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largest All-British gramo-
phone company in the world
with entirely British Capital.
Its products are world-
famous and it owns and
controls fifteen factories in
various parts of the globe.

The Viva-tonal
Columbia
GRAFONOLA

1929



PRICES—NEW 1929 MODELS OF THE *Viva-tonal* COLUMBIA

(Not for Irish Free State).

	£	s.	d.
No. 117a Oak, Small Table Grand	6	10	0
No. 118a Mahogany, Small Table Grand	7	10	0
No. 119a Oak, Standard Table Grand	8	10	0
No. 120a Mahogany, Standard Table Grand	9	10	0
No. 123a Oak, New Boudoir Cabinet	11	10	0
No. 124a Mahogany, New Boudoir Cabinet	12	15	0
No. 125a Oak, Cabinet	14	10	0
No. 126a Mahogany, Cabinet	15	15	0
No. 131a Mahogany, Cabinet	50	guineas	
No. 132a Oak, New Cabinet	18	18	0
No. 133a Mahogany, New Cabinet	21	10	0
No. 134a Mahogany, New Cabinet	30	0	0
No. 153a Oak, Console	14	10	0
No. 154a Mahogany, Console	15	15	0
No. 155a Oak, Console	25	0	0
No. 156a Mahogany, Console	27	10	0
No. 109a Portable "Junior"	3	10	0
No. 111a N Leather Portable (Nickel Fittings)	7	10	0
No. 111aGP Leather Portable (Gold-Plated Fittings)	9	9	0
No. 112a Standard Columbia Portable	4	15	0
No. 112a Crocodile Cloth Portable	5	10	0
No. 113a Crocodile Cloth Portable <i>Viva-tonal</i> Model	10	10	0
No. 2a Horn Model	4	15	0

Canvas Cover for Portable Models on pages 18, 19, 20, Price 10/6

For Prices of Needles, Accessories, etc., see inside back cover

The 1929 *Viva-tonal* Columbia

NEW "PLANO-REFLEX" PRINCIPLES

*A Further Scientific Gramophone
Advance with Increased Musical
Range and Greater Volume!*

THE most outstanding and important advancements in connection with sound reproduction during recent years have been made by Columbia. This leadership, shown alike in gramophones and records, was particularly evidenced in the production of the *Viva-tonal* Columbia—the first scientific gramophone, and one that created a new standard in reproduction—arrived at by the introduction of features that were in themselves revolutionary. The dual (or stereoscopic) horn or amplifying chamber marked an important stage of progress in the gramophone.

But science does not stand still, and Columbia laboratory research has now resulted in an entirely new development in sound reproducing instruments, and is a further advance on known methods of sound amplification.

Briefly, the new 1929 Columbia achievement not only maintains the ideal of faithful and equal response previously secured, but it has a *greater range* and gives a *greater volume of undistorted sound than has hitherto been thought possible* with instruments of this character.

The 1929 *Viva-tonal* Columbia is the first and only gramophone giving *effectively equal response with full amplification over a range of seven octaves*.

These astonishing gains are the result of radical discoveries in the application of the dynamic laws of acoustic reflection, absorption and radiation from plane surfaces. The principle in the new *Viva-tonal* Columbia is summarised in the term "Plano-reflex."

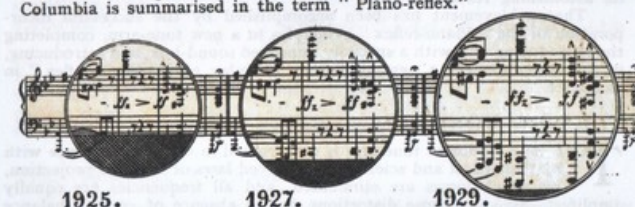


FIGURE 1.—The Advance from 1925 to 1929. The sizes of circles show increase in musical range and volume. The shading represents bass notes not previously reproduced. The music is an extract from a well-known Prelude. Note the 1929 Columbia amplification over previous gramophone standards.

The importance of this new principle may be gauged by a comparison with previous standards. (Figure 1).

In 1925 the musical range of the gramophone was slightly over 4 octaves, and the lower or bass notes denoted by the shaded portion in the diagram were not reproduced. In the 1927 instrument the range was approximately 6 octaves, and still there remained a part of the lower musical scale which was not audible.

