouncing.

49.—“We cannot refrain from giving one instance which we recently observed, showing the facility with which infant pronunciation is corrected. A child of about two-and-half years old called a stick, a kick. Being desired to pronounce it again, kick was again repeated. She was desired to imitate the low, hissing sound of s, as used in this combination, which she did correctly; the sound of t was also clearly uttered, both singly and preceded by the s; the termination ick followed, also correctly: so that it was clear that the child could pronounce separately all the sounds composing the word, and that there was no real impediment to the pronunciation of the whole word. The word was then deliberately uttered, the sounds of the s and t being lengthened, and the child being made to observe the position of the organs during the utterance. The effect of this dissection was, that the child repeated the word quite distinctly many times in succession.”

Teacher’s Manual.

50.—Another admirable illustration is in the following description of Mons. Dupuis’ method of teaching drawing in Miss Bolton’s “Drawing from Objects”: “M. Dupuis, convinced by experience that whatever attainment might have been made in the art of copying, it by no means necessarily gave skill in drawing from nature, and, therefore, that the copy could never stand in place of the original object, sought to remedy this defect by the invention of a series of models, beginning with a simple line of wire, gradually increasing in complexity of construction. If, as it has been said, all objects are reducible to simple geometrical forms, it follows, that if a plan were devised by which this reduction could be effected, and the parts exhibited singly, there would be little difficulty in thus working from the simple to the complex, in delineating the finished and perfect objects themselves. As Dr. Johnson observes, ‘Divide and conquer, is a principle equally just in science as in policy.’ If a pupil could draw a square in every possible position as a model, he could, with equal ease, represent a door, or a window, or a wall, or any other object containing four sides and four right angles. Could his hand delineate a circle in every aspect it is capable of assuming, curvilinear objects could be represented by him with equal facility. In each case the principle involved would be the same. This wise divisionDupuis has effected: solids have been reduced to lines, and many lines reduced to one line. The appearance of lines, and the principles which should govern their delineation, are illustrated by a mechanical contrivance, consisting of a large artificial eye, by diagrams, and by a frequent use of the black board or slate. The observation of the pupils is also directed to the various objects contained in the room, and to the room itself, for further illustrations. They are, moreover, encouraged to start apparent objections, and to ask questions, that truth may be elicited and established.

51.—The following may serve as an example of the working out of the system. We will suppose
that the lesson to be given is upon the square. The attention of the class having been called to the various appearances it presents in vertical and horizontal planes, and its delineation in these different positions having been effected with accuracy, the students are next instructed to reproduce it,—by making a row of windows square to the eye. Their centres having been found, and the squares of glass placed, the same row of windows has to be represented above the eye, and obliquely towards the left; afterwards obliquely towards the right; then obliquely to the right and left below the eye. In succeeding lessons, the same model is worked out, as a door in several positions; then as a wall; then two walls united; afterwards windows and doors are placed within the walls; also a portion of an interior is drawn, pictures of equal and unequal sizes, and at various distances from the eye, are suspended against the walls. Chairs, tables, and stools, each including right angles, may also be worked out in various positions to illustrate this model.

52.—Upon the same principle, the figure of a circle is formed into clocks, plates, cups, and saucers, mugs, jugs, pails, pots, circular tables, stools, and other articles with which the pupils are familiar, proving to their understanding that geometrical forms are to drawing what the ten characters are to arithmetic, or the twenty-six letters of the alphabet are to a language. One great recommendation to the system is its requiring the student to think and investigate for himself. Think he must, and carefully; strive he must, and earnestly, or little progress will be made. But to the careful, thinking, and indefatigable student, there is a recompense worth working for; there are sources of delight ever new and varying, and of which no ordinary circumstances can deprive him. ‘Were I never to draw another line,’ it has often been said to the writer, ‘I should be thankful I had practised this system of drawing.’ ‘I have learnt to see and to think,’ say others; and one who has now become an efficient teacher of the system in his own school, once said, that the pleasure he experienced was not so much to be referred to the fact that, in a short period of time he had learned to convey to his slate the images of objects, as to the intellectual character of his lessons.”

53.—Fourth, introduce, both for explanation and practice, the common before the uncommon. This proposition naturally arises out of the second. If the real things of common life possess a charm for the learner, then certainly the things of commonest occurrence are the most real, and should be first taught. Study a foreign language at home by grammar and dictionary, and you may learn it in three years. Study it in the country in which it is spoken and you will learn it in less than one. The reason is, first, that whatever knowledge and skill you get, you apply it at once; and second, that the commonest and most useful applications of your knowledge come first. Not only should our pupil learn to walk the actual roads of the country he is exploring, but he should learn the common roads—the great arteries of commerce, before he studies the bypaths.

54.—Mr. David Nasmith, in his “Practical Linguist,” in separate vols. for English, French, and German has adopted this plan. His book is constructed upon a strictly progressive principle,—the relative value of words, ascertained by actual calculation. The object is to place before the learner, in the order of their relative value, the words with which he must be acquainted to enable him to converse, or to read any ordinary book.

55.—Two things may be said to be beyond doubt:

That certain words of a language are used more frequently than others; and—

That there are many words in the dictionary that we never use.

56.—Therefore two duties are obviously cast upon the teacher:

To place before the student the necessary words, and—
To present them to him in the order in which they should be learned, i.e. in the order of the frequency of their recurrence.

57.—It would appear equally clear that certain grammatical forms and rules must be more frequently employed than others; if so, any arrangement that gives equal value to all is defective, for the student, being unable to discriminate, will learn much that is practically useless, and will treasure up with equal labour and care a rule that he may never have occasion to apply with one of hourly recurrence.

58.—The result of the system pursued is this. The learner has presented to him—

The words in the order of their importance, i.e. in the order of their numerical value.

The combinations of words in a like order.

The grammatical rules also in the order of their importance or numerical value.

59.—The child thus becomes conscious of progress, is encouraged to perseverance, and he as well as his tutor is able to measure that progress with accuracy."

60.—In arranging the steps of our Tonic Sol-fa method, great pains have been taken to follow this rule. The tones which occur most frequently—those of the Tonic chord—are first taught. Then those of the Dominant chord which are next in the order of frequency, and last the tones of the Sub-dominant. These tones within a single key are taught before those which wander out of the key, in transition. The commonest, which are also the easiest transitions, are first taught. And transition is taught before the far less common minor mode or modulation. This is the development of tune. In the development of time, expression, and musical form, the same principle has been followed.

