

CHAPTER XI

THE COMBINATION PISTONS

One of the important details in organ playing is the selection of suitable combinations of stops for quick command through the pistons. Only by the use of a logical and efficient piston "set-up" can speed in registration be attained. An explanation of the various systems of combination control was given in Chapter X, and it will be unnecessary to give directions again regarding the *process* of setting pistons. In this chapter we will consider the factors which lead us to select certain groups of stops for command by the pistons.

Chief among these factors is the principle that *some of the pistons should be set primarily for chord-work and some for solo-effects*. The importance of this principle cannot be exaggerated, yet it is evidently one which is unknown to many organists. Let us suppose that you have five pistons affecting the stops of the Swell division of an average-size two-manual organ: the allotment of pistons for solo stop control should not be less than one and may in many cases be two, the remaining four or three pistons, as the case may be, commanding groups of stops selected primarily for chord use.

This would seem to be a rather obvious principle; and, based as it is on the known fact that an organist must be able to seize both solo and chord-work combinations with equal speed, we should expect to find it generally practiced. The observation of the author, however, based on examination of hundreds of organs, indicates that all too many players set their pistons almost exclusively for chord use. Hence we stress the

rule that the pistons should provide for both types of effect and that the ratio should be approximately four to one, three to one, or in larger organs such a ratio as five to three.

Any effort to indicate exactly what to set on the pistons brings us into conflict with the great variation among organs of different builders as to *how much is controlled by the manual pistons*. We encounter in this country at least four different scopes of piston operation, viz: 1.—Manual pistons affect only speaking-stops of manual in question. 2.—Manual pistons affect speaking stops of manual in question and also stops of Pedal organ. 3.—Manual pistons affect speaking stops of manual in question, speaking stops of Pedal organ, all couplers which add to manual in question and all manual to pedal couplers. 4.—A system which does not control couplers, and which makes the operation of Pedal stops optional through the use of a “Pedal to Combination, On-Off” set of buttons. Variants of these four systems are sometimes encountered.

However, certain basic principles remain, though precautions must be observed with most of these systems. Probably a definite illustration may help the pupil to grasp the problems involved: let us then consider a hypothetical organ specification showing two manuals, pedals, with five pistons provided for each manual. Such an organ might offer a selection of stops such as the following:

GREAT	SWELL	PEDAL
Open Diapason, 8 ft.	Bourdon, 16 ft.	Open Diapason, 16 ft.
Clarabella, 8 ft.	Open Diapason, 8 ft.	Bourdon, 16 ft.
Gamba, 8 ft.	Gedeckt, 8 ft.	Lieblich Gedeckt, 16 ft.
Dulciana, 8 ft.	Salicional, 8 ft.	Octave, 8 ft.
Harmonic Flute, 4 ft.	Voix Celeste, 8 ft.	Flute, 8 ft.
Tromba, 8 ft., or	Aeoline, 8 ft.	
Chimes	Flauto Traverso, 4 ft.	
	Corno-pean, 8 ft.	
	Oboe, 8 ft., or Vox Humana, 8 ft.	

This is not offered as an ideal specification, but rather as one fairly typical of the average two-manual organ of the past decade. Let us now consider a specimen piston set-up for the Swell division, assuming a complement of five pistons to be available. On a four to one ratio, something like the following might be quite useful:

1. Salicional, Voix Celeste, Tremolo
2. Salicional, Gedeckt, Flute, Tremolo
3. Diapason, Gedeckt, Flute
4. Diapason, Gedeckt, Salicional, Flute, Oboe or Cornopean
5. Oboe, or Vox Humana with Flute, and Tremolo

On a three to two ratio, the following is suggested:

1. Salicional, Voix Celeste, Gedeckt, Tremolo
2. Diapason, Gedeckt, Flute
3. Diapason, Salicional, Gedeckt, Flute, Oboe or Cornopean
4. Cornopean, Gedeckt, Tremolo, or Flutes—16, 8, 4, Tremolo
5. Oboe, or Vox Humana with Gedeckt, and Tremolo

Considering now the four systems of piston control mentioned on page 84, paragraph 2, the setting would be as follows: On the first system the stops would be set exactly as given above. With the second and fourth systems it would be necessary or advisable to set proper Pedal stops simultaneously, and these would probably be found to require the following:

FOUR TO ONE RATIO

1. Lieblich Gedeckt, 16 ft.
2. Bourdon, 16 ft.
3. Bourdon, 16 ft., Flute, 8 ft.
4. Diapason, 16 ft., Flute, 8 ft.
5. Lieblich Gedeckt, 16 ft.

THREE TO TWO RATIO

1. Lieblich Gedeckt, 16 ft.
2. Bourdon, 16 ft.
3. Diapason, 16 ft., Flute, 8 ft.
4. Gedeckt or Bourdon, 16 ft.
5. Lieblich Gedeckt, 16 ft.

It will be seen that the aim is to provide a suitable amount of Pedal tone for those pistons set for chord-work, and to provide for the solo-stop pistons an amount of Pedal tone which will be proper for the soft accompaniment which will be used on the Great manual.

Likewise, in the third system, the manual to pedal coupling will be determined by the purpose for which

used. In the first of these suggested set-ups (four to one ratio), pistons 1, 2, 3, 4 will normally include the Swell to Pedal coupler, while piston 5, being intended for melody work with accompaniment on the Great, will be set to draw the Great to Pedal coupler. In the second suggested set-up (three to two ratio), pistons 1, 2, 3 will include Swell to Pedal coupler, and pistons 4, 5 will command Great to Pedal.

With the Great pistons the process is similar though a trifle more involved. Where the pistons command the speaking-stops only, the usual plan is to arrange a crescendo from left to right on four pistons and place some special effect on the fifth in this manner:

1. Dulciana
2. Clarabella
3. Gamba, Clarabella, Flute
4. Diapason, Clarabella, Dulciana, Flute
5. Tromba alone, for brass effects, or Chimes

Again we have the compromise of a graduated series of effects intended mostly for chord work, and a special effect of a solo nature.

