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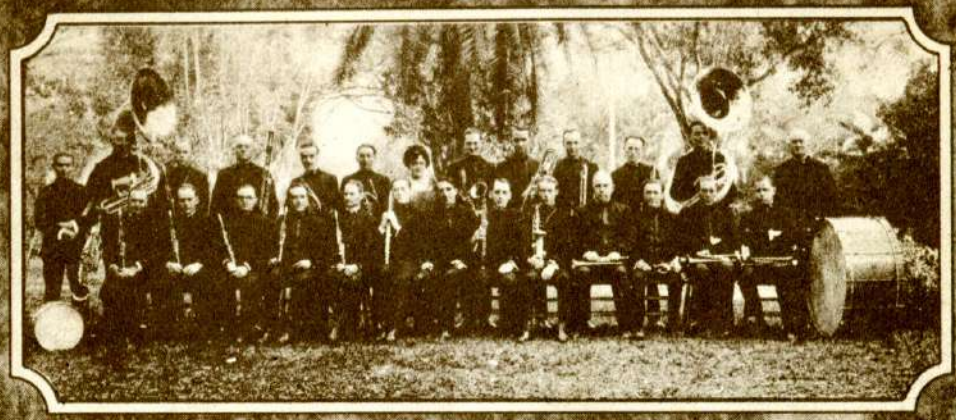

The Instruments of the Band

Compliments of
YORK BAND INSTRUMENT CO.
Makers of Good Band Instruments Since 1882
GRAND RAPIDS, MICHIGAN

THE YORK SERVICE Department, with its vast experience and extensive collection of research data is at your service. Send us any questions pertaining to band instruments or the organization and maintenance of bands. All questions will be carefully and cheerfully answered.

The Instruments of the Band

THIS modest little book is offered to meet the rapidly growing call for information on band instruments in connection with the study of music in the schools of America.

In the limits of these pages, it is not possible to go into a lengthy technical or historical account of development of the various instruments used in the band.

Rather, it has been our aim to present in a few words, and with the help of pictures, a knowledge of the appearance, uses, purposes, and range of the instruments used in bands today.

The remarkable development of instrumental music in the nation's schools these past few years is regarded as a most encouraging sign, for it is an admitted fact that a musical people are a happy people.

With the hope that our effort will serve to bring about a better understanding of instrumental music, this book is dedicated to the Schools of America.

York Band Instrument Co.
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What Makes the Music?

Time and again we are asked just what governs the tone of a band instrument and just how the tone is produced. It is therefore, fitting that we start this little booklet with a brief discussion on the subject.

When air is forced from a player's lungs into the mouthpiece of a band instrument, the result is a series of sound waves, the number depending upon the force of blow, lip-tension, tongue-stroke, etc. A sound wave is called a sound wave simply because it is a wave. While it was impossible to see a sound wave, it is possible to ascertain exactly what form air assumes in the air passage of a wind instrument when any tone in the instrument's compass is sounded.

A sound wave is very much like a water wave that you would observe on the ocean, or on the river. Like the water wave, the sound wave has its crest and its trough. Where the crest of one wave meets the trough of another, that point is termed a node. The points midway between the nodes are points of maximum vibration, and are called ventral segments.

The dotted lines through the tubes below show the nodes, which are formed whenever a crest meets a trough (an inverted crest.) There is always a vibrating segment at each end of the tube, no matter how high or low the tone sounded.

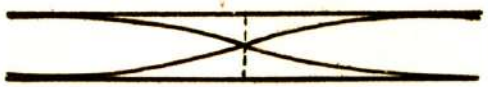


Figure 1.

Let us take a tube and note the condition of the contained air when that tube sounds its fundamental tone.

Figure 1 shows the form of air-column vibration which takes place when the tube sounds its fundamental tone. We have here illustrated the simplest form of vibration—one node and two ventral segments.

By increasing the pressure of wind two nodes will be formed within the tube, thus:—

Figure 2.

The form of vibration represented in Fig. 2 gives the octave of the fundamental tone.

Further increase in wind pressure will produce a tone having three nodes, and sounding a twelfth above the fundamental tone, thus:—

Figure 3.

The lengths of these waves will be seen, from the figures, to be respectively one-half, one-fourth and one-sixth of the length of the tube.

Blowing the fundamental tone (on any tube or any band instrument) we cause the air column to divide into two ventral segments (with one node) and increasing the lip tension and force of blow to pass on 4, 6, 8, 10, etc. Two ventral segments give the fundamental tone; four, the octave, six, the twelfth above eight, the double octave, etc., etc.

Pitch

In wind instruments, the number of vibrations executed in a second of time is inversely proportional to the length of the tube. Or, to put it plainer, the vibrations in the long tube are slower, and the tones consequently deeper, than the tones produced by the more rapid vibrations in the shorter tube. The number of vibrations per second is determined by the distance the sonorous wave has to travel in the tube to complete one vibration.

In order to play the chromatic scale, an instrument must be built to have seven fundamental tones. These fundamental tones are obtained by providing for varying the length of the air-column. In the Slide Trombone for instance, the variation in air-column length is provided by moving a slide backward and forward.