The "Plano-reflex" principles in the 1929 *Viva-tonal* Columbia have increased the musical range to about seven octaves; the low notes are fully reproduced; and the volume (or intensity) of the sound is very much greater than has hitherto been attainable.

These principles, simply explained, are those upon which, by the use of reflecting surfaces a beam of light can be conveyed or transmitted without distortion, and, in its course, duly enlarged, also without distortion. By the substitution of a wave of sound for a beam of light the new method of "Plano-reflex" reproduction is made clear.

These "Plano-reflex" principles are to be found in the tone-arm of the new 1929 *Viva-tonal* Columbia and (in the larger cabinet and console models) in the new amplifying chamber, while an improved sound-box to suit the extended musical range has been fitted to all models.

One other notable feature of the new achievement lies in the reproduction of harmonics and overtones, the existence of which are so essential to the true sound of notes of music or speech, and the absence of which cause a sense of unreality. Without them sibilant or consonant sounds like "s," "f," "g" or "z" seem distorted or lost. These overtones lie in the higher frequencies of sound and exist also in a number of musical instruments. If these overtones are missing the reproduced sounds always suffer to some degree and fall short of absolute realism.

The "Plano-reflex" principles in the 1929 *Viva-tonal* Columbia ensure not only the reproduction of these higher frequencies, but the lower frequencies—those bottom notes that give power and solidity to the musical fabric. Every note throughout the entire range of the instrument is thus reproduced at its maximum strength without rattle or artificial shrillness.

THE NEW TRIUMPH IN DETAIL.

THE new attainment in fidelity secured in the 1929 *Viva-tonal* Columbia renders it possible to state without exaggeration that there is no other reproducing instrument which will surpass it in its astonishing realism.

That achievement has been accomplished by the successful incorporation of the "Plano-reflex" principles in a new tone-arm, completing the reproducing unit with a specially improved sound-box, and introducing, in the larger models, a new amplifying chamber also "Plano-reflex" in character.

THE NEW TONE-ARM.

THE new Columbia tone-arm is constructed in entire accordance with mathematical and scientifically proved laws of acoustic projection, by which losses are eliminated, and all frequencies are equally amplified—avoiding those distortions due to absence of correct balance and loss of harmonics.

With curved tone-arms the sound waves are always reflected from side to side, and in a forward direction; these cross-reflections interfering with each other and absorbing acoustic energy. The new "Plano-reflex"

tone-arm in the 1929 Columbia gives a straight line reproduction with a minimum of cross-reflections and reflects all the acoustic energy forward.

Technically, it consists of a connected series of intercommunicating rectilinear sound conduits provided with four reflector-surfaces adapted to maintain the advancing wave-front of the sound vibrations in a plane approximately at right angles to the axis of the conduit. (Figure 2).

Actually, the new tone-arm is "optically straight," and when polished, a beam of light entering one end can be reflected throughout its entire length without suffering any appreciable distortion. With the usual curved tone-arm this condition is impossible, and in practice the curved tone-arm and its consequent cross-reflections would show a loss of between 10 and 15 per cent. in wave-front intensity. This loss affects the higher frequencies and increases rapidly with the size and number of curved reflectors employed. A loss of not more than 10 per cent. in wave front intensity would in itself be almost unnoticeable. But it will be readily understood that in a large curved amplifying chamber the further

magnification of that cross-reflection loss would be serious. In point of fact that loss of intensity in unsuitable large horns usually manifests itself as a "tubby" sound.

The reflectors in the "Plano-reflex" tone-arm are almost optically flat and must not be confused with so-called reflectors which are really curved surfaces, and which suffer from cross-reflections in the same way as an ordinary curved arm.

This new Columbia tone-arm is light in weight and has a stop to permit of the sound-box being folded back for convenience of needle-changing. It is mounted on a steel pedestal with an adjustable ball bearing to ensure smoothness and noiseless operation.

The importance of correct track alignment has been considered and the mounting carefully proportioned to give the most suitable alignment.