61.—It was the knowledge of this principle which after many years, and many experiments, led me to the idea on which my course of elementary musical composition is founded. I knew that it must be framed on the plan of giving the workman a few tools at a time, and when he had done what he could with those tools, giving him another, and so on. This idea (following the plan of Ollendorf) I had applied to languages, both in Latin and English. But the great question was—In what order must the tools be given to the workman, and how could he best learn their familiar uses? I wonder that the idea now adopted did not strike me at once; but I wandered off for years, and with long analyses of classic harmonies made tables of chords, and began to teach my pupils the exact number of times in a thousand chords that a certain progression would occur: thus I gave them many statistics and many rare facts, but they wanted to walk the common roads, and would have been really better without knowing anything about the bye paths at first. About fifty devoted friends, however, followed me through the first set of construction exercises which I stereotyped and printed but never published—and it was the correction of their exercises and my own dissatisfaction with the path I had chosen for them, which led me at last to the main idea, the "enlightening fact" of elementary musical composition, the preparation and construction of cadences. When driven to despair by the needless minuteness and tediousness of my course, I asked myself one day,—"What is the commonest thing in harmony? for, if possible, I will teach that first." The answer soon came—a tonic cadence. "What in all Music is next in commonness?"—a dominant cadence, "Then I will teach that next." And so onward I went, making this not the only principle, but the guiding principle of the new course which I think I may say has proved itself both pleasant and successful.

62.—The following quotation from the Tonic Sol-fa Reporter will show the plan on which the "Commonplaces," with their "Construction Exercises" in elementary composition are founded:
THE COMMON-PLACES OF MUSIC.

63.—The best way of learning any subject is to take the most used topic first, afterwards those which are rarest. Familiarity with the common things is a vantage ground for mastering the uncommon. From the time of the old Greek writers the word topic, or in English “place,” has been used to describe the divisions of a subject under consideration. Orators were recommended to fix their eyes on certain objects or places in the room in which they would have to speak, and to associate with each object or place a particular branch of the subject. No doubt this would be a help to the memory. But in the investigation of any subject which can be laid before the pupils by means of specimen works, the word “place” obtains a more literal meaning. The pupil is instructed to turn to the places in which each point is illustrated, and he is taught to classify these places so that they may gradually assume a systematic order in his mind. The word common-places, therefore, well describes the book of which I have given the title above. The student of this book is, beyond all things, required to look for himself, to judge for himself, to work for himself. It is an eminently realistic book. You may hold whatever theory you please, but this book only asks you to learn the thing. Something of novelty in theory it could not help possessing, because it had to take simple Tonic principles, test them by the practice of good writers, and carry them further into the science of Music than has been attempted before. But the pupil is never allowed to depend upon these theories. He is continually referred to lists of “places” in the “Text-Book,” from which he can form his own judgment. Scientific theories are not regarded as ruling powers. The practice of the best composers is the only authority to which the musician should bow. A language is not made by the grammar, but the grammar is slowly built up by an analysis of the best specimens of the language.

64.—But this title does not touch another quality at which the book aims: I mean educational order.

65.—The pupil is first led to study cadences and the common approaches to a cadence, for these are the commonest things in Music. He soon becomes familiar with the habits of chords in cadences, and learns the part which each chord of the scale is accustomed to play in them. He begins with three chords, and studies chord by chord as it comes into his hands. Every chord becomes to him like an individual acquaintance, an old friend with certain recognized passions and habits. While this familiarity of usage is being established, three or four discords, which are not only most used, but very much used in Music, are placed at the disposal of the constructor. The simplest forms of transition are also studied, and the light incidental passing tones. It is not until the eleventh step that the habits of chords outside of a cadence or its approach are studied. This permits the construction of hymn-tunes. With the chords of the common major scale, the best used discords and cadences, and the simpler transitions, the young constructor can obtain much enjoyment, and make many beautiful hymn-tunes. But the minor mode soon introduces him to new materials of beauty and expression. This part of the subject I have endeavoured to treat fully and carefully, showing both the analogies and the distinctions between the habits of chords in the two modes. Still composing hymn-tunes, the student is carried on to the study of modulation and the more difficult transitions. The pupil is here led to see the various uses and purposes and mental effects for which each kind of transition and transitional modulation is made. The subject of chromatic chords, or rather the chromatic resolution of chords, is treated in connection with the corresponding transitional chords. This part will, I hope, be interesting to Tonic Sol-fa students; and it is illustrated by a course of musical sentences which Mr. G. A. Macfarren has specially written for this work. The chapter on the metres of poetry, and the rationale of these metres, will interest some of our readers. It cannot be complete, for new metres are being invented every day. It will be seen from the headings of the thirteenth step that the subject of Musical Form, the March Form, the Dance Form, the Stanza Song Form, is included in the next part, along with the important subject of accompaniment, and the rarer discords. It is important that my friends should understand the use of the “Text-Book of Harmony and Musical Form.” The Construction Exercises are nothing without it. Scarcely a page of them can be properly understood without reference, sometimes very frequent, to the musical works contained in the “Text-Book.” The latter half of the “Historical Specimens”—from Bach to Beethoven— is also used as a text-book for analysis, on the more difficult points.

J. C.


66.—Fifth, teach the thing before the sign, and when the thing is apprehended, attach to it a distinct sign.

67.—If the word is given before the thing is understood, the mind naturally attaches some crude idea to the word, and is often quite satisfied with that idea, however mistaken. When a wrong idea of the meaning of a word is thus pre-established it is very difficult to erase it from the mind, it often remains there a continuous source of error for years. Many of us may remember cases of this kind in our own history. “The mind,” says Professor Bryce, “is very apt to confound words with
things, and to imagine that it has apprehended the thing signified when it merely knows the symbol." How many persons imagine that they know Music while they are merely acquainted with some of its names. How many persons there are who, in our great churcuses, actually help to execute good Music without comprehending it. They sing a chorus of Handel's for instance, but what do they know of the keys through which they are passing—of their relations to one another and to the principal key? What do they notice of the special effect which each transition is intended to produce; and as to the announcement and working out of the various melodic themes—the rhythmical divisions of the Music—the progressions and effects of chords, and the balancing of cadences, they may know the names and possess a crude notion of their meaning, but the things have never been brought vividly before them for investigation and remark?

68.—It was Pestalozzi's great idea to deliver education from the dominion of words. He did this in a remarkable manner by his lessons on objects, and by his early exercises in the arithmetic, not of figures, but of things. And his great pupil Nageli (the recognized father of popular song in Switzerland and Germany) did the same for Music. The great mischief of heaping up an elaborate system of names and signs on the threshold of Musical study, has been well illustrated by the Rev. Mr. Robertson, of Irving, when in a speech at Edinburgh (Reporter vol. iii., p. 61), he contrasted his early experiences of Music with his recent ones in the study of the Tonic Sol-fa method:—"When I first approached the temple of Music," he says, "its entrance was guarded by a great and terrible five-barred gate, on the side of which I saw certain Griffin-like figures called Clefs, and, scrawled all over it, the fearful hieroglyphics of Crotchets and Quavers, and Semi-Quavers, and Demi-Semi-Quavers, with the occasional ogre-eyed apparition of a Minim peeping through. From this I recollected. But now I come again, and I find that by the help of this excellent method the great five-barred gate is thrown back, and seven simple steps are provided which lead straight into the temple of Music itself.