In the systems where the Pedal stops also are commanded by the manual pistons a suitable balance of Pedal tone must be set on the pistons, just as was done in the case of the Swell pistons.

Where the pistons command both stops and couplers, the greatest care and foresight must be exercised. Here the problem is to take care of the use of the Great in its dual function as a part of the "ensemble" or combined resources of the two manuals, and also in its capacity in the smaller instruments of an accompanying manual. To accomplish this, many expert players resort to what is often termed "double setting" on the first two pistons. This means arranging piston 1 wholly for accompanimental use with a set-up like this: Clarabella, Pedal Lieblich Bourdon, Great to Pedal, and setting piston 2 thus: Clarabella, Pedal Bourdon,

Swell to Great, Swell to Pedal, Great to Pedal. In the first instance we are clearing the decks for a solo effect on the Swell, and in the second instance we are preparing to combine the resources of the two manuals—which we purpose to play from the Great. In compositions offering rapid alternations of chord and solo effects this device will be found to be extremely valuable. There follows a specimen set-up for five Great pistons, with couplers and Pedal stops affected:

GREAT	PEDAL	COUPLERS
1. Clarabella	Lieblich Gedeckt	Gt. to Ped.
2. Clarabella	Bourdon	Sw. to Gt., Sw. & Gt. to Ped.
3. Gamba, Clarabella, Flute	Bourdon, Flute	Sw. to Gt., Sw. & Gt. to Ped.
4. Diapason, Clara- bella, Flute	Diapason, Flute	Sw. to Gt., 8 ft., 4 ft., Sw. & Gt. to Ped.
5. Tromba (brass effect) or Chimes	Bourdon, Flute Lieblich Bourdon	Gt. 4 ft., Sw. to Ped. Sw. to Ped.

All these combinations are of course susceptible to modification, but the basic principle should be understandable to the student. If possible, experiment with the above suggestions at an organ of approximately the size and scope instanced.

On three-manual organs much of what we have just said applies to the third, or Choir manual. "Double-setting" here again is of value where the couplers are controlled by the pistons, as it makes for speed in securing accompaniment effects. On the Choir there must be not less than one solo effect ready on a piston (usually a Clarinet or English Horn), and it is all the better if two good solo effects can be so arranged. The Pedal coupling will usually go to the Swell organ, in the case of these Choir solo-stop pistons.

Pistons to the Solo manual are usually set purely for melodic or obligato use, either as melodies or counter melodies. When the fourth keyboard is an Echo division instead of a Solo, it is usually most effective when used antiphonally, rather than coupled to the

three lower manuals. However, no rules can be given on the treatment of Echo divisions, due to the variable factors involved. The player who has really mastered pistons and their possibilities on a three-manual organ rarely has trouble in graduating to larger instruments.

Pistons controlling the Pedal stops only are usually set in some form of a crescendo on smaller organs. We might note, however, that it is sometimes handy to reserve one piston for commanding only the 8 ft. Octave, or 8 ft. Flute, for use when particularly sharp and incisive pizzicati effects are needed.

General pistons, which affect the entire organ, couplers included, demand most careful consideration. All that has been said regarding the necessity for both chord and solo provision applies with equal or even greater force in the case of the Generals, and the possible treatments are many. The following tabulation is given as a sample of the possible set-ups:

Piston 1

Great: Dulciana, Clarabella. Swell: Salicional, Voix Celeste, Gedeckt. Pedal: Lieblich Gedeckt. Couplers: Sw. to Gt. 8 ft., Sw. to Ped.

Piston 2

Great: Diapason, Clarabella, Flute. Swell: All stops but Cornopean and Vox Humana. Pedal: Open Diapason, Bourdon. Couplers: Sw. to Gt., 8 ft. and 4 ft., Sw. to Ped., Gt. to Ped.

Piston 3

Great: Dulciana. Swell: Oboe, Tremolo (or Strings and Flute, Vox Humana optional). Pedal: Lieblich Gedeckt. Coupler: Gt. to Ped.

Piston 4

Great: Tromba, or Gamba and Clarabella. Swell: Diapason, Gedeckt. Pedal: Bourdon, Flute. Couplers: None, or may be either Sw. to Ped., or Gt. to Pedal, as desired. Gt. 4 ft. optional.

Piston 5

A. Great: Chimes. Swell: Aeoline and Gedeckt, Tremolo. Pedal: Lieblich Bourdon. Coupler: Sw. to Ped.

or it may be:

B. Great: Dulciana. Swell: Vox Humana with either Gedeckt or Flute, Tremolo. Pedal: Lieblich Gedeckt. Coupler: Gt. to Ped.

Many other arrangements would be possible. Analysis of the above tabulation indicates that piston 1 is planned for soft chord work, accompaniments in anthems, etc. Piston 2 is for *mf* to *f* effects and for congregational singing. Piston 3 is for the often needed Oboe or String-combination solo on the Swell. Piston 4 is for either brass fanfare effects or cello imitation, depending upon the setting chosen, with a French Horn imitation on the Swell: these effects are often needed in orchestral transcriptions. Piston 5 is for either Chimes with soft accompaniment or Vox Humana solo, depending upon the set-up chosen.

It will be noted that pistons 1, 2, 3, 5 command effects which occur repeatedly in organ music and in service playing, and that the changes such as from 2 to 5 and from 5 to 1, embrace so many motions that a lengthy pause would likely be needed if the operation were attempted by hand on the stops and couplers. It is these complicated re-arrangements which should be considered when deciding the set-up of General pistons. *Their function should be to serve when many changes are needed instantaneously.*

The suggested combination for piston 4 is purely empirical. It might just as well be any other effect for which you have need, as for instance, all the strings with sub and super couplers, or all the flutes, or a Gamba solo against the Swell Gedeckt and Flute. If you have much liturgy in your services it might be well to arrange a combination to take care of any needs that arise in that line.