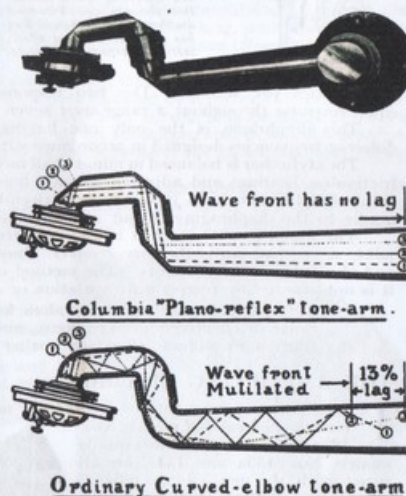


FIGURE 2.—Top is the new "Plano-reflex" Tone-arm. Below, diagrams showing the straight-line projection of sound in the "Plano-reflex" Tone-arm, as against the cross-reflections and distortion set up in ordinary curved Tone-arms.

THE NEW No. 9 SOUND-BOX.

THE Columbia sound-box, while observing the basic principles of the two-zone type already established in the *Viva-tonal* instruments, has been re-designed in certain details to permit greater amplitudes on the bass or lower frequencies and to give greater efficiency on the very

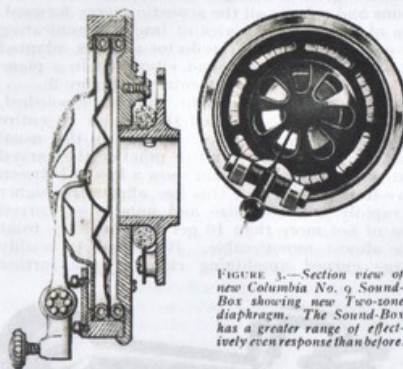


FIGURE 3.—Section view of new Columbia No. 9 Sound-Box showing new Two-zone diaphragm. The Sound-Box has a greater range of effectively even response than before.

2,730 cycles per second. The two responsive zones combined give equal response throughout a range over seven octaves.

This diaphragm is the only one having two responsive zones of different frequencies designed in accordance with Columbia-owned patents.

The stylus bar is balanced in minute ball races which provide practically frictionless bearings and adjusted to such fine proportions that a movement of 1/100,000 of an inch can be transmitted from the point of the needle to the diaphragm without any appreciable loss.

The sound-box is attached to the tone-arm by an improved bayonet joint, a resilient anti-vibratory coupler absorbing unwanted vibrations and obviating wear of records. The method of manufacture is such that it is not affected by temperature variation or climatic changes.

This new Columbia sound-box alone has about 14 per cent. greater range of effectively even response, and gives an average of 17 per cent. more volume than any earlier type.

THE AMPLIFYING CHAMBER.

It should be noted carefully that the table models Nos. 117a to 120a, the lower priced cabinet models Nos. 123a to 126a, and the two Console models Nos. 153a and 154a, are all fitted with the new "Plano-reflex" tone-arm, and the new No. 9 sound-box, their amplifying chambers being the improved bifurcated curvilinear horn—familiar as the "stereoscopic" horn. (Figure 4).

As previously pointed out (on page 3) the effect of a small loss of wave-intensity due to cross-reflection in a small horn is practically negligible, and the double, or "stereoscopic" horn is the most advantageous form in which a lengthened horn can be employed in a restricted cabinet space, while experience has proved it to be



FIGURE 4.—The improved bifurcated (or "Stereoscopic") Horn used with the "Plano-reflex" Tone-arm in Table, Grand, etc., models.

high frequencies and super-harmonics now reproducible by the "Plano-reflex" amplifier. (Figure 3).

To obtain this extended frequency range, the area of the diaphragm has been enlarged for the reproduction of low frequency tones, and its weight reduced to increase its sensitivity to the very high frequencies. The two zones exist as before, but the outer zone has a natural frequency of about 182 cycles per second, and the inner zone a natural frequency of about

the most efficient amplifying equipment ever installed in gramophones of these sizes.

With the new "Plano-reflex" tone-arm and No. 9 sound-box now fitted to these models there is a very material gain in clarity, definition, and volume, and these improvements and the feature of effectively even response throughout their range of slightly over six octaves place them beyond criticism in their class as scientific gramophones.

THE NEW "PLANO-REFLEX" HORN.

THE larger cabinet models Nos. 131a, 132a, and 134a, and the console models Nos. 155a and 156a are fitted with the new "Plano-reflex" horn, as well as the "Plano-reflex" tone-arm, and No. 9 sound-box. The range of effectively even response in these models is about seven octaves of the musical scale or a harmonic range of about eight octaves.

The "Plano-reflex" horn embodies the same principles as described in the new tone-arm. But to secure the fullest amplifying advantage, the amplifying chamber itself is approximately 9 feet long, probably the longest exponential type of horn fitted into any gramophone offered to the general public.