—Doh, Ray, Me, Foh, Soh, La, Te." It is, therefore, a very important rule of the teacher always to keep the name or sign out of sight until the thing is apprehended.

69.—But equally important is it the moment a thing is apprehended by the pupils to label it with a distinct name. The primary purpose of language is to communicate thought from mind to mind. But it "subserves," says Isaac Taylor, "a purpose scarcely less important in the development of the intellect, when it is employed as the instrument of thought by the individual reason. Single words and certain constant conventional combinations of them are the tools of thought; without the aid of these its processes must stop short at a rudimental stage." But there are even among Tonic Sol-fa teachers those who do not understand the value of names and the importance of distinctness in naming. They do not see that a good name helps the pupil to individualize the thing first explained and then named, as well as helps the teacher ever afterwards in communicating. This being the case, I must strengthen myself by other quotations.

70.—Sir John Herschel, in his discourse on Natural Philosophy (p. 126), says:—"This imposition of a name on any subject of contemplation, be it a natural object, a phenomenon of nature, or a group of facts and relations, looked upon in a peculiar point of view is an epoch in its history of great importance. It not only enables us readily to refer to it in conversation or writing without circumlocution, but what is of more consequence, it gives it a recognized existence in our minds, as a matter of separate and peculiar consideration, placed it on a list for examination."
tain work, to go through even such simple calculations as a child very soon learns to perform with perfect ease. And, after all, there would be a fresh difficulty in making other persons understand clearly the correctness of the calculations made. You are to observe, however, that technical language and rules, if you would make them really useful, must be not only distinctly understood, but also learnt, and remembered as familiarly as the alphabet, and employed constantly, and with scrupulous exactness. Otherwise, technical language will prove an encumbrance instead of an advantage; just as a suit of clothes would be, if, instead of putting them on and wearing them, you were to carry them about in your hand.”

72.—Dr. Thomas Brown, in his well-known work on “Mental Philosophy,” says:—“It requires only a very little reflection on what has passed in our own minds, to discover that, when we have given a name to any quality, that quality acquires immediately, in our imagination, a comparative importance, very different from what it had before; and though Nature in itself be truly unaltered, it is, ever after, relatively to our conception, different. A difference of words is, in this case, more than a mere verbal difference.” Dr. Brown, however, reminds us that whatever changes there may be in names and theories, the facts of Nature remain the same. “The great Preserver of nature has not trusted us with the power of altering a single physical law which He has established, though He has given us unlimited power over the language which is of our own creation. It is still with us as it was with our common sire in the original birthplace of our race. The Almighty presents to us all the objects that surround us, wherever we turn our view; but He presents them to us only that we may give them names. Their power and susceptibilities they already possess, and we cannot alter these, even as they exist in a single atom.”

73.—Some pupils see the importance of this doctrine when we try to distinguish between a note and a tone,—the one being a sign the other a sound,—or, between a bar and a measure,—the one being a mark of accent, and the other a proportion of pulses,—or, between transition and modulation,—the one being change of key, the other being change of mode. They feel that these distinctions are valuable aids to clearness of thought and certainty of communication. They, every day, prove the importance of distinct names for the tones of the scale. But directly we began to apply the same principle which has proved so successful in the Tonic Sol-fa treatment of tune, to the memory and analysis of rhythm,—these same friends began to hesitate and doubt; and it was long before we secured a fair trial and thorough acceptance for the system of time or accent names which we have now fully adopted from the French.

74.—There are two sorts of names,—those which are presented to the eye and those which are presented to the ear. The first sort are called signs, and the second sort only are commonly called names. There are cases in which signs are more usable than names. The signs of Algebra, for instance, often express a complex doctrine, which it would take a long sentence, almost a paragraph, to explain in words. But it is a great advantage when, as in the Tonic Sol-fa Notation, both sign and name are one. It saves a mental process, and it does that every one of the million of times notes are used. In using the Common Notation, you have to find out from the sign or else to guess what is the scale name of the tone you wish to sing; but the Tonic Sol-fa Notation simply and straightforwardly tells you. Even our French Tonic Sol-fa brethren have, to us inexplicably, used signs different from the names they sing.

75.—I need not point out that yet another step of advantage is gained when the names can not only be spoken but sung. Singable names are peculiarly suited for Music, because the names and the things are thus most intimately associated together, and so suggest one another perfectly. See pp. 90, 147.

76.—Of all signs which are not intended to be also names, pictures are undoubtedly the best. They appeal more vividly to the imagination. Therefore we have endeavoured to represent Time in our Tonic Sol-fa Notation pictorially. We would gladly have represented Tune in that manner also, and have tried many plans but have not yet been able to discover a notation which gives an accurate pictorial representation of Tune. The very essence of key-relationship is in the proper position of the little steps of the Scale. Oh, for a pictorial notation which will show these in their proper places! It is the misfortune of a pictorial sign that, if it fails to be accurate, it becomes positively misleading. It is all the worse for being pictorial.

77.—The next thing in value to correct pic-
PRINCIPLES OF CLASSIFICATION. NAMES OF THE REGISTERS.

78.—There are two great qualities of any good classification and of the set of names which belong to it. The one is, that it should be distinct and complete (no one name intruding on the realm of the other, and no important thing connected with the whole science left without a name); and the other is, that the system of names should be founded on that one great idea, that “enlightening fact,” in each science, which bears the strongest and widest relationship to the rest.

79.—On the importance of distinctness in naming we have already spoken. When names have two meanings it takes an appreciable time to learn from the context which meaning is intended. And it takes this time as often as the name is used. Moreover, if we are not very attentive we may suppose the wrong meaning, and so be led into a train of confused thought. A notable example of this is found in the various names by which the three registers of voice are commonly called. Commonly in England the word “falsetto” is used to represent the highest register, that which is agreeable only when heard in a lady’s voice. But in important works translated from the German, this word is used for the middle register of the voice. Again, the word “head” is used in these works to represent the highest register; but one gentleman whom I know uses it to represent the middle register. This middle register is also called by some, the throat voice. Hence it is that, if you speak with anyone on the registers of the voice, you have first to define your terms, and then to take constant care that you don’t mistake them.

80.—Of the second great quality of good names, that they bear a useful relation to the main idea or principle fact of a subject, we may find an illustration from the same branch of study. In the “Standard Course” I selected from the confused usage of names for the registers those three which best accorded with my own sensations when under the hands of the voice trainers. The register which awoke sympathetic muscular vibrations in the chest, I called, as every one does, the chest voice. That which I felt in the throat, I called the throat voice. That which causes sympathetic nervous or muscular sensation in the head, I called the head voice. I knew that the voice was not really produced in the chest, the throat, or the head, but in the “Adam’s apple,” or larynx. As, however, science had not at that time shown us with accuracy the manner in which the registers were formed in the larynx, I could not make my names relate to the formation of voice, and thought it was the next best thing to make them correspond with the sensations of voice production.

