Odo of Cluny

A writer of the tenth century and a pupil of Remi (Remigius) of Auxerre, St. Odo of Cluny was in 899 canon and choir-singer at St. Martin of Tours and later became abbot of various French monasteries. In 927 he became head of the famous abbey of Cluny, where he died in 942.

Odo is credited with a number of important writings on the theory of music, among them the *Enchiridion musices*, also called *Dialogus de musica*. The *Enchiridion* contains the first systematic use of letters for pitches in the meaning that was to become standard for the Middle Ages—the full gamut extending from A to g, with the addition of the low Γ and the high a′.

Enchiridion musices

[*ca. 935*]

A book, also called a dialogue, composed by Dom Odo and concisely, properly, and becomingly brought together for the benefit of readers.

PROLOGUE

YOU HAVE insistently requested, beloved brothers, that I should communicate to you a few rules concerning music, these to be only of a sort which boys and simple persons may understand and by means of which, with God's help, they may quickly attain to perfect skill in singing. You asked this, having yourselves seen and heard and by sure evidence verified that it could be done. For indeed, being stationed among you, with God's help alone I taught certain actual boys and youths by means of this art so that some after three days, others after four days, and one after a single week of training in it, were able to learn several antiphons and in a short time to sing them without hesitation, not hearing them sung by anyone, but contenting themselves simply with a copy written according to the rules. With the passage of not many days they were singing at first sight and extempore and without a fault anything written in music, something which until now ordinary singers had never been able to do, many continuing to practice and study singing for fifty years without profit.

When you were earnestly and diligently inquiring whether our doctrines would be of value for all melodies, taking as my helper a certain brother who seemed perfect in comparison with other singers, I investigated the Antiphoner of the blessed Gregory, in which I found that nearly all things were regularly set down. A few things, corrupted by unskilled singers, were corrected, both on the evidence of other singers and by the authority of the rules. But in the longer melodies, beloved brothers, we found sounds belonging to the high modes and excessive ascents and descents, contrary to the rule. Yet, since universal usage agreed in defending these melodies, we did not presume to emend them. We noted them as unusual, however, in order that no one inquiring into the truth of the rule might be left in doubt.

This done, you were kindled by a greater desire and insisted, with vehement entreaties and urgings, not only that rules should be made, but also that the whole Antiphoner should be written in useful notes and with the formulas of the tones, to the honor of God and of His Most Holy Mother Mary, in whose venerable monastery these things were being done.

Deriving confidence, therefore, from your entreaties, and complying with the orders of our common father, I am neither willing nor able to discontinue this work. For among the learned of this age the doctrine of this art is very difficult and extensive. Let therefore whoever pleases cultivate the field further with unwilling labor and wall it in. He who of himself perceives this little gift of God will be satisfied with a simple fruit. And in order that this may be the better understood and that you may receive what is necessary in proportion to your true desire, let one of you come forward to converse or ask questions. These I shall not neglect to answer, in so far as the Lord has given me the power.

I. OF THE MONOCHORD AND ITS USE

(Disciple) What is music?

(Master) The science of singing truly and the easy road to perfection in singing.

(D) How so?

(M) As the teacher first shows you all the letters in a table, so the musician introduces all the sounds of melody on the monochord.

(D) What is the monochord?

(M) It is a long rectangular wooden chest, hollow within like a cithara; upon it is mounted a string, by the sounding of which you easily understand the varieties of sounds.

(D) How is the string itself mounted?

(M) A straight line is drawn down the middle of the chest, lengthwise, and points are marked on the line at a distance of one inch from each end. In the spaces outside these points two end-pieces are set, which hold the string so suspended above the line that the line beneath the string is of the same length as the string between the two end-pieces.

(D) How does one string produce many different sounds?

(M) The letters, or notes, used by musicians are placed in order on the line beneath the string, and when the bridge is moved between the line and the string, shortening or lengthening it, the string marvelously reproduces each melody by means of these letters. When any antiphon is marked with the same letters, the boys learn it better and more easily from the string than if they heard some one sing it, and after a few months' training, they are able to discard the string and sing by sight alone, without hesitation, music that they have never heard.

(D) What you say is very marvelous. Our singers, indeed, have never aspired to such perfection.

(M) Instead, brother, they missed the right path, and failing to ask the way, they labored all their life in vain.