In conclusion let us note that the set-up of all pistons may well be altered from time to time, even from Sunday to Sunday, so as to produce new effects and to avoid repetition of certain stock combinations. The amateur organist is prone to registration habits, and much inclined to allow combinations to remain on the pistons for months at a time. Always remember that

pistons are adjustable (in all modern organs), and that you will be able to discover new effects from time to time and that it is well to capture such effects on the pistons and use them. Intelligently used, the pistons are your greatest aid in managing registration smoothly and without pauses.

CHAPTER XII

DICTIONARY OF ORGAN STOPS *

Aeoline—8 ft., rarely 16 ft., 4 ft.

Usually the softest stop in the organ and of a slightly stringy character of tone; usually in the Swell organ. (Aeolian, Harp Aeolian, Vox Angelica) = Dolce, Dulciana, Echo Salicional, Muted Viol.

Acoustic Bass—see Resultant Bass.

Bass Flute—8 ft.

The name frequently given to the octave stop of the 16 ft. Bourdon although occasionally (and erroneously) used for the octave of the 16 ft. Open Diapason; almost invariably a Pedal organ stop. (Flauto Dolce, Flute, Gedeckt, Gross Flute) = Violoncello, or couple a manual Flute stop to the pedals, or use Pedal Octave Coupler.

Bassoon—8 ft., 16 ft.

In American organs this stop appears most often as the bass octave of the Oboe stop—and in reality is very often not at all a true specimen of Bassoon stop proper; the 16 ft. form appears in large organs as a Contra Fagotta—and is usually available on both the Pedals and on one (or occasionally two) manual section—being made thus available by borrowing or duplexing. The tone is somewhat on the common Oboe type but more hollow and with a slight raspiness; it is a most useful stop when well made. (Bassoon, Fagotto, Double Trumpet) = Posaune, Violone, Contra Viol, Double Dulciana, or sub-couple a reed of Oboe type.

Bombarde—32 ft., 16 ft., very rarely 8 ft.

A very powerful reed stop of majestic effect; tone of Trombone quality. Found in most cases in the Pedal organ, where its sonority causes it to excel in nobility the Double Open Diapason of 32 ft. pitch. (Bombardon, Bombardone, Contra Trombone) = Contra Trombone, Contra Tuba, Tuba Profunda, Ophicleide, or full pedal organ.

Bourdon—see Gedeckt.

Carillons—8 ft., 4 ft.

Term denoting a set of tubular or flat bars of metal—graduated as to size and tuned to the notes of the scale; equipped with tuned resonators and struck by a hammer-action similar to that of the Piano-forte. The stop, in one of its various forms, is becoming quite a usual part of the equipment of large organs; it is frequently called the *Harp* stop—to which instrument

*The names following the sign = denote stops or combinations of stops which may be used as substitutes should the desired stop be unavailable.

it has in many cases not a little resemblance. The term is sometimes used to indicate a set of tubular *Chimes*—to which use it should not be put; the imitative tubular Chimes should invariably be designated by a name which will clearly indicate that the stop is of the imitative bell type; for stops of the plate-and-resonator type the terms *Carillon* or *Celesta*, or the more easily and generally understood *Harp*, are adequate. (Glockenspiel, Carillon, Tubular Bells)=a Gross Flute played staccato will sometimes simulate a Carillon effect, as will the combination of a 16 ft. Bourbon and a soft 2 ft. stop with tremulant and swell-shades closed.

Celeste

Denotes a stop of two ranks—one of which may or may not be available as a single stop for general use; the extra rank is termed the *Celeste* rank and is to be invariably used with the similar stop provided in the specification. The Celeste stop is tuned slightly sharp or flat to the pitch of the relative stop, thus producing when the two are used together a delightful wave-like or vibrato effect of considerable value in lending warmth to the tonal effect. The most common form is the Vox Celeste, or String Celeste—in which stop the simulation of the wrist-vibrato of string instrument players is most marked; of late Flute Celeste stops have been introduced, sometimes under the name *Unda Maris*, and these stops also are of very great usefulness. It may be remarked that where these stops are provided the player need not employ the tremolo to anything like the extent necessary when such is not the case, as the stops in themselves provide the vibrato formerly the exclusive production of the tremolo.= Where Celestes are not available the Tremolo is the one and only possible means of assistance.

Cello—see Violoncello.

Clarabella—8 ft., rarely 4 ft., 16 ft.

A bright-toned flute which is all too often supplanted by the less attractive Melodia; the tone is purer and more liquid than the latter stop. It is an accompanying stop *par excellence* and is usually scaled and voiced with that purpose in view. (Melodia, Concert Flute, Claribel Flute)=Use a Gedeckt or a soft flute or Dulciana as a substitute.

Chimes—pitch regarded usually as 8 ft.

Tubular bells struck by a hammer-action similar to that of the piano-forte and connected with one or more of the keyboards; they should be as remote from the main organ and the listeners as can be arranged, and in playing them it is well to keep the swell-shades almost entirely closed—else the effect will resemble fire-gongs more than the desired church chimes! No really effective substitute is possible; where a Celesta is available it is sometimes possible to produce a passable imitation by playing staccato on the combination of Celesta and Gross Flute—if the latter is not too loud. But as a general thing it is useless to attempt any literal imitations.

Clarinet—8 ft., occasionally 16 ft.

The modern Clarinet stop is perhaps the very closest imitation of the orchestral prototype which the modern organ affords; sweet and clear in tone and with a peculiar hollow warmth in the lower or *chalmeau* register, it combines well with other stops (much better than the common Oboe) and its voice in solo passages does not cloy as quickly as the latter stop. (Corno di Bassetto, Corno di Caccia, Cremona, Krummhorn, Orchestral Clarinet, =Oboe, Salicional and 4 ft. Flute, soft Gamba.

Clarion—4 ft.

An octave reed stop usually of considerable brilliancy; generally the octave stop of the Great or Solo Tuba or Trumpet stops. (Clarione, Harmonic Clarion, Tuba Clarion, Trumpet Clarion) = Use a super coupler or couplers where absolutely necessary.

Concert Flute—8 ft., 4 ft.