81.—Recently, however, the patient researches and experiments of Madame Seiler with the laryngoscope (following those of Müller and Garcia), have been rewarded by the discovery of the exact manner in which voice is formed. For a popular explanation, I should describe the registers thus. For the chest register the vocal chords act like two parallel thick strings, the wind breathing between them. When these strings have been tightened with the ascending tones as much as human flesh can conveniently bear, the register is changed, and thin strings are introduced instead of the thick ones; just as with the thin strings of a violin you get higher notes with the same degree of tension. When the process of tightening has again been carried as far as human cartilage will bear the strain, the register is changed again, and the vibrating part of the thin strings is shortened, just as in the violoncello you sometimes make your thumb into another nut, and so shorten the strings for the highest notes that instrument will produce. Now that this discovery is made, and the real cause of the registers is known, the question arises—Would it not be better to let the names of the registers relate directly to their causes, rather than to the sensations which accompany them? Because it is better, as a rule, that names should have a relation...
to the general principles of the thing they represent. Having to name the registers afresh, we have called the first the thick register, the second the thin register, and the third the small register. There may be many other subordinate phenomena connected with the registers; but it is important that names should have reference to the principal phenomena.

82.—While thus a good name should denote the principal thing, it may also connote (to use the old logical language) along with it certain subordinate things. The established Notation, as a system of signs, denotes absolute pitch as its principal thing, but it also connotes by help of its signatures key-relationship. Our Tonic Sol-fa Notation denotes key-relationship, and connotes by help of its signature absolute pitch. The answer to the question—"Which Notation is right?" depends upon the answer to another question—"Which relation of tones is the more important: the relation of pitch or the relation of key?" For all are agreed that the important thing should be denoted, and the subordinate thing connoted. Of course we have decided this particular question at least for ourselves. But it is easy to see how these questions of notation cling very closely to questions about the real nature of the thing which we study.

83.—A similar question arises in the naming of chords. Here are two great facts about a chord; one is that its root holds a certain relation to the key of the music; another is, that its tones stand at certain intervals from the lowest or bass tone. Either of these facts may be inferred or found out from the other when that other is fully marked. One ought, therefore, in any good notation to be denoted while the other is connoted. Which is the more important and the more helpful to study? Tonic Sol-faists have decided for the first. Their De denotes the more important relation and connotes the subordinate one; while the old figuring, & denotes the less important matter and only connotes the more important one. These studies may seem very dry to the student, but they bear important and continual practical fruits, and are well worthy of our close attention. See, on chord-naming, page 28.

84.—Sixth, let each step, as far as possible, rise out of that which goes before, and lead up to that which comes after.

85.—This careful gradation of explanations and exercises is important both for the understanding and the skill. If a thing is introduced before it has been understood, the understanding gets fogged. If it enters before the skill has been trained up to it, the pupil's ability is overweighed and discouraged. If it only comes into the course before it is wanted for common use — before it can be conveniently familiarized — there is a waste of time and attention. No fact or principle should be even referred to before it has been fully explained, and nothing should be inaccurately explained to suit a present convenience. The pupil should never have to undo in the later stages what he has been taught to do in the previous ones. And no fact or principle should be introduced (to the distraction of the pupil's attention) before it is wanted. "At the same time," says Professor Bryce, when urging this principle, "the different parts of this subject are so mutually dependent and so interwoven, that a strict adherence to the rule is extremely difficult." It was easy for Professor De Morgan to lay down the rule, that "each new notion to be acquired must be attached to, and assimilated with the notions already existing in the mind," — for his subject was Arithmetic, all the rules of which can be made to follow each other in one straight line — each furnishing (as Messrs. Sonnenschein and Nesbit say in their Arithmetic) the reason of existence for its successor — Subtraction introducing the pupil to Division, Division to Fractions, and Fractions to Ratio or Proportion, and so on. But in Music, while it is quite possible to trace one main line of teaching for all cases (especially in the principal topic — Tune) — there are a number of topics which cannot fall into rank unchangeably. With one set of pupils they must come in at one stage, with another
BREACHES OF THE RULE.

set at another stage, according to capacity, taste, and the practical object in view. I refer to such topics as voice-training, phrasing, music writing, harmony, &c.

86.—An illustration of the breach of this rule, which requires us never to make our pupils learn what they will afterwards have to unlearn, may be found in the Wilmot method. The pupil is there taught to associate strongly the syllables Mi, Fa, and Si, Do with the little steps of the Scale, and is afterwards compelled to break up this helpful association when he has to learn a different key from that of C. Thus for thirty lessons he is taught to do what for another thirty lessons he has to undo. It is important even in the earliest steps to use a variety of keys, so that no false association between the syllables and any one key may come to be formed.

87.—A corresponding mischief is done when pupils learn to play the piano on the principle of associating in their minds a particular line or space on the Staff with a particular digital on the fingerboard. The idea seems so simple and natural, as far as the book and the instrument are concerned, that those who do not see the value of mental effort and key relation almost universally adopt it. The consequence is, that very few persons thus trained, can, in playing, change the key from that which is written. Such a setting of the tune a little higher or a little lower is quite commonly needed, and is quite commonly done amongst singers. It is really ridiculous that the player cannot thus transpose. There is nothing whatever but this false association that hinders him. The association is a mere mechanical one, entirely unintellectual. No good teacher should allow his pupil to establish a relation which in after years he may labour, perhaps in vain, to disestablish.

88.—In a very much less degree the same fault may be found with the American systems of Dr. Lowell Mason and others, which keep the student exclusively to the key of C for a long time, although they afterwards move the do. Thus an association is established between the syllables and the absolute pitch which has to be disestablished. I recently listened to a class which had been taught on an English method similar to these, and found a strong tendency in these elementary pupils to slip back into the key of C from any other key in which they were Solfeing. In one case they gradually flattened a fourth to get to their favourite key.

89.—This rule of progression by steps evidently requires that nothing should be introduced too soon or too late. In an early edition of my "Grammar," p. 3, there is a breach of it. A lesson on octaves, and on the meaning of the word interval, is introduced in the first step. I have since learnt, by ample experience, that to distract the mind by an attempt to measure distance between tones (which is always difficult to appreciate) is a discouragement and hindrance to the pupil. On the other hand, the mental effect of tones and their relation to one another are easily appreciated. To make yourself acquainted with a set of cricket players, it is no great advantage to know the exact distances at which they stand, and it is also a difficult and uninteresting thing to do. It is better to study their faces and figures and the part they play in the game. I insert the lesson here partly to show how much it was before its time, and partly because it may be useful at a more advanced stage. I also introduced a lesson on the octave too early. This I print also as it may be useful in explaining the octave. Other illustrations might be taken from Mr. Hickson's "Singing Master," where, as in hundreds of other books, the difficulties of the Staff Notation are introduced far too early with this difference, that in no other book are they so well set before the pupil—so admirably taught.