(D) How can it be true that a string teaches more than a man?

(M) A man sings as he will or can, but the string is divided with such art by very learned men, using the aforesaid letters, that if it is diligently observed or considered, it cannot mislead.

2. OF THE MEASUREMENT OF THE MONOCHORD

(D) What is this art, I inquire.

(M) The measurement of the monochord, for if it is well measured, it never deceives.

(D) Can I perchance learn the exact measurements, simply and in a few words?

(M) Today, with God's help; only listen diligently.

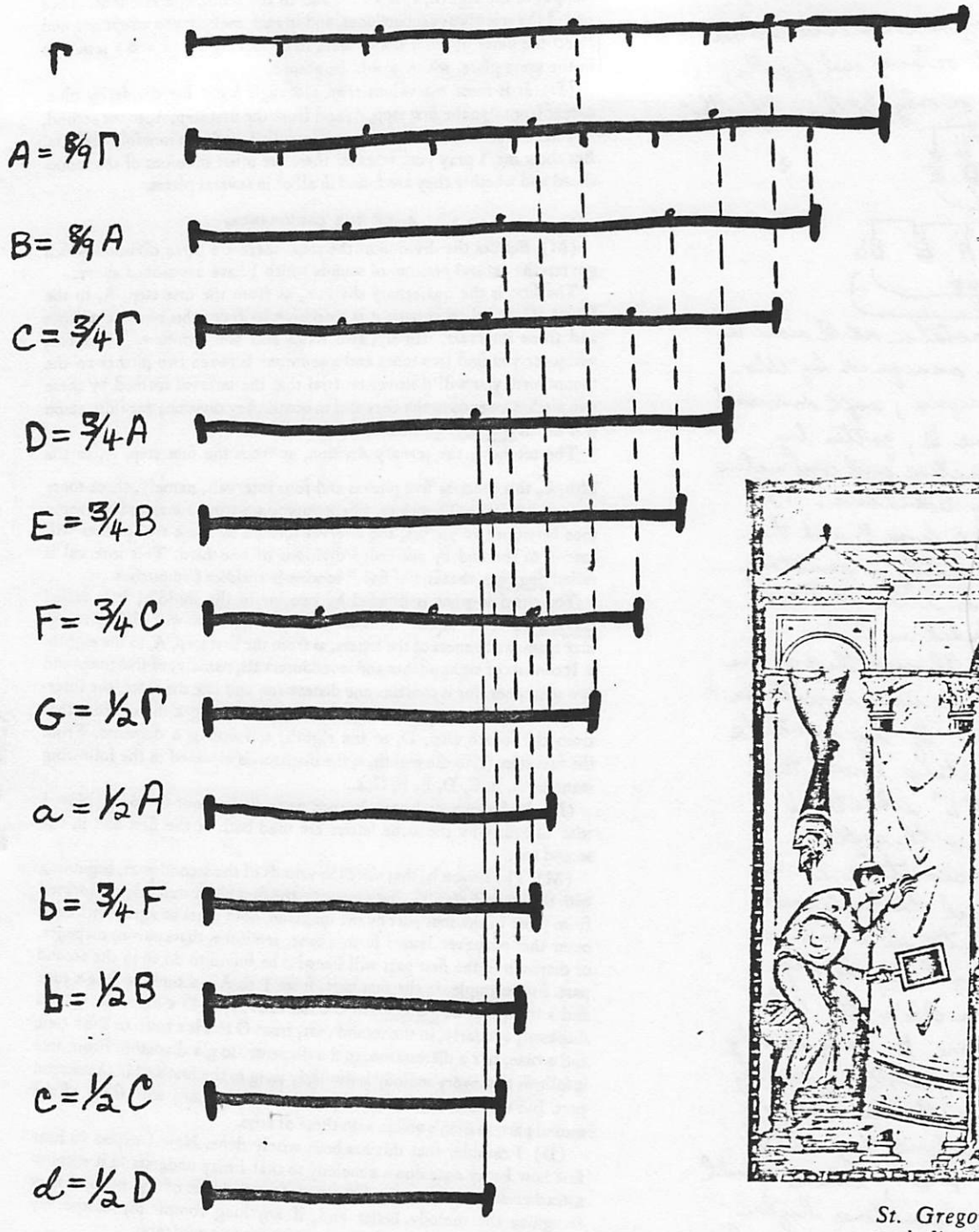
At the first end-piece of the monochord, at the point at which we have spoken above, place the letter Γ, that is, a Greek G. (This Γ, since it is a letter rarely used, is by many not understood.) Carefully divide the distance from Γ to the point placed at the other end into nine parts, and where the first ninth from Γ ends, write the letter A; we shall call this the first step. Then, similarly, divide the distance from the first letter, A, to the end into nine, and at the first ninth, place the letter B for the second step. Then return to the beginning, divide by four from Γ, and for the third step write the letter C. From the first letter, A, divide similarly by four, and for the fourth step, write the letter D. In the same way, dividing B by four, you will find the fifth step, E. The third letter, C, likewise reveals the sixth step, F. Then return to Γ, and from it and from the other letters that follow it in order, divide the line in two parts, that is, in the middle, until, without Γ, you have fourteen or fifteen steps.