To incorporate this in the cabinet, the horn has been folded as shown, but all its angular curves have been replaced by reflector surfaces. Folded horns of this kind in the past have been curved, a shape tending to lower the pitch of reproduced music, giving an exaggerated bass and sometimes a "tubby" or hollow quality at the expense of the higher and more important treble frequencies. (Figure 5).

Scientific research showed that for an amplifying chamber to fulfil its function completely, and to amplify the lower frequencies of the musical scale, it should roughly be about 9 feet long, proportioned to permit the wave front to expand at the correct rate, and, in effect, be straight to prevent losses due to cross-reflection and absorption.

As explained in the case of the tone-arm, the "Plano-reflex" horn is optically and acoustically straight, and the sound-wave pressure crests travel from inlet to outlet without suffering any distortion from cross reflections (reference to Figure 2 will show this clearly), the same principles applying to the horn.

This new mode of construction also succeeds in avoiding resonances in the horn itself. It is these resonances in ordinary horns (and sound-boxes) that give different qualities or tones to various types of gramophones, and necessarily result in unequal response.

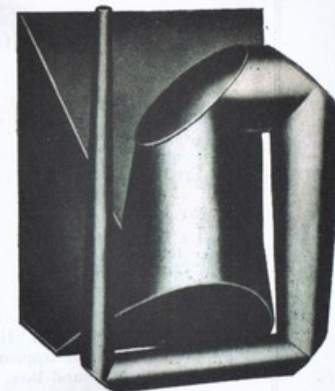


FIGURE 5.—Back view of a "Plano-reflex" Horn, used in new 1929 Cabinet and Console Models, showing the reflecting angles. In all, the Amplifying Chamber thus provided is approximately 9-ft. long.

A satisfying gramophone should add no tone of its own, but should only reproduce the characteristics of the original performance.

The 1929 *Viva-tonal* Columbia reproduces all the characteristics of an original performance with a faithfulness that is *realism itself*, adding nothing, losing nothing.

No matter how simple or how complex the music may be, the new *Viva-tonal* Columbia will reproduce it with equal faithfulness. The richer the fabric of the music the more apparent becomes the fidelity of reproduction.

It is the first and only gramophone giving effectively equal response with full amplification over a range of seven octaves.

The 1929 *Viva-tonal* Columbia is a new scientific achievement—the supreme gramophone.



THE 1929 MODELS.

THE 1929 *Viva-tonal* Columbia is characterised by improved cabinet design as well as the incorporation of the new "Plano-reflex" principles.

The Table Models Nos. 117a, 118a, 119a and 120a, Cabinet Models Nos. 123a, 124a, 125a, and 126a, and Console Models Nos. 153a and 154a are all fitted with the new "Plano-reflex" Tone-arm, the No. 9 Sound-Box, and the improved bifurcated ("stereoscopic") horn.

The larger Cabinet Models Nos. 131a, 132a, 133a and 134a, and the Console Models Nos. 155a and 156a are fitted with the new "Plano-reflex" Tone-arm and Horn, providing an amplifying chamber approximately 9-ft. long, and the No. 9 Sound-Box.

All the instruments are exclusive Columbia designs, fashioned by craftsmen, and of British manufacture throughout.

The *Viva-tonal* Columbia

THIS Popular-Price Columbia Table Grand represents the highest standard of value at its price. In general favour for its style, its improved beauty of tone sets it far ahead of many instruments costing more.

CABINET.—Oak (or Mahogany, Satin finish). Height 124-ins., width 174-ins., depth 19-ins. Fitted with tone-control shutters. Two inset needle cups.

MOTOR.—Specially powerful British-made Single-Spring Motor, to play 10-in. and 12-in. Records. 11-in. Velvet-covered Turntable.

TONE-ARM.—New type Columbia "Plano-reflex" Tone-Arm, improved "goose-neck" type, mounted on ball-bearings.

TONE-CHAMBER.—New stereoscopic acoustic projector of exceptional amplification.

SOUND-BOX.—The new Columbia detachable "No. 9" Sound-Box, providing increased musical range of equal response.



Small Table Grand.

No. 117a.—Oak Cabinet.

No. 118a.—Mahogany.

For Prices see Page 2 of Cover.