THE WORD "INTERVAL."

90.—"Now I will divide you into two companies, and I will give you two tones—one of a high pitch, and another of a low pitch. One company shall sing the first tone, and the other the second. (The teacher may try this with the key tone and its octave, Don, Don—or with any other two tones that will accord.) Now sing them together. . . . You see, one is high and the other is low—a long way below the first. They are far apart in pitch. What shall we call the distance between them? It is called an "interval." It was rather a large
interval, because the tones were far apart. If we had two tones that were not so far apart in pitch, the distance between them would be a smaller interval. Let us try. (The teacher gives Do to one company and Mi to the others, who sing the tones first alternately and then together.) You understand that an interval is not the two tones, but the distance between the two tones, and you see that this sort of interval is very different from an interval of time—a minute, or an hour; and it is different from an interval of space—a foot or a yard. It is an interval of pitch—the distance up or down between two tones. Let us try both the large and the small interval again.

Now tell me what a musical interval is not! Now tell me what it is! "Every tone has other tones related to it, which are of a different pitch, but yet of such a character as to make them regarded as the same. These tones are called replicates.

"I am going to sing two tones, and I wish you to notice them very carefully. (The teacher here sings to the syllable Au the tone B, and its lower replicate or octave B1.) Do you notice that they are very much alike? I will sing them again. And yet they are not exactly the same. What is the difference? Yes; one is higher than the other. When two tones are alike, only that one of them is higher than the other, they are called replicates of one another. What are they called?

"Listen again and I will give you a tone with two replicates—one higher and the other lower. (Sings to the syllable Au, the tones B, B, and B1.) Which did I sing first?—the higher or the lower replicate?

"Now you shall try. Imitate this pattern. (Sings some such tone as the lower E and its higher replicate to the syllable Au.) Try again and imitate another pattern. (Sings the higher F and its lower replicate.) One of you shall sing a low tone, and the rest shall sing its higher replicate. One of you give a high tone and the rest give its lower replicate.

"Have you ever noticed that a man never sings the same tones as a woman or a child? He always sings the lower replicates."

The teacher will find much careful practice necessary here. He need not delay proceeding until every pupil is able with ease and certainty to produce the replicate. It is sufficient for the present if he thoroughly understands it and can produce it. It may be mentioned that the replicate is sometimes called the octave, or eighth.

"Old Grammar of Vocal Music" p. 3.

91.—In connection with this subject of progressiveness in method, it may be well to illustrate by example Coleridge's doctrine, that mere orderliness does not make a true method. What we have to search for is not merely some method, but the right method,—a method guided by some principal fact which bears the strongest relationships to the other facts. A great many different roads may be cut through the same country, but we want that one which will best suit at once the gradients of the hills and the commerce of the towns,—the best principles of construction and the practical conveniences in view. Our method must be progressive, but it is not any progression which will answer the purpose. As the reasons for the progressions in the Tonic Sol-fa method were never fully given, we must not be surprised that those who have tried to alter or improve it have sometimes fallen into error. It is remarkable that nearly all the methods which have split off from our own have missed one great point of advantage which we possess in teaching the first elements of tone. They teach the Scale stepwise, instead of adopting our plan of establishing in the ear first the tones of the Tonic chord—(Do, Me, Soh,)—next the tones of the other two chords, Dominant and Subdominant.

92.—I cannot say that I had all these philosophical notions in my mind when I first planned the early portion of our method. I groped my way with much stumbling, and many trials. I had attended many of Mr. Hullah's classes, and heard them sing their pretty stepwise song, the Skylark. The universal flattening of the untrained voices in that tune always distressed me. It also happened that the first exercise or two of Mr. Hickson's book (my first lesson-book in the art of singing), were founded on the Tonic chord (most of you remember the round,—"Time and Tide will wait for no Man,")—and when afterwards I practised myself with Miss Glover's "German Rounds and Canons," the Tonic chord took a leading place in the early exercises. I was thus prepared to understand the dreadful flattening and uncertainty of voice in Mr. Hullah's pupils, and therefore quickly abandoned the Scale exercises which I at first used in the early steps, and tried the successful experiment of tuning my pupil's voices by the help of the Tonic chord. I soon found the reason of this success. It is the ear (or the ear through the mind) which governs the voice. The mind is impressed by a sound through the ear, and then transmits its orders to the vocal organs for the proper imitation of that sound. Everything therefore, depends upon the clearness and certainty...
of the idea which the mind itself forms, before it attempts to reproduce that idea through the voice.

93.—Isaac Taylor has shown that the human mind, in its "corporal lodgment," possesses what he calls "a perfect mathematical sense both as to time and number." A certain tone visits the mind with twice as many vibrations as some other tone. The mind does not count the vibrations, but it nevertheless perceives and registers the relationship. Another sound visits the mind with three vibrations to every two of the original one; yet another sound comes with four vibrations for every three of the first. Here also the "mathematical sense" quickly registers the agreement and the difference. The uncultivated ear best recognizes the interval, which, with something of agreement, has something of difference. So you find your pupils can often recognize the interval of a fifth before they perceive that of the octave; and some of the least cultivated can perceive the third more easily than the fifth, although they seldom get the third very accurately before they have also learnt the use of the fifth. It is the chordal agreement of the three tones which even the untrained ear perceives. So constant and universal, however, is this mathematical sense in connexion with the ear, "that whereas," as Isaac Taylor says, "in the other senses—taste, smell, touch, and even sight—the perceptions and judgments of individual persons differ in extreme degrees; there is an almost absolute agreement among all who possess the musical sense as to the truth or falseness of musical relations of sound. A chord is instantly assented to as such by any number of persons who are musical by constitution and training." It is natural that the simpler proportions of vibrations should be most easily apprehended, and that, therefore, the tones of the Tonic chord tuning so perfectly with each other should be the most easily learnt by the ear, and thus also the most easily produced by the voice. Training the voice stepwise is training by dissonant seconds; teaching by chords is teaching by consonant thirds and fifths. Thus, what Experience has already proved, Reason justifies.


94.—But it is remarkable that Tonic Sol-fa teachers who had for years been accustomed to tune the voice upon these principles, simply and obediently following our method, should have remained all the while ignorant of what it was in the method which caused their success. They used the method without knowing its reasons, and, therefore, went back to the old notion of teaching by interval instead of by mental effect, and to the worse notion still, that the smaller the interval the easier to teach. Hence we find even in that one of these methods which makes the most pretension to system and to teaching intervals by the chords, the first twenty-six exercises containing nothing but the old, uncertain, heavy, and ever flattening stepwise progression.