When you divide the sounds in the middle, you must mark them differently. For example, when you bisect the distance from Γ, instead of Γ, write G; for A bisected, set down a second a; for B, a second ♭; for C, a second c; for D, a second d; for E, a second e; for F, a second f; for G, a second g; and for a, a second $\frac{a}{a}$; so that from the middle of the monochord forward, the letters will be the same as in the first part.

In addition, from the sixth step, F, divide into four, and before ♭, place a second round b; these two are accepted as a single step, one being called the second ninth step, and both are not regularly found in the same melody.

The figures, moreover, both sounds and letters, are thus arranged in order:

	Γ		
First step	A	Eighth step	a
Second step	B	First ninth step	b
		Second ninth step	♭
Third step	C	Tenth step	c
Fourth step	D	Eleventh step	d
Fifth step	E	Twelfth step	e
Sixth step	F	Thirteenth step	f
Seventh step	G	Fourteenth step	g
		Fifteenth step	$\frac{a}{a}$



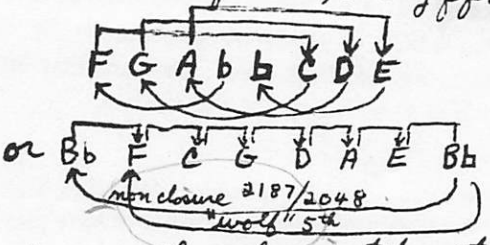
St. Gregory receiving the Chant melodies from the Holy Spirit and dictating them to his scribe.

NOTE The figure shows the string lengths gotten by Odo's division of the monochord. By examination one will find that it conforms to the Pythagorean tuning as described by Plato and Boethius. This Pythagorean temperament was the basis for all Medieval music and was not challenged until Renaissance times:

$$\Gamma\ A\ B\ C\ D\ E\ F\ G\ \overset{9/8}{a\ b}\ b\ c\ d\ e\ f\ g\ a\ \ldots$$
$$\frac{9}{8}\ \frac{9}{8}\ \frac{256}{243}\ \frac{9}{8}\ \frac{9}{8}\ \frac{256}{243}\ \frac{9}{8}\ \frac{9}{8}\ \frac{256}{243}\ \underset{9/8}{\frac{256}{243}}\ \frac{9}{8}\ \frac{9}{8}\ \frac{256}{243}\ \frac{9}{8}\ \frac{9}{8}$$

NOTE how the Medieval gamut combines both the Greater Perfect System and the Lesser Perfect System of the Greeks.

Note. The same tuning would occur had Odo used only perfect octaves and fifths, or octaves and fourths, or only fifths and fourths:



Notes. The modern notation still uses the same letter names as assigned by Odo. Note the two different signs, soft or round b and hard or square ♮, gotten by joining both the disjunctive and conjunctive systems mentioned by Boethius. The square ♮ is the octave from B and the round b is approximately a semitone lower or "flatter". In later Medieval times notes not included in Odo's system were inserted through the process of musica ficta which used variations of the signs ♮ and b. If they wanted a note that was a semitone lower than E, they would write "E b" where the b would, by analogy with soft b, indicate the note a semitone lower than E. The natural diatonic note that wasn't to be flattened would sometimes be emphasized by the sign ♮, a variation from Odo's ♮. Also as one thinks of square ♮ being nearly a semitone higher than soft b, so by analogy when they wanted a note to be raised by a semitone they added the sign #, as in "F#", which would indicate a note a semitone higher than the normal F. Clearly "#" is also derived from Odo's ♮.