The Viva-tonal Columbia

THIS instrument, famous as the standard of all Table Grands, has been slightly re-modelled to provide even more artistic lines than before.

CABINET.—Oak (or Mahogany, Satin finish). Height 14-ins., width 17½-ins., depth 19-ins. Fitted with tone-control shutters. Three inset needle cups.

MOTOR.—Specially powerful British-made Double-Spring Motor, to play two 12-in. Records. Motor mounted on metal plate. With Set-Automatic Stop. 12-in. Velvet-covered Turntable.

TONE-ARM.—New type Columbia "Piano-reflex" Tone-Arm, improved "goose-neck" type, mounted on ball-bearings.

TONE-CHAMBER.—New stereoscopic acoustic projector of exceptional amplification.

SOUND-BOX.—The new Columbia detachable "No. 9" Sound-Box, providing increased musical range of equal response.



Standard Table Grand.

No. 119a.—Oak Cabinet.

No. 120a.—Mahogany.

For Prices see Page 2 of Cover.

The Viva-tonal Columbia

AN entirely new Columbia Model, effective and simple in design, and meeting the needs of those desiring something between the Table Grand type and a large Cabinet.

CABINET.—Oak (or Mahogany, Satin finish). Height 34-ins., width 16½-ins., depth 18-ins. Fitted with tone-control shutters; piano hinged top. Cupboard in lower section for storing records. Three inset needle-cups.

MOTOR.—Specially powerful British-made Double-Spring Motor, to play two 12-in. records. Motor mounted on metal plate. With Set-Automatic Stop. 12-in. Velvet-covered Turntable. All fittings nickel-plated.

TONE-ARM.—New Columbia "Piano-reflex" Tone-Arm, improved "goose-neck" type, mounted on ball-bearings.

TONE-CHAMBER.—New stereoscopic acoustic projector of exceptional amplification.

SOUND-BOX.—The new Columbia detachable "No. 9" Sound-Box, providing increased musical range of equal response.



New Boudoir Cabinet.

No. 123a.—Oak Cabinet.

No. 124a.—Mahogany.

For Prices see Page 2 of Cover.

The Viva-tonal Columbia

ANOTHER new Columbia model, an inexpensive Cabinet, fashioned on generous lines, and representing the highest standard of value in type and price.

CABINET.—Oak (or Mahogany, Satin finish). Height 37½-ins., width 17½-ins., depth 19-ins. Fitted with tone-control shutters, piano-hinged top. Cupboard in lower section for storing Records. Three inset needle-cups.

MOTOR.—Specially powerful British-made Double-Spring Motor, to play two 12-in. records. Motor mounted on metal plate. With Set-Automatic Stop. 12-in. Velvet-covered Turntable. All fittings nickel-plated.

TONE-ARM.—New Columbia "Plano-reflex" Tone-Arm, improved "goose-neck" type, mounted on ball-bearings.

TONE-CHAMBER.—New stereoscopic acoustic projector of exceptional amplification.

SOUND-BOX.—The new Columbia detachable "No. 9" Sound-Box, providing increased musical range of equal response.



New Cabinet Model.

No. 125a.—Oak.

No. 126a.—Mahogany.

For Prices see Page 2 of Cover

The Viva-tonal Columbia

ONE of the choicest examples of cabinet craftsmanship, and now embodying the new "Plano-reflex" amplifying chamber, with its resulting amazing advance in tone.

CABINET.—Mahogany, Satin finish. Height 41½-ins., width 22-ins., depth 24-ins. Piano-hinged top. Three inset needle-cups. Fretted grille behind doors.

MOTOR.—Specially powerful British-made Triple-Spring Motor, to play three 12-in. records. Motor mounted on metal plate. With Set-Automatic Stop. 12-in. Velvet-covered Turntable. All fittings gold-plated.

TONE-ARM.—New type Columbia "Plano-reflex" Tone-Arm, improved "goose-neck" type, mounted on ball-bearings.

"PLANO-REFLEX" TONE-CHAMBER.—Constructed on new Columbia "Plano-reflex" principles, giving straight-line reproduction and increased amplification with equal response and without distortion.

SOUND-BOX.—The new Columbia detachable "No. 9" Sound-Box, providing increased musical range of equal response.



Cabinet Model

("Plano-reflex" Amplifying Chamber).

No. 131a.—Mahogany Cabinet.