Until recent years this was most often a 4 ft. stop of somewhat imitative voicing, its prototype being the orchestral flute; recently the name has been also utilized for a stop of quiet, un-orchestral flute tone—not unlike the Melodia but rather softer and somewhat more pure in quality. (Orchestral Flute, Concert Flute, Konzertfloete) = Melodia, Clarabella, Flauto Dolce, Flute d'Amour or a soft Gedeckt stop if no open flute is available.

Contra—(Latin prefix)

Term denoting stops of sub-octave pitch—*double* stops, as Contra Bourdon, *i.e.*,—of pitch an octave below the normal Bourdon. Applied to many classes of stops.

Contra Bass—16 ft.

Should be invariably reserved for the Violone or similar stops, but is wrongly used occasionally for the pedal 16 ft. Open Diapason. Should be imitative of the Double-Bass of the Orchestra. (Violon Bass, Contre-Basse) = Bourdon, Dulciana, Gedeckt, Gamba.

Cor Anglais—8 ft., rarely 16 ft.

Imitative of the English Horn of the orchestra; purely a solo stop, and does not combine at all well, and sometimes—it has an unhappy faculty for getting out of tune very rapidly. (English Horn, Corno Inglese) = Gamba (soft) and Flute d'Amour, Clarinet and 4 ft. Gemshorn.

Cornet—see Mixture.

Corno—8 ft.

Generally the most powerful stop of the Swell organ; a reed of rather more round and full tone than that of the Trumpet. A fine solo stop when well voiced; with the swell shades closed it gives a fine imitation of the baritone Horn of the brass band and in chords a suggestion of Trombone quality. (Horn, Posaune, Tuba) = Combinations of Diapasons, Flutes and Oboe will suggest the Corno quality.

Coupler

A mechanical aid for combining at various pitches the different departments of the organ. See Chapter on Couplers and their use.

Diapason—32 ft., 16 ft., 8 ft., 4 ft., 2 ft., and Mixture work.

The Diapason family—the backbone of the organ—are unique in that they produce a quality of tone having no prototype among orchestral or other instruments; the tone may therefore be considered as one of the (if indeed not *the*) most characteristic attributes of the organ, and in truth it is this quality of tone which—more than any other—distinguishes the organ from all other instruments. The nearest resemblance is to that of softly played Trombones in the middle register of 8 ft. stops; above and below that there

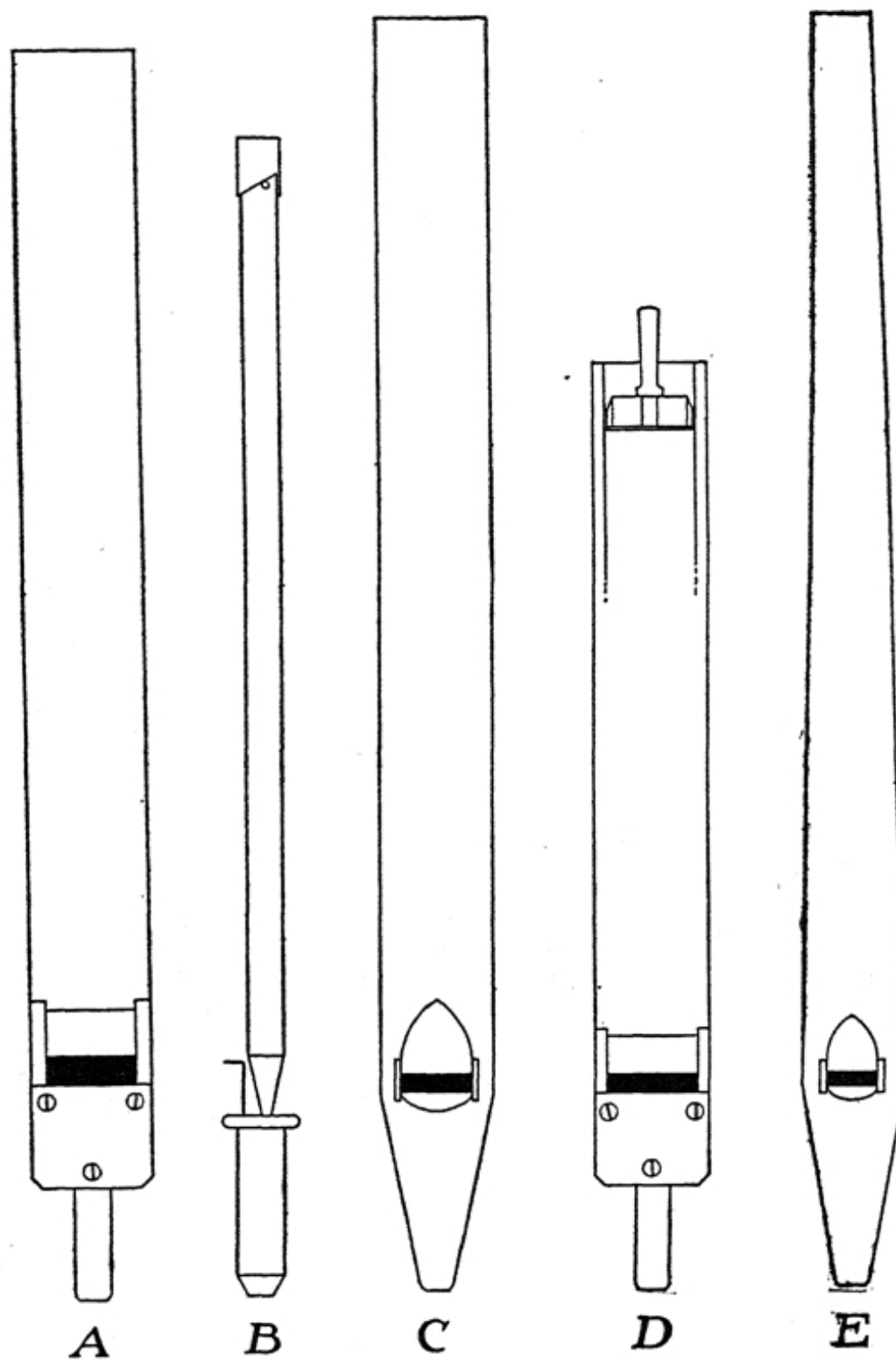


FIG. 29. *a*, Clarabella; *b*, Clarinet; *c*, Diapason; *d*, Gedeckt; *e*, Gemshorn.