95.—The old second step in the Tonic Sol-fa method, that which taught the leaning tones in their easiest positions, was introduced from a fancied necessity. I thought it necessary to teach the pupil as soon as possible to pitch his tones from the tuning fork; and I thought it necessary, or at all events, very advisable, that all the tones of the Scale should be heard, in order to make the mental effect of any one of them properly understood. But the blunders of the Tonic Sol-fa secessionists above referred to, as well as the success of some friends who tried omitting the second step altogether in teaching our method, at last decided me (after consulting with some of our most intelligent teachers), to abolish this old second step, and to rely entirely on mental effects for the production of tones. In my own teaching I had always felt the second step the most risky and unsatisfactory part of our course, and I always passed over it as quickly as possible. Although in the later courses I had been careful to use these leaning tones, not only in easy, but in the easiest possible positions, I have always dreaded the Teacher's dwelling on the second step. It introduces tones before their mental effects are appreciated. The mind gets no help from the chordal feeling we have referred to, and can only guide the ear by its as yet uncertain sense of stepwise motion. I had also felt
that Ray was the most difficult tone to teach in the Scale, being, in fact, variable. But I now find that teaching it first in its acute form (Ray) as part of the Dominant chord is quite easy, while its graver form Rah comes in afterwards naturally tuning with f and 1. The new steps—taking first the Tonic chord, next the Dominant, and next the Subdominant—have now been fully and cordially adopted by my Tonic Sol-fa friends.

98.—But this plan which we have found so successful in tuning the voice, must not on that account be necessarily followed in teaching other instruments. It may, indeed, be adopted in teaching the violin, especially if the ear has not been tuned already, because the mind and ear have to place the fingers on a violin string, just as they rule the muscles of the organ of voice. But in the flute and the piano the correct production of sound does not depend on the least upon whether the mind and ear are tuned or not. Press the proper finger place, open the right hole, and all will go well. We are, therefore, left at liberty in teaching these instruments to seek the convenience of the fingers, and that naturally suggests the stepwise progression. Thus it is that while we require steady progression, it is not any progression that will do. We must seek that progression which will best enlighten the pupil’s understanding and quicken his skill. I do not hesitate to say that I have myself made many mistakes of this kind, and that I have sometimes tried one plan after another for years before I have found the right one. And, moreover, that when I did find the right one, I have wondered that any other should ever have occurred to me.

97.—Some persons expect more from this progressiveness of method, than is either possible or desirable. I have heard it said that, with a good method, the steps are so gentle that the pupil should never feel any difficulty. But this is a great mistake. Method can lessen the difficulties by the manner in which it prepares for them—can take care that they are presented only one by one—and can ensure that they do not come to the pupil before the time at which his mind or skill are properly trained to grapple with them. Sense of difficulty, if it is not overwhelming, is a useful means of awakening attention and stimulating effort. This, in fact, was the great principle of Socrates. He was continually asking men questions in order to show them their ignorance and compel them to think. This is a very different thing indeed from plunging a pupil into a hopeless multitude of difficulties, as is done when the young singer has set before him at once all the measurements of interval, diminished and augmented, all the signatures, Flat and Sharp, and all the variety of Clefs—and when the young composer is set in his first exercise to manage all the chords of the Scale at once, and in his fourth or fifth lesson is expected to deal with a variety of chromatic chords and discords. And, to come nearer home, this is done when young people are set to sing the ‘Song of the Bell’ before they have taken their Elementary Certificate, and when little children are taken to the ‘Hallelujah Chorus,’ which still remains far beyond their natural taste and the healthy reach of their voices, even after they have been told not to sing in the difficult parts. The use of unreasonable difficulties discourages and demoralizes the spirit of the pupil, and is the chief reason why classes dwindle away.

98.—Seventh, call in the Understanding to assist the Skill at every step. I have known boys at school go right through their arithmetic and their grammar, as a mere course of memory and skill, without being in the least better for their drudgery when they went out into life. “To this day,” says Lord Kames, “I never think without shuddering of ‘Disputer’s Grammar,’ which was my daily persecution during the most important period of my life.”

99.—Children often learn to work arithmetical questions correctly without any conception of the meaning of what they are about; and thus the teacher is misled into the belief that his pupils are excellent arithmeticians, when they really under-
stand no more of the principles of arithmetic than a horse knows of the properties of the cart and load he is in the habit of drawing.

100.—On the other hand, many of us can remember some of the lessons we received at school from skilful masters as bright spots in our history. It would be impossible for me to calculate what a long train of advantages have accrued to me through life from the discipline and pleasure which was given me in two lessons from the Rev. Mr. Poulter, of Frome. In one of these he made his pupils thoroughly apprehend the first proposition of Euclid, and in another he carefully developed to us the meaning and power of the letter $x$ in Algebra. These lessons not only made us clearly understand the subject before us, but left us stronger for the work of understanding other subjects, and also gave us an inclination to renew the pleasure of understanding things. Of my other teachers, I wish to express my gratitude to the late Professor White, of the old London University; Professor T. H. Key, of the same University; and one of my fellow-students, the Rev. Henry Griffiths, of Bowdon. Mr. White used to make the most complex subjects of mathematics plain to the understanding by realized instances and illustrations, before he would ever allow us to proceed to practice. Mr. Key not only taught us Latin, but showed us how to investigate, on principles which were not only applicable to language, but to every thing else. Mr. Griffiths took a special delight in setting his young friend thinking on almost all questions under the sun. Many of my other teachers in early life were learned and faithful men, but they spoke to me rather than with me. A large portion of their valuable lessons have long ago passed from my memory, but the lessons of these men whom I have mentioned are living powers with me now. I believe that there are some Tonic Sol-fa teachers now at work whose pupils will remember their patient, intelligent teaching, as I remember the fruitful work of these early friends.

