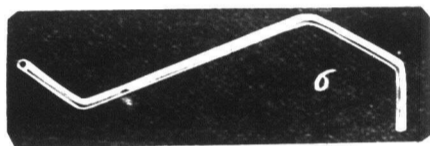


ments, and sometimes to perform them under the teacher's direction.

Our apparatus being ready, we will have some practice in manipulation:

Put some alcohol into the spirit lamp, and insert a good wick. Make a scratch directly across a piece of glass tubing with the edge of a triangular file. Hold the tube with the thumbs opposite the scratch, and with the fingers on the same side of the tube as the scratch: use force as if you intended to bend the tube backward at the scratch. The tube should break squarely off. Round the sharp edges of the glass by holding them in the flame of the spirit lamp until red hot.

Take a piece of $\frac{3}{8}$ in. glass tubing, about 18 in. long. Hold it in the upper part of the flame, turning it so



as to heat an inch or more uniformly. When the glass begins to soften, slowly bend it to the required angle, and allow to cool gradually. Make two other bends in the same plane, giving the tube the form shown in Fig. 2.

Notes for Teaching Music by the Tonic Sol fa Notation.

NINTH PAPER.

First, note at the end of this paper a few corrections on the last, which may have caused some difficulty.

We have looked at transition into the right hand column on the modulator, *i. e.*, into the first sharp key, Key G, where *s* becomes *d*, and the fourth note of the scale *f* is sharpened to give the seventh note, the *t* of the new scale. If we go into the second column to the right, again the *s* becomes *d*, the *f* is sharpened and becomes *t*, and all the other notes take the corresponding places and have the character of these respective notes of the scale. Look now at the *d* in the central column and the *d* in the second column to the right. We see that it has been raised one octave and one tone. Disregard the octave and think of two removes as raising the pitch of the *d* one tone. We may then say

	2 removes or 2 sharps give us Key D
4	" " 4 " " " Key E
6	" " 6 " " " Key F (sharp)
Again 1	" " 1 " " " Key G
3	" " 3 " " " Key A
5	" " 5 " " " Key B.

We shall now look to the first left hand column. On looking at the modulator we see that *f* becomes *d*.

So the lower tetrachord *d r m f* becomes the upper tetrachord *s l t d* of the new key. All the other notes fall into their proper places, except *t*. Its flat, which we call *ta*, becomes *f* of the new scale. This is just the same change that is made in returning from the key of G into the central column of the modulator, which is understood to represent the key of C.

The transition into the first column to the left comes next after that into the right in teaching. Where *s* becomes *d* is the easiest transition, and where *f* becomes *d* is next. In whatever key we are singing the first remove to the right is the easiest, and the next easiest is one remove to the left.

Let the teacher point on the modulator such an exercise as the following:

No. 1
 $\left| \begin{array}{cccc} d & : & m & f \end{array} \right| \left| \begin{array}{cccc} s & : & d & t \end{array} \right| \left| \begin{array}{cccc} l & : & f & : \end{array} \right|$
 Draw attention to the weeping *l*. Then point No. 2.

No. 2
 $\left| \begin{array}{cccc} d & : & s & f \end{array} \right| \left| \begin{array}{cccc} m & : & r & d \end{array} \right| \left| \begin{array}{cccc} t & : & l & : \end{array} \right| \left| \begin{array}{cccc} s & : & f & : \end{array} \right|$

Let the teacher now point and sing No. 2, but to the syllable *te*: sing the flat note *td* and ask the class what the notes *d t l s* sound like—*s f m r d*. Note how *te* has lost its brighter and assumed a duller character, and how the *lah* now resembles *doh*. The class will feel that while the syllable *te* was sung it was not the note *t*, but a sound a little lower. Give the pupils the name for this note *ta*. Ask the class to sing No. 2 to the teacher's pointing on modulator, only pointing not *te* but *ta*, after the teacher has sung it over to them. Next point the exercise on the modulator at *d*, passing into the side column *s f m r d*. Hold the bridge note *well* to the syllable *soh*, in order to establish in the pupil's mind that the note has got a new character; not the strong, firm, restful character, but the grand, bright effect of *soh*.

This changing of the mental effects of sound may be suggested to the pupils thus: Picture Farmer Jones working in the field, and then introduce to them Captain Jones of the volunteers. In his uniform, at the head of his men, he seems quite a different person. Next introduce him in his boat as a fisherman. The difference of dress and position seem to give him a different character. After the children have got familiar with one note of the scale taking the character of another in changing key, the pupils may be got to make any change of key if the teacher be careful. This may be done either on the modulator or with the manual signs. Let him stop at any note of the scale. Tell them now to think of any other note of the scale: sing that syllable sufficiently long to impress the new character, pointing to the