is absolutely no other tone to which it can be likened. Despite this extreme distinctiveness the character of Diapason tone varies considerably, and so we find it appearing in many forms which partake somewhat of the characteristics of other tone-families, *i.e.*—the Geigen-Principal—with a trace of the String, the Leathered-Lip Diapason—with something of a fluty nature, etc. The old Bell Diapason, in which the pipes were surmounted by a conical bell is now obsolete, due largely to the over-crowded condition of present-day organ chambers. The Diapason Phonon, invented by the late Robert Hope-Jones, is a leathered-lip variety speaking on heavy wind-pressure, and producing a tone of much combinational as well as individual worth. (Principal, Montre, Flûte de Huit)=No substitutes are possible, and indeed none will be needed—except that perhaps in the very smallest organs (we are tempted to say “toy” organs!) it may be necessary to use combinations of other stops to supply a substitute for a missing Diapason on one or more manuals. In Pedal organs where—through lack of sufficient funds—the Open Diapason of 16 ft. has been omitted it is necessary to utilize the usually present stops of Bourdon type—although with an entire loss of that grandeur and majestic dignity so characteristic of the organ at its best.

Diaphone—32 ft., 16 ft., 8 ft.

Stops developed by the late Robert Hope-Jones. The principle used is that of a vibrating diaphragm or tremulant—the frequency of which is governed by the length of the resonator with which it is employed, while the power is limited only by the available wind pressure, a corresponding increase of power following the raising of the pressure. Various qualities of tone may be produced, although at present the only forms in use partake of the nature of the Diapason or Tuba families; in some of these latter forms the power is almost unbearable. The Diaphone presents interesting features but cannot be said to be a fully developed proposition as yet. It is unlikely that any specific call for the stops will be found indicated in printed music.

Dolce—8 ft. Sometimes 16 ft., 4 ft. See Dulciana.

Dolcissimo—8 ft., 16 ft. See Dulciana.

Doppel Floete—8 ft. Rarely 16 ft., 4 ft

A flute provided with *two* mouths; tone thick, rather colorless. Formerly considered the best flute for the Great organ, but happily now being much less utilized; as a solo stop it is worthless. It is being supplanted by stops of the Gross Flute type. (Doppel Gedackt)=Gross Flute, Clarabella, Gross Gedackt, Melodia, or a soft Diapason—if of smooth tone.

Double Diapason—32 ft., 16 ft.

Sub-octave stops of the Diapason family—which see.=Double Gedeckt or Bourdon, Contra Dulciana, or perhaps a sub-octave coupler.

Dulciana—8 ft., also 16 ft., 4 ft.

Soft, sweet-toned stops, somewhat of the Diapason quality of tone but voiced with a slightly *horny* timbre; of prime worth as accompanying stops. Found most often as the softest stop of the Great or Choir organs. (Echo Dulciana, Dolce, Dolcissimo, Dulcet)=Aeoline, Vox Angelica, Echo Salicional, Muted Viol, Melodia.

Contra Fagotta—16 ft. See Bassoon.

Fern Flute—4 ft., rarely 8 ft.

Generally a very soft flute of somewhat imitative tone; the name is loosely employed, however, in this country. = Use any available soft flute as substitute.

Fifteenth—2 ft.

Of Diapason tone at super-octave pitch; adds brilliancy and pitch-definition to the normal and octave pitch Diapasons. See Diapason. (Super Octave) = Piccolo, Flageolet, Flautina, or a super-octave coupler.

Flageolet—2 ft.

Softer and of more fluty tone than the Fifteenth, which see.

Flauto Amabile—8 ft., 4 ft

Similar to the Concert Flute, which see.

Flauto Traverso—4 ft. Rarely 8 ft., 2 ft.

Should be the nearest imitation possible of the orchestral Flute, and in some examples a close resemblance is attained. But in all too many cases it is nothing but a soft sweet-toned flute of no particular distinction. See Flute.

Flauto Harmonique—See Harmonic Flute.

Flute—32 ft., 16 ft., 8 ft., 4 ft., 2 ft. (Also Mutation.)

A generic term—covering a great variety of tone; runs the gamut from common organ tone (such as Melodia), used primarily for accompanying work, to imitative stops of much beauty. The term may even be regarded for practical purposes, as covering the Gedeckt stops. Roughly classified Flute stops fall into two divisions:

- 1st. Solo Flutes, mostly at 4 ft., but also occasionally at 8 ft. Such are the Flute Harmonique, Flute d'Orchestre, Flute d'Amour, Traverso Flute, Gross Flute, etc.
- 2d. Accompanimental Flutes, and Flutes intended for Pedal organ and combinational use primarily. Such include Melodia, Clarabella, Concert Flute (as often voiced), Gedeckts, Bourdons, etc.

These stops are, of course, freely interchangeable among members of their own class, but care must be taken not to use as a substitute for a quiet accompanimental stop a flute of pronounced solo attributes.

French Horn—8 ft.

The most successful type of this stop is that invented by Mr. Ernest M. Skinner, of Boston, Mass., and the true form is found on few organs other than his; a triumph of fidelity to its orchestral model. = A soft Gross Flute, or leathered-lip Diapason may be substituted; the Swell Open Diapason alone, with closed Swell-shades is often a fairly good effect.

Gamba—16 ft., 8 ft., 4 ft.

The original string stops of the organ, the Gambas were of a hard, horny and rather raspy tone—even strident in some examples; from them have been developed the modern String stops which can truly be said to represent one of the great advancements of modern organ building. However, a modern softly voiced Gamba is a valuable stop for the Great organ, producing a

soft 'cello-like tone of considerable warmth. (Viola da Gamba, Gambette, Bell Gamba, Contra Gamba) = When not present use a modern Viol, Salicional or a soft Oboe or Clarinet if on a manual where the Strings cannot be utilized.