For Price see Page 2 of Cover.

The Viva-tonal Columbia

ANOTHER new Columbia model, the most inexpensive of the range carrying the new "Plano-reflex" amplifying chamber, with its amazing advance in tone.

CABINET.—Oak (or Mahogany, Satin finish). Height 38½-ins., width 21-ins., depth 21½-ins. Piano-hinged top. Three inset needle-cups. Fretted grille behind doors.

MOTOR.—Specially powerful British-made Double-Spring Motor, to play two 12-in. records. Motor mounted on metal plate. With Set-Automatic Stop. 12-in. Velvet-covered Turntable. All fittings nickel-plated.

TONE-ARM.—New type Columbia "Plano-reflex" Tone-Arm, improved "goose-neck" type, mounted on ball-bearings.

"PLANO-REFLEX" TONE-CHAMBER.—Constructed on new Columbia "Plano-reflex" principles, giving straight-line reproduction and increased amplification with equal response and without distortion.

SOUND-BOX.—The new Columbia detachable "No. 9" Sound-Box, providing increased musical range of equal response.



New Cabinet Model

("Plano-reflex" Amplifying Chamber).

No. 132a.—Oak Cabinet.

No. 133a.—Mahogany.

For Prices see Page 2 of Cover

The Viva-tonal Columbia

ANEW and handsome Columbia model, moderately priced, incorporating the wonderful "Plano-reflex" amplifying chamber, with its amazing new tone.

CABINET.—Mahogany, Satin finish. Height 40-ins., width 23-ins., depth 23-ins. Piano-hinged top. Three inset needle cups. Fretted grille behind doors.

MOTOR.—Specially powerful British-made Double-Spring Motor, to play two 12-in. records. Motor mounted on metal plate. With Set-Automatic Stop. 12-in. Velvet-covered Turntable. All fittings nickel-plated.

TONE-ARM.—New type Columbia "Plano-reflex" Tone-Arm, improved "goose-neck" type, mounted on ball-bearings.

"PLANO-REFLEX" TONE-CHAMBER.—Constructed on new Columbia "Plano-reflex" principles, giving straight-line reproduction and increased amplification with equal response and without distortion.

SOUND-BOX.—The new Columbia detachable "No. 9" Sound-Box, providing increased musical range of equal response.



New Cabinet Model

("Plano-reflex" Amplifying Chamber).

No. 134a.—Mahogany.

For Price see Page 2 of Cover.

The Viva-tonal Columbia

A BEAUTIFUL Console model that will be regarded as a standard of its type, improved with its new equipment of the "Plano-reflex" amplifying chamber and its wonderful tone.

CABINET.—Mahogany, Satin finish. Height 34½-ins., width 31½-ins., depth 21½-ins. Piano-hinged top. Two side sections for storing Records. Three inset needle cups.

MOTOR.—Specially powerful British-made Triple-Spring Motor, to play three 12-in. Records. Motor mounted on metal plate. With Set-Automatic Stop. 12-in. Velvet-covered Turntable. All fittings nickel-plated.

TOPE-ARM.—New type Columbia "Plano reflex" Tone-Arm, improved "goose-neck" type, mounted on ball-bearings.

"PLANO-REFLEX" TONE-CHAMBER.—Constructed on new Columbia "Plano-reflex" principles, giving straight-line reproduction and increased amplification with equal response and without distortion.

SOUND-BOX.—The new Columbia detachable "No. 9" Sound-Box, providing increased musical range of equal response.



New Console Model
(HORIZONTAL GRAND).

("Plano-reflex" Amplifying Chamber).

No. 156a.—Mahogany.

For Price see Page 2 of Cover.

The Viva-tonal Columbia

THIS "JUNIOR" Columbia Portable has been as great a success as its larger brother, and its surprising Tone and Volume is, if anything, improved.

CABINET.—Shaped like an Attache Case, with handle, and two nickel-plated locks. Constructed of selected timber, covered Black Morocco-grain Leather Cloth. Length 15½-ins., width 11½-ins., height 8½-ins. Fitted with spring-cover needle cup. Carrier in lid for eight 10-in. Records.

MOTOR.—Powerful British-made Single-Spring Motor, to play 10-in. and 12-in. Records. 10-in. Turntable, Velvet-covered, nickel-plated flange. Hinged winding crank that folds into cabinet.