101.—The reasons why Theory helps Practice are not far to find. First, it helps the pupil to observe better. He not only sees the one thing, but he sees its relations and connections, and the laws which rule it. This establishes the idea. Miss Gladding, the first young lady who learnt to play the piano on the Tonic Sol-fa system, astonished her teacher by the ease with which she played the 'arpeggio' passages and "figures" occurring in her Music. When her teacher asked how it was, she answered, "Oh, you see all that is the chord Doh, and the other is Soh; and so on; and that little figure is the same as before, so many steps higher; that passage is just like the other, only in a different key." Her theoretical knowledge made her observation clear and complete. Second, it leads him to remember better; for memory depends on association, and the more we can connect a thing with principles which it illustrates, or reasons for its appearance, the more easily shall we remember it. The lady just named, quickly became distinguished for her grasp of memory. She could play long classical pieces without notes. Third, it makes him perform better. He knows where he is going and why. He moves with perfect confidence. The mere routine singer sees a flat or a sharp, and perhaps sings it, but with diffidence. He feels himself walking in the dark. The intelligent singer knows the effect it should in itself produce, and the effects to which it is leading. He sings it boldly and with a meaning, Fourth, it enables him to learn better. Theory classifies—binds things in bundles and tickets them. Theory shows him how from one thing he may learn many others—makes him independent. A man may go on listening to fugues, or even performing them for years, without seeing into their beauty of structure or enjoying their accumulating force, and to such a man each new fugue is a new drudgery. But when he has been led to analyze and understand even a single fugue,—fully and clearly,—he knows something of all the rest, Fifth, it gives him greater pleasure. The co-working of our faculties is, in itself, a pleasure. To know a true thing is delightful, and to do a true thing is delightful; but to know and to do at
the same moment is a double delight. Students in our Courses of harmony or of musical form, are continually writing or speaking to me of the permanent pleasure put into their life by the power they have gained of appreciating the harmonic points—of hearing the reply of cadence to cadence—and of enjoying the various relations of one part of the tune to another. What a contrast is this to the case of those who sing all their lives from single voice-parts without having the whole Music before them. Even a boy at school will sing the air of the National Anthem all the better if he knows that it has the proper accents of Three-pulse Measure—that it's difficult rhythms are those known as TAA-AATAI, and taataitee—and that the fourth line opens with a note which elsewhere he has noticed as "the bright trumpet-toned Soh;" and then proceeds to "the solemn awe-inspiring Fak." Thus does Theory help Practice. Mr. Scott Russell, in his work on "Technical Education," admirably shows how intelligent handling doubles the power of bone and muscle. What is true of the navvy and the soldier is true of all.

INTELLIGENT HANDLING.

102.—It is a grave error to imagine that the details and execution of important or valuable work, even from the designs of distinguished masters, can be efficiently done by ignorant, unskilled, mere brute labour. I am continually asked why a man—whose business it is to turn a furrow, dig a ditch, wheel a barrow, move bricks, saw trees, plane boards, quarry stones, get coals, or hammer hot iron—need know anything more than how to handle a spade, use his arms, or manipulate his hammer; and whether more knowledge than that would not spoil their minds and set them above their work.

103.—To this I can answer, that taking the matter on the very lowest grounds, I never saw any kind of labour in which the man of greater intelligence could not do more work in shorter time, to better purpose, and with less waste, than the mere uneducated savage of civilized society. I have seen at the plough the clodhopper, little more intelligent than the well-fed brutes in front of him, let his clumsy plough wriggle on with small care how it went, and little thought as to how its work was done; and I have seen the skilled ploughman, with half the number of horses, and with no greater toil than theirs, cover double space on the same kind of land with clean, straight, even, well-finished work. The one knew all about the draft on his cattle, the strains on his harness, the adjustment and action of his plough, and felt at his finger's ends (instinct with intelligence) every variation of direction or force which indicated whether his own slight pressure on the plough-stilt should give it bias one way or another. The other man avoids difficulty, because he sees it beforehand; the other endures it because he is in the middle of it before he knows, and so must go through with it. The intelligent ditcher who lays out wisely his day's work before he puts a spade in the soil, has no forecast and arranged it that every bit of earth is moved out of its old place into its new, the shortest way, over the least distance, with the least force. The skilled navvy can do double the work in the day of the equally stout but unskilled rustic; and if this be the case in the lowest operations of moving earth, it needs no iteration on my part to show that in every succeeding stage of work, in getting stone, or getting coal—even before we come to shaping, selecting, fitting, fixing, and finishing articles of workmanship,—the more intelligent and better trained man will use his mind to apply his strength and wield his tools so as to spare strength, time, and material either for himself or his master. Estimated, therefore, on the lowest scale of social value, education means economy, profit, absence of waste.

104.—"Ascending from the mere labourer to the skilled artisan, I will cite a single but remarkable example of the great advantage which education of the general intelligence gives even to the practice of the narrowest calling. We have long been used to say and think that any ignorant man was good enough to make a soldier. We have been told that the mere mechanical drill of the service was sufficient to make even the best soldier. One might have been justified in saying that the narrow limits of walking straight, and shooting straight, and obeying a word of command, and going through a routine of formula with a weapon, would be readily acquired with the minimum of education, or with none. What does recent experience teach us, but the contrary of all this? It comes on us like a modern discovery that the most intelligent man makes the best soldier; and General Hay has made an official report, based on the widest experience in the English army, that invariably the progress and perfection of a man's shooting, depend on his previous standard of education, and that where this is wanting, they have to educate the man's brains first before they can set him to shooting with any chance of success. And we may add to this testimony the example of the Prussian army as an army of educated men. An Englishman who will take the trouble as I have done, to enquire among the Prussians themselves as to what they think are the secrets of their success as soldiers, will find that their best officers attribute it to nothing so much as to the high degree of intelligence and cultivation of the men of whom they have to make soldiers, and of whom they do successfully make them in incredibly short time.—"Technical Education," p. 399.

105.—Perhaps the most notable instance in which the Tonic Sol-fa method has reaped advantage from this rule is that of Mental Effects. We have taken great pains to impress the mind with the proper emotional effect of each tone of the Scale when sung slowly. The mind watches for the effect and is not satisfied till the voice produces it. I have seen even infant school children aided to produce


* See also pp. 1269, 1529.
USE OF THE STUDY OF MENTAL EFFECTS

the tone Lah, not merely when they were told that it had a sorrowful effect, but when their minds had been led to conceive the idea for themselves. The study of mental effect comes fresh to our aid when we commence the subject of transition. We explain transition as a change of mental effect among the tones. We make this felt by the pupils. We set them to enquire for the cause, and thus the subject becomes luminous and interesting. A well-taught student of the extended Modulator is never content to sing any Music without knowing what changes of key he is taking. Mr. Bourke has written an admirable Paper on the mental effects of transition which is published in the *Reporter.* The mental effects come once more to our aid in the study of the Minor mode, and yet once again in the study of chords.

106.—I need not remind you that in that development of the study of expression which you all have to pass through in taking the higher certificates we do our best to give the reasons for things. I think I may be excused for saying that in the preparation of the Euing Lectures I have investigated many subjects, and found many reasons which were at least new to me, and will, I hope, be interesting to you. Reasons, however, cannot always be discovered, and then it is better to state the facts as we find them, and honestly confess to our pupils that we do not at present see the reasons. This is always better than inventing or fancying reasons.

* Mr. Baker’s Reading Method.

109.—Many writers for little learners have claimed the patronage of the public for their monosyllabic lessons. We have several reasons to oppose to their views. There is a certain degree of similarity in many of the words which tends to confuse the child. An immense number of particles obtrude themselves into lessons so constructed. The words are not words used by a child in ordinary conversation. There is an objectionable stiffness, a quaintness, a want of variety in such lessons, inducing monotony in a child’s manner of reading.