Gedeckt—32 ft., 16 ft., 8 ft., 4 ft.

Stops of a dull, unimitative flute tone, cloying and wearisome if used alone for any length of time; these stops are also called Stopped Diapason—misleadingly, however, as they are in no sense of the Diapason family. This faulty terminology is, fortunately, being less employed of recent years (Bourdon, Stopped Diapason, Tibia) = Flutes are the natural substitutes, or a soft Dulciana type of stop if needed for accompanying purposes.

Geigen-Principal—8 ft., 4 ft.

A variety of Diapason voiced with a bite to the tone which in some examples is positively fiery; partakes of the characteristics of both Diapason and Gamba. (Violin Diapason) = Some such combination as Salicional and Diapason, or Gamba and Gedeckt.

Gemshorn—4 ft., occasionally 8 ft.

Tone soft and sweet and rather reedy in timbre, something half-way between string and flute tone; pipes are conical in shape. = Use a soft flute or very soft Diapason or Dulciana.

Glockenspiel—See Carillons.

Gross Flute (Grosse Floete)—8 ft., 16 ft.

A full-toned flute of large-scale Clarabella pipes, much used in Great and Solo organs, and of much value both as a solo stop and for combinational purposes; it has really remarkable "filling" properties and supports heavy reeds most admirably. (Grossfloete, Grosshohlfloete, Gross Gedackt) = Any flute of full tone, or where necessary—Clarabella or Melodia.

It is to be regretted that this polyglot stop name has been so generally adopted throughout the country; either the original German form given in parentheses should be used, or much better and clearer would be the literal English translation *Great Flute*—a very happy terminology in view of the almost universal custom of placing the stop in the Great Organ. Bi-lingual stop-names are much too prevalent with us and should be suppressed as rapidly as possible by those who have to do with writing organ specifications.

Harmonia Aethera—8 ft., or Mutation.

In two forms, *1st.* Similar to the Aeoline. *2d.* As a soft Mixture stop. See Mixture.

Harmonic Flute—4 ft., rarely 8 ft.

Flutes of rather strong intonation; the pipes (in at least a portion of the compass) are of double length, pierced with a hole near the middle of the pipe, and over-blown. The most usual form of flute for the Swell organ; the Flauto Traverso is often made in this way. (Flauto Harmonique, Flauto Armonica, Flute Octaviante) = Fernflute, Flute d'Amour, Chimney Flute, or other flute.

Harp—8 ft.

Generally a modified form of Carillon—which see.

Hautboy—See Oboe.

Hohl Flute—8 ft., occasionally 16 ft., 4 ft.

A flute of rather hollow though smooth tone, not being used as much of recent years as formerly; the stop was made in many different forms. (Hohlfloete, Rohrflöte, Waldflöte)=Gross Flute, Doppel Flöte, Clarabella, or other flute.

Horn—8 ft.

Practically the same as the Cornopean, which see.

Horn Diapason—8 ft.

A species of hard-toned Diapason, not unlike the Geigen Principal, but less pleasing than that stop; the tone becomes very wearisome after a brief time. Some builders now voice it with a very smooth, placid tone. See Diapason.

Keraulophon—8 ft.

A peculiar, almost indescribable tone characterizes this stop; soft, a little muffled, even a bit like the tone of muted Horns in the orchestra. It is a great pity that this stop is not more often used than is at present the case.=Dulciana, Spitzflöte, Salicional.

Lieblich—German prefix meaning *lovely*, applied to various stops.

Major Bass—32 ft., 16 ft.

Denoting the Pedal Open Diapason, which see.

Melodia—8 ft., rarely 16 ft., 4 ft.

Much employed as the soft Flute for the Great or Choir organs; akin to the Clarabella, but not so colorful as that stop, and—in many examples—inclined to be rather “breathy” in speech.=Any soft flute may substitute.

Mixture

Harmonic-corroborating, or mixture stops are composed of from two to six ranks of pipes—these pipes speaking, in part, other notes than the unison or octave pitches of the notes played; the notes are those which compose the harmonic-series of tones—which taken together determine the timbre of the tones. It was early discovered that Diapasons in themselves were deficient in brilliancy and that any effort to force these higher partials by increasing wind-pressure or treatment in voicing only resulted in giving the pipes a hard and unpleasant tone; it was therefore necessary to resort to stops which would produce the needed tones as accessories to the Diapason stops themselves. Mixtures were the result; like all good things their purpose was misunderstood by some—with the result that they were in some examples simply intolerable: screaming, noisy, un-musical things. Present-day taste has now swung to the other extreme, and many organs are being built without any mixtures whatsoever; this is to be regretted, as they are of great value when properly designed, scaled, and voiced. (Rauschquint, Cornet, Acuta, Full Mixture)=Where not present, add in the order needed: 4 ft. stops, 2 ft. stops, and if essential, super couplers.

Montre—French name for Diapason, which see.

Mutation Stop—Generic term for Mixture stops, which see.