TOPE-ARM.—New type Columbia "Plano-reflex" Tone-Arm, improved "goose-neck" type, mounted on ball-bearings, connected with scientific tone conduit and reflector.

SOUND-BOX.—New Columbia detachable "No. 9" Sound-Box, providing increased musical range of equal response.

With Carrier for 8 Records.



Columbia Portable "Junior."

No. 109a.—Standard "Junior" Model.

For Price see Page 2 of Cover.

The Viva-tonal Columbia

THIS is the Brown Cowhide Leather model of the Columbia Portable that has become the most popular portable gramophone to-day.

CABINET.—Shaped like an Attache Case, with handle, and two locks. Constructed in selected hardwood, covered fine handsewn Brown cowhide leather. Length 16½-ins., width 11½-ins., height 6½-ins. Fitted with spring-cover needle cup. Nickelled carrier in lid for eight 10-in. Records.

MOTOR.—Specially powerful British-made Single-Spring Motor, to play 10-in. and 12-in. Records. 10-in. Turntable, Velvet-covered, nickelled flange. Patent hinged winding crank that folds into the cabinet.

TONE-ARM.—New type Columbia "Piano-reflex" Tone-Arm, improved "goose-neck" type, mounted on ball-bearings, connected with scientific tone conduit and amplifier.

SOUND-BOX.—New Columbia "No. 9" Sound-Box, providing increased musical range of equal response.

With Carrier for 8 Records.



Columbia Portable—Two Styles.

No. 111a—N.—Brown Cowhide (Nickel-Plated Fittings).

No. 111a—GP.—Brown Cowhide (Gold-Plated Fittings).

For Prices see Page 2 of Cover.

For Leather-Edged Canvas Cover for these Models see Page 2 of Cover.

The Viva-tonal Columbia

THIS is the Columbia Portable that challenged the world at any price—for Tone and Value. It is easily the most popular portable gramophone to-day.

CABINET.—Shaped like an Attache Case, with handle, and two oxydised locks. Constructed in selected hardwood, covered Black Morocco-grain Leather Cloth. Length 16½-ins., width 11½-ins., height 6½-ins. Fitted with spring-cover needle cup. Nickelled carrier in lid for eight 10-in. Records.

MOTOR.—Specially powerful British-made Single-Spring Motor, to play 10-in. and 12-in. Records. 10-in. Turntable, Velvet-covered, nickelled flange. Patent hinged winding crank that folds into the cabinet.

TONE-ARM.—New type Columbia "Piano-reflex" Tone-Arm, improved "goose-neck" type, mounted on ball-bearings, connected with scientific tone conduit and amplifier.

SOUND-BOX.—New Columbia detachable "No. 9" Sound-Box, providing increased musical range of equal response.

With Carrier for 8 Records.



Columbia Portable— No. 112a.

(Black Morocco-grain Leather Cloth).

Also in Coloured Models—see next page.

For Prices see Page 2 of Cover.

For Leather-Edged Canvas Cover for this Model see Page 2 of Cover.

The Viva-tonal Columbia

A HORN model of the Columbia for those who still declare a preference for this type. It offers a reproduction that leaves all other horn type gramophones far behind.

CABINET.—Oak. Size 16 x 16 x 84-ins. high.

MOTOR.—Extra-powerful British-made Single-Spring Motor, to play 10-in. and 12-in. Records. 11-in. Velvet-covered Turntable, with nickelled edge.

TOPE ARM.—New type Columbia "Plano-reflex" Tone-Arm, nickelled, improved "goose-neck" type, mounted on ball-bearings. Black enamelled back bracket and nickelled horn elbow.

HORN.—Metal, black enamelled, with gold lines.

SOUND BOX.—The new Columbia detachable "No. 9" Sound-Box, providing increased musical range of equal response.



Horn Model.

No. 2a.—Oak Cabinet.

For Price see Page 2 of Cover.

THE ONLY RECORDS WITHOUT SCRATCH.

Columbia Records.

ARTISTS who have chosen Columbia to give their exclusive interpretations in record form for the gramophone, include:

DAME CLARA BUTT and MR. KENNERLEY RUMFORD
SIR HENRY J. WOOD and
THE NEW QUEEN'S HALL ORCHESTRA
(Proprietors: Chappell & Co., Ltd.)
SIR HAMILTON HARTY and
THE HALLÉ ORCHESTRA
SIR THOMAS BEECHAM, Bart.
SIR DAN GODFREY
ROYAL PHILHARMONIC ORCHESTRA
THE NEW QUEEN'S HALL LIGHT ORCHESTRA
(Proprietors: Chappell & Co., Ltd.)