A child’s reading lessons ought to be on subjects of interest, and, while he is learning to read, on subjects with which he is in some degree familiar; so that he may not meet with many expressions which are strange to his ears, and with none that he is unable to pronounce after his teacher. The advance from simple to more difficult lessons ought not to be founded on the length of the words, but on the complexity of the ideas which they convey. Of what consequence is the length of a word if a child can pronounce it, and if he is acquainted with the idea so represented? And how large a vocabulary has a child, even under ordinary circumstances, whose mind has been under this kind of culture for four or five years. Supposing a child to have been trained at home, or at an infant school, in some such manner as has been recommended—when reading is commenced as an art, a lesson containing ideas well known to the juvenile learner should be taken. Let the subject be a garden. After telling him that he is now to learn to read, we write, in his presence, an exercise something like the following:—

“A flower-garden is beautiful. Flowers are pretty. Some flowers are sweet. A daffodil is yellow. Snowdrops are white. Roses are red—some roses are white. Violets are blue—they are very sweet. Leaves are green.”

Two or three such sentences as the above will be enough for a first lesson.

107.—So strongly has the need of Theory been felt in our popular classes, that the Council of the Tonic Sol-fa College has established a new set of Certificates in Theory, running in parallel steps with those for Practice, and pupils who win these Certificates are said to have obtained the “Theory Honours” of the Elementary Certificate—of the Intermediate Certificate, and so on. The particulars of these Certificates will be given in the next chapter.

108.—Several of these principles are illustrated by Mr. Charles Baker’s method of teaching to read, which I print for the student’s analysis and study. Many years ago, hearing of not a few children who had learnt to read on plans like those of Mr. Baker, I founded upon them my “Look-and-say-method,” in which I sought to secure that the children should “look” at a word or a syllable, and “say” it until the sight and the sound had become a fixed association in their minds. I knew they would not look unless they were interested, and, therefore, provided movable letters which should enable them to pull the word to pieces and put it together again. If I had to prepare such a method again, I should add to it pictures of the objects and actions referred to in the lesson, and also the practice of analyzing the spoken sounds like that referred to above. I should use Mr. Ellis’s “new notation” of vocal elements, and should call the method “Look-and-say, Glossic.”

1897, p. 98.
After few repetitions, the pupil will point out every word required. The difference in the length of the words is an advantage. Words are arbitrary pictures; they express different ideas, and a child will naturally expect them to be not the same in their appearance. This dissimilarity will assist in their acquisition. And the perfect acquaintance which, on our plan, the child has with the ideas conveyed, and the pronunciation of the words which he hears repeated, leave him at liberty to devote both his eye and his mind to the form of each word. This is the one great end now to be accomplished. He has to remember the entire combinations—not the letters, nor the syllables—but the words, so that he may recognise them at once whenever he sees them. To give facility and strength to this exercise, writing must accompany the reading of the words. The child transfers his reading lesson to his slate at first in any hand that he can, large or small. After a few lessons, his rude attempts at writing may be reduced to any size at the will of the teacher; a light round-hand is recommended for the first few months. —"The Schoolmaster," vol. ii., p. 10, 11, 12.

109b. The system of Figured Basses as a means of naming chords for teaching purposes is, by its defects, a strong illustration of what is said at pp. 15, 16, 17, and especially par. 78, above. First, it is not distinct, and second, it is not founded on the "enlightening fact" of key-relationship. It gives a Bass note (say A, or B, or C, &c.) which may be the Root of a chord, or its Third, or its Fifth, &c., and then attaches figures which simply show the intervals as measured from that Bass note, without distinguishing the character of the chord in which the Bass note occurs. Thus, d to m, being a third, d to s, being a fifth, and d to d', being an eighth, the figures 3-5-3 (read downward) mean the chord D in its first position (D3). The 3-5-3 may be abbreviated 3; and the same figuring applies to every chord in its a position. Again, as m to s is a third, and m to d' a sixth, the figures 6-3 (abbreviated 6) represent the chord D in its second position (D6), and every other chord in the b position. On the same principle any chord in its c position is figured 0-4. Chords of the dissonant Seventh are figured by 7 with the Bass note, without naming the root. Mr. Bourke, at Christmas, 1865, showed the deficiencies of this system, and stimulated me to fresh in preparing "Construction Exercises." See also pp. 231 to 235 below.

109c. Figured Basses.—I beg to submit that the figured system is defective inasmuch as it gives—1st. The same names to chords consisting of different intervals, 2nd. The same names to chords which have from their place in the scale different mental effects. 3rd. Different names to chords having the same intervals. 4th. Different names to chords having the same mental effects. Dealing with each separately we are led to observe—

1. That the chords expressed D, E, F, &c., have, as may be seen from the Modulator, different intervals between their composite notes. Yet you will perceive they have all the same names.
2. That obviously therefore the mental effects are different, and yet they have the same name. It is not, however, so obvious in the chords of D, E, F, for their intervals are the same; yet whoever, that has observed, mistook the F chord for the D, or the S for F! They are in their mental effects totally different, when once the key is established. Yet these chords differing in mental effect have the same names.
3. That the system is not consistent with itself in its endeavour to name chords by their component intervals, for we have m, not expressed by 5-3, but by 5-3, yet its structure is precisely similar to all other major chords.
4. That chords having essentially the same mental effects, and which are in fact the same chords, have different names. Thus, '8' might be disguised under the forms d m s t a, or f l d m a, or f e l d'.

They have precisely the same effects upon the ear, and serve the same musical purpose, yet from their figures one would never conclude so.

From these four considerations then, we may fairly conclude, that the figured system neither shows the mental character of a chord, nor the exact intervals composing it. Nor is it effective in naming the same chord in various keys, nor the same chord in its various positions, seeing that each inversion has a new name in no manner connecting it with the chord in its normal position.

As a climax to the defects of the old notation as contrasted with ours, I may mention that in two cases, one figuring is put, and the other understood. Thus, when 6 accompanies m in the Bass, the chord of G3, or D6 is intended. So if 6 were to accompany B, we should conclude, arguing from analogy, that D6 was intended; but not so, it is 5E that is meant, because they will not allow the chord of T. So to suit theory, the nomenclature is complicated. Again, when 5 accompanies a Bass the a position of a chord is intended as D6 or E6, and so arguing again from analogy we should conclude that 5 on G would indicate the T chord, but it does no such thing, for it indicates '8', figured 6-5-3, or 5-6. So in Figured Basses we have not only one name for two things, and tw'o names for one thing, but also one name for another name. What apology then can there be for such confusion? There is one which I will endeavour to explain.

Intervals in the old notation are not reckoned by their intrinsic value, but by the degrees they occupy upon the staff, so that again we see that to accommodate the chief defect of an incomplete and complex notation of sounds we are compelled to use also an imperfect and complex notation of chords.—Mr. Bourke.