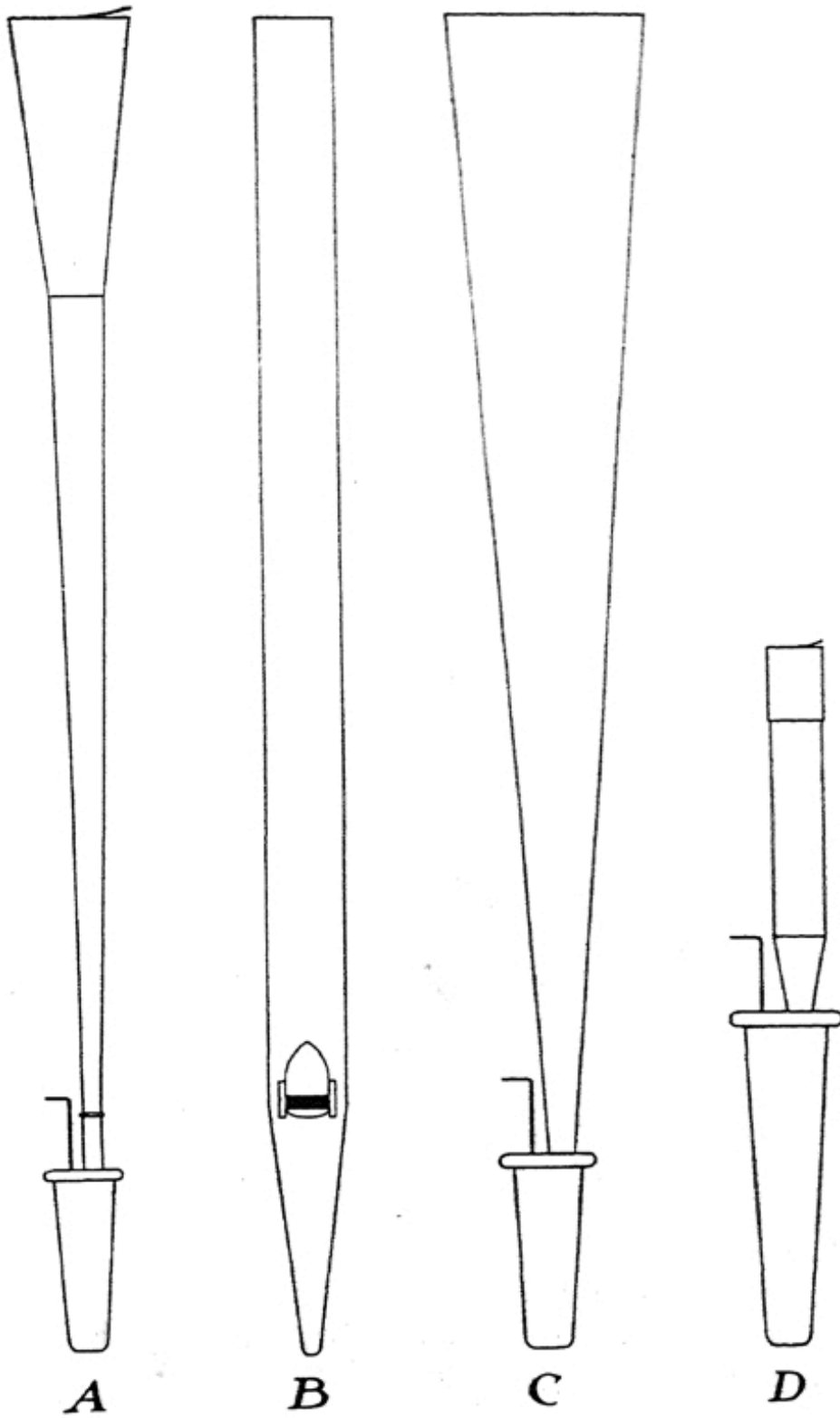


FIG. 30.

a, Oboe; *b*, Salicional; *c*, Trumpet; *d*, Vox Humana.

Muted Viol—see Viol Sourdine.

Oboe—8 ft., occasionally 16 ft., 4 ft.

Without doubt the most used reed stop in organs, and while it is rarely a good imitation of the orchestral instrument (barring the few successful Orchestral Oboe specimens) it is a solo stop *par excellence*, and generally a fair combinational stop. Generally found in the Swell organ; when of the Orchestral type it possesses no combining ability whatsoever. (Hautboy, Hautbois, Hoboe, Echo Oboe, Oboe d'Amour)=A fair substitute in solo work is the combination of Salicional and 4 ft. Flute, or—better still—Clarinet and 4 ft. Flute.

Octave—4 ft., manual; 8 ft., pedal.

Name given to octave stops of the Diapason family on the manuals and pedals respectively. See Diapason.

Octave Coupler—see Coupler.

Piccolo—2 ft.

A super-octave stop of fluty tone, more liquid and pleasing than the Fifteenth and fuller than either the Flageolet or Flautina; usually on either the Choir or Swell organs. (Piccolo Harmonic).

= Fifteenth, Flageolet, Flautina, or super couple if necessary.

Posaune (Trombone)—8 ft., 16 ft. (Contra Posaune.) Also on Pedal organ where the Contra term denotes a 32 ft. stop.

A reed stop of Trombone quality, sometimes rather rough; a cross between the smooth Tuba and the more cutting Trumpet.=Trumpet, Tuba, Tromba, Cornopean, Trumpet and Diapason.

Principal—4 ft.

Same as Octave Diapason. See Diapason.

Quint—10—2—3rds ft., 5—1—3rd ft., 2—2—3rds ft.

A mutation stop sounding the interval of the fifth above the unison pitch; the 2—2—3rds ft. variety is the most common—and speaks the octave—fifth above unison—thus filling up the harmonic series. The 10—2—3rds ft. form is found frequently on the Pedal organ where it produces, in combination with the 16 ft. stops, a soft Resultant 32 ft. effect. (Acoustic Bass, Harmonic Bass; rarely: Gravissima and Gravitone)=Some players achieve the effect—on rare instances where it is felt to be absolutely necessary—by playing the interval of the fifth above on the pedals along with the pedal notes. This should be resorted to most infrequently.

Quintaton—8 ft. Rarely 16 ft., 4 ft.

A stop composed of closed pipes voiced to sound the interval of the twelfth, or octave-fifth, above and with the prime tone, giving something of the effect of two pipes speaking at once; a very valuable combinational stop, and occasionally of solo value. (Quintadena, Quintaten, Quintaden)=No substitutes possible, but soft Viols are recommended where the stop is especially called for.

Resultant Bass—32 ft.

The effect produced by the combination of the Pedal 16 ft. Open Diapason

and a 10—2—3rds ft. Quint stop; the coincidence of beats of different frequency gives rise to the effect of a 32 ft. tone. See Quint.