PERCY PITT
FELIX WEINGARTNER
GEORG SCHNEEVOIGT
PAUL WHITEMAN AND HIS ORCHESTRA
The Regimental Band of H.M. GRENADIER GUARDS
(Conducted by Lieut. GEORGE MILLER)

VOCAL.

MURIEL BRUNSKILL, (Contralto)
MARIA GENTILE
A. M. GUGLIELMETTI (Soprano)
DORA LABBETTE (Soprano)
MIRIAM LICETTE (Soprano)
ROSETTA PAMPANINI (Soprano)
EVA TURNER (Soprano)
NORMAN ALLIN (Bass)
EDGAR COYLE (Baritone)
HUBERT EISDELL (Tenor)
FORMICHI (Baritone)
CHARLES HACKETT (Tenor)
WM. HESLTING (Tenor)
ULYSSES LAPPAS (Tenor)
AROLD LINDI (Tenor)
FRANK MULLINGS (Tenor)
HEDDIE NASH (Tenor)
DENNIS NOBLE (Baritone)
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"NEW CENTURY" PRODUCTIONS
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THE NEW "PLANO-REFLEX" HORN.

THE larger cabinet models Nos. 131a, 132a, and 134a, and the console models Nos. 155a and 156a are fitted with the new "Plano-reflex" horn, as well as the "Plano-reflex" tone-arm, and No. 9 sound-box. The range of effectively even response in these models is about seven octaves of the musical scale or a harmonic range of about eight octaves.

The "Plano-reflex" horn embodies the same principles as described in the new tone-arm. But to secure the fullest amplifying advantage, the amplifying chamber itself is approximately 9 feet long, probably the longest exponential type of horn fitted into any gramophone offered to the general public.

To incorporate this in the cabinet, the horn has been folded as shown, but all its angular curves have been replaced by reflector surfaces. Folded horns of this kind in the past have been curved, a shape tending to lower the pitch of reproduced music, giving an exaggerated bass and sometimes a "tubby" or hollow quality at the expense of the higher and more important treble frequencies. (Figure 5).

Scientific research showed that for an amplifying chamber to fulfil its function completely, and to amplify the lower frequencies of the musical scale, it should roughly be about 9 feet long, proportioned to permit the wave front to expand at the correct rate, and, in effect, be straight to prevent losses due to cross-reflection and absorption.

As explained in the case of the tone-arm, the "Plano-reflex" horn is optically and acoustically straight, and the sound-wave pressure crests travel from inlet to outlet without suffering any distortion from cross reflections (reference to Figure 2 will show this clearly), the same principles applying to the horn.

This new mode of construction also succeeds in avoiding resonances in the horn itself. It is these resonances in ordinary horns (and sound-boxes) that give different qualities or tones to various types of gramophones, and necessarily result in unequal response.

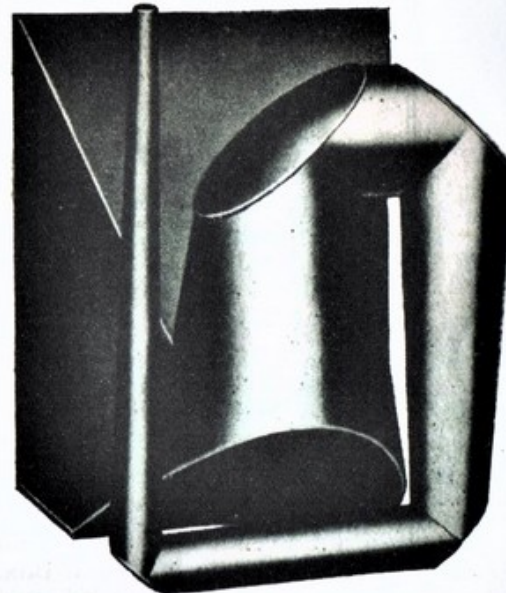


FIGURE 5.—Back view of a "Plano-reflex" Horn, used in new 1929 Cabinet and Console Models, showing the reflecting angles. In all, the Amplifying Chamber thus provided is approximately 9-ft. long.