3. OF TONE AND SEMITONE

But why is it, I entreat, that I see on the regularly measured monochord in one place smaller and in another place larger spaces and intervals between the steps?

(M) The greater space is called a tone; it is from Γ to the first step, A, and from the first step, A, to the second, B. The lesser space, such as that from the second step, B, to the third, C, is called a semitone and makes a more restricted rise and fall. By no measure or number may the space of a semitone amount to that of a tone, but when the divisions are made in their places by the ratio given above, tones and semitones are formed.

If you have marked all the steps to the last, you will marvel to find in all of them a ninefold division just as you found it at first from Γ to the first step, A, and from the first step, A, to the second, B. Yet the first and second ninth steps, b and ♮, form with respect to one another neither a tone nor a semitone, but from the first ninth step, b, to the eighth, a, is a semitone and to the tenth, c, a tone; conversely, from the second ninth step, ♮, to the eighth, a, is a tone and to the tenth, c, a semitone. Thus one of them is always superfluous, and in each melody you accept one and reject the other in order not to seem to be making a tone and a semitone in the same place, which would be absurd.

(D) It is most marvelous that, although I did not divide by nine, except from Γ to the first step, A, and from the first step, A, to the second, P, I have found that all the tones are equally based on a ninefold division. But show me, I pray you, whether there are other divisions of the monochord and whether they are found in all or in several places.

4. OF THE CONSONANCES

(M) Besides the division of the tone, there are three divisions which govern the natural position of sounds which I have mentioned above.

The first is the quaternary division, as from the first step, A, to the fourth, D, so called because it is a division by four; this has four pitches and three intervals, namely, two tones and one semitone. Therefore, wherever you find two tones and a semitone between two pitches on the monochord, you will discover on trial that the interval formed by these two pitches extends to the very end in quaternary division; for this reason it is called diatessaron, that is, "of four."

The second is the ternary division, as from the first step, A, to the fifth, E, this contains five pitches and four intervals, namely, three tones and one semitone. Therefore, wherever you see three tones and one semitone between two pitches, the interval formed by these two pitches will extend to the end by successive divisions of one-third. This interval is called diapente, that is, "of five," because it encloses five pitches.

The third is what is divided by two, or in the middle; it is called diapason, that is, "of all." This, as was said above, you will plainly recognize from the likeness of the letters, as from the first step, A, to the eighth, a. It consists of eight pitches and seven intervals, namely, of five tones and two semitones, for it contains one diatessaron and one diapente, the interval from the first step, A, to the fourth, D, forming a diatessaron, that from the fourth step, D, to the eighth, a, forming a diapente. From the first step, A, to the eighth, a, the diapason is obtained in the following manner: A, B, C, D, E, F, G, a.

(D) In few words I have learned not a little about divisions. Now I wish to hear why the same letters are used both in the first and in the second part.

(M) The reason is, that since the sounds of the second part, beginning with the seventh step, G (but excepting the first ninth step, b), are formed from those of the first part by the diapason, both parts so agree with each other that whatever letters form a tone, semitone, diatessaron, diapente, or diapason in the first part will likewise be found to do so in the second part. For example, in the first part, from Γ to A is a tone, to B is a tone and a tone, that is, a ditone, to C a diatessaron, to D a diapente, to G a diapason; similarly, in the second part, from G to a is a tone, to ♮ is a tone and a tone, to c a diatessaron, to d a diapente, to g a diapason. From this it follows that every melody is similarly sung in the first and in the second part. But the sounds of the first part sound in concord with those of the second part, as men's voices with those of boys.

(D) I consider that this has been wisely done. Now I expect to hear first how I may note down a melody so that I may understand it without a teacher and so that, when you give me examples of the rules, I may recognize the melody better and, if anything completely escape my memory, have recourse to such notes with entire confidence.

(M) Place before your eyes the letters of the monochord as the melody ranges through them; then, if you do not fully recognize the force of the letters themselves, you may hear them and learn them, wonderful to relate, from a master without his knowing it.

(D) Indeed I say that you have given me a wonderful master, who, made by me, teaches me, and teaching me, knows nothing himself. Nay, for his patience and obedience I fervently embrace him, and he will never torment me with blows or abuse when provoked by the slowness of my sense.

(M) He is a good master, but he demands a diligent listener.