Rohrfloete (Chimney Flute)—8 ft. See Flute.

Salicional—8 ft., 16 ft., 4 ft.

Stops originally of horny timbre, later voiced somewhat stringy and at present varying from this quasi-stringy quality to a frankly and decidedly stringy tone. They were developed from the Gamba tribe and from them have been developed the modern Viols. They still appear in many organs as the only strings included—partly because they combine with other stops rather better than do the true Viols. (Salicet, Gambette)=Viols, or soft Gambas.

Spitzfloete—8 ft.

Of a peculiarly thin, nasal quality of flute tone; very useful.

= Any soft flute may substitute; very soft Salicional (or Aeoline) and Soft Flute sometimes good.

Stopped Diapason—16 ft., 8 ft., 4 ft. See Gedeckt.

Super Octave—Name used for the Fifteenth, which see.

Tibia—Various pitches.

A tribe of foundational stops claim this title—all of them inclining more or less to the Flute quality; the name has been in use for some years, but the most recent and striking examples of Tibias are to be found among the developments of the late Robert Hope-Jones. *Tibia Clausa*: a very large scale Gedeckt of copious liquid tone. *Tibia Plena*: similar, but of open pipes. *Tibia Dura*: tone bright and clear, if somewhat hard, and quite penetrating. *Tibia Minor*: somewhat akin to the *Tibia Clausa*, but softer. *Tibia Major*: a full toned and powerful flute, similar to the *Hohlfloete*. *Tibia Profunda*, generally a Pedal stop of one of the above.

= Powerful flute stops, or Diapasons and Flutes as substitutes.

Tremulant—Also more generally Tremolo.

A mechanical device for imparting a wave-like motion to the wind supplying the organ—thus producing a delightful undulatory effect from the pipes; a perfect Tremulant is a rarity, but when achieved is a real delight. Found in all organs, large or small.

Tromba—see Tuba.

Trombone—see Tuba. Usually a Pedal 16 ft. stop.

Trumpet—8 ft., also 16 ft.

A powerful reed stop usually found on the Great organ; tone is cutting, blatant in many instances and many times thinner than that of its orchestral namesake. The modern Tuba is a vastly better stop in every way. = Full complement of stops or all the 8 ft. stops.

Tuba—16 ft., 8 ft., 4 ft.

Reed stops of thick, fat tone—often the most powerful stops in the organ; the quality is smoother, warmer, more rounded and in every way better than

the Trumpet—which stop the Tuba is fast supplanting. The Tuba *Mirabilis* (wonderful) voiced on very heavy wind pressure, dominates the whole of a large organ; tremendously effective to imitate the brass section of the orchestra. = Any powerful reed (Trumpet or Cornopean) combined with Diapasons and heavy Flutes may be used for substitute.

Twelfth—2—2—3rds ft.

Mutation stop similar to the Quint—which see. No substitutes.

Unda Maris—8 ft.

The name is carelessly used in this country; some denote by it a Celeste stop of Flute pipes (Spitzfloete or Clarabella pipes), while at least one builder is using it for a Celeste stop composed of two ranks of Aeoline or soft Dulciana pipes and of exceedingly beautiful tone. However, there is a degree of satisfaction in knowing that one may expect a soft Celeste of one or the other qualities of tone! = Use a soft Flute, Dulciana or Aeoline.

Viol Da Gamba—see Gamba.

Viol D'Orchestre—8 ft. Also Contra Viol—16 ft.

The organ has been wonderfully enriched of recent years by the development of the modern family of keen-toned viols, or string stops. Founded upon the Gamba and Salicional type they have been developed to a point where the tone is of delightful keenness and—in the best examples—they achieve a particularly happy imitation of the solo Violin—especially when they are in the Celeste form, the slight wavering or vibrato of the tone recalling the wrist-vibrato of the violinist. The Contra Viol is a stop that is found all too rarely. (Viola, Viola d'Orchestra, Cello, Violoncello, String) = Salicionals or Gambas.

Viol Sourdine—8 ft.

The thinnest tone obtainable from a flue pipe; the Viol stop pushed to its extremest limit. Tone beautifully quiet, soft but penetrating—and with a real suggestion of the “resin in the tone!” (Muted Viol.) Of most ethereal beauty when in the Celeste form.

= Aeoline or Dulciana as substitute.

Violone—16 ft.

Generally a Pedal string stop—imitative of the double-bass of the orchestra; the tone possesses some of the weight of the Double Dulciana, but has more cut to it—in fact in many examples the “rasp of the bow” is plainly recognizable. = Bourdons or Gedeckts.

Violoncello—8 ft.

Most often a pedal stop, sometimes the upper extension of the Violone; tone quite imitative of the orchestral 'Cello, and lends a fine incisiveness to the Pedal Organ. (Cello) = Bass Flute, or couple a manual String stop to the Pedals.

Vox Celeste—see Celeste.

Vox Humana—8 ft. Occasionally 16 ft.

A reed stop, originally supposed to imitate the human voice; this it does not do and never did, but—being of a thin, nasal, smothered quality—some good people are led (by the assistance which the name gives to the imagina-

tion!) to think that the resemblance is really achieved. However, it is (despite all the abuse which has been hurled upon it) a valuable stop, particularly when used in combination with modern String and Flute Celeste stops, and when so used has the faculty of adding to the tone a suggestion of the "resin of the strings" of the orchestra. It must be admitted, too, that in especially fine examples, and in locations where the acoustic conditions are particularly favorable, there is often a considerable resemblance in the lower octaves to the tone of a male choir heard from afar. (Voix Humaine) = Clarinet and $\frac{1}{4}$ ft. Flute with Tremolo and Swell-shades closed sometimes give a passable imitation of the Vox Humana; otherwise use Strings.

Wald Flute (Waldfloete)—8 ft., $\frac{1}{4}$ ft.

Valuable as a solo stop; tone slightly horny but of some little volume and very pleasing. In some examples the voicing is similar to the Gross Flute: this is not to be encouraged. (Feldflöte) = Any medium strength Flute may substitute.