Valve Instruments, you will note, have three valves. With each valve open the air passes straight through and you get what is known as the open tone. Depress any one valve pump and the air-column of the instrument is lengthened by sending the air through a tubular crook attached to that valve. With three pistons there are seven different combinations. Two of these, however, give the same length of air column. For instance. the third valve slide is equal in length to the combined lengths of the first and second valve slides. Thus, depressing the first and second pistons gives the same air column length as depressing the third piston. Consequently, the seven possible combinations of the three pistons, really give only six different air column lengths. These six combinations together with the open tone give the seven fundamental tones. Flats, sharps, overtones and octaves are produced by increasing the wind pressure as mentioned above.

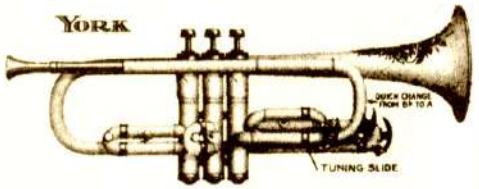
The real science of tone production is quite complicated and will admit of endless study and research. In the foregoing paragraphs we have endeavored to describe briefly and yet clearly, the basic facts underlying and governing tone production.

Historical Outline of Brass Bands

The military band as we find it today had its beginning about the middle of the eighteenth century. About 1750, there appeared in Germany and France bands consisting of two oboes, two clarinets, two horns and two serpents, the latter being the forerunner of the Bass, and so named because of its shape.

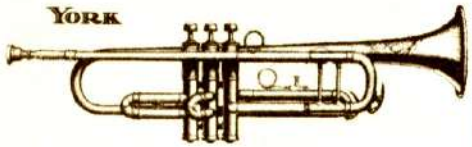
In 1764, there appeared brass instruments with padded keys covering openings, not unlike the saxophone of today. In 1790 in Paris, the first satisfactory band of over sixteen pieces is reported to have been organized.

In 1825, two instrument makers, Bluhmel Silesam and A. Strozels, invented the piston type of valve, which has since come into general use. From that time, improvements, refinements, and additions have been made to meet the ever-increasing demand for more perfect instruments.



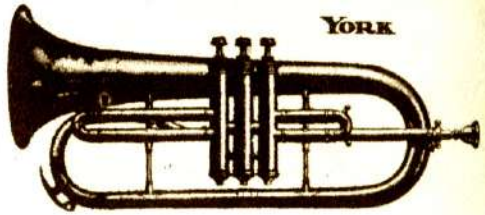
The Cornet

The Cornet has long been a solo instrument because of its round, mellow tone. The Cornet plays the lead in the brass band, and because of its remarkable tone-blending qualities, it is much used in orchestra and ensemble work. In brass quartettes, the Cornet is invariably used in preference to the Trumpet. Parts for the Cornet are written in Bb and A, so the Cornet is built in the key of Bb with a quick-change slide which shifts the key to A. The range of the Cornet is about two and two-thirds octaves, and music for it is written in the treble clef.



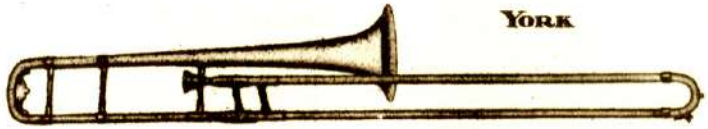
The Trumpet

The Trumpet, one of the most ancient of instruments, is a three valve instrument, somewhat similar to the Cornet, but longer in model and possessing different proportions of its tubular column. Its tone color is martial and inspiring. The tone is piercing and brilliant. Owing to its brilliance, it is used in the Symphony Orchestra in place of the Cornet. Because of its snappy, cutting tones, it is used almost exclusively in the modern dance orchestra. Parts for the Trumpet are written in Bb and A, so the modern Trumpet is built in the key of Bb with an easily operated slide which changes the key to A. The range of the Trumpet is about two and two-thirds octaves, and its music is written in the treble clef.



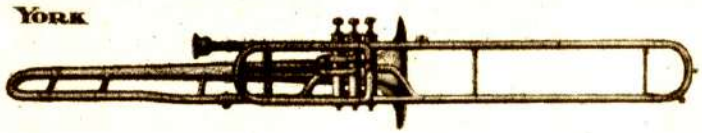
The Fluegel Horn

The beautiful, mellow tone of the Fluegel Horn is bringing this instrument back into popularity. Its full, rich tone makes it an ideal harmony as well as solo instrument and many of the better bands and orchestras are now adding Fluegel Horns to their instrumentations. Being somewhat larger than the Cornet, its tone is lower than that of the Cornet—it is voiced about between the Cornet and the Alto Horn and is built in the key of Bb. The range of the Fluegel Horn is about two and two-thirds octaves and music for it is written in the treble clef.



The Slide Trombone

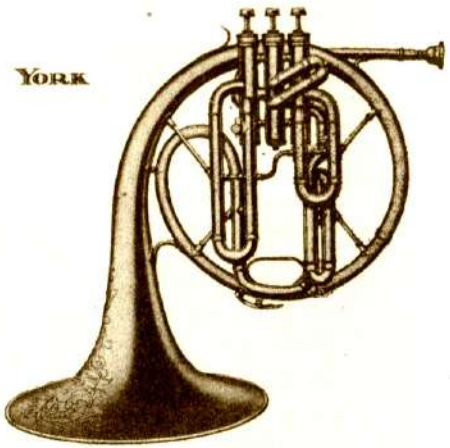
The Slide Trombone depends upon a freely moving slide for changing the length of the air column, thereby providing the various combination of tones comprising its scale. To play in tune, the performer must "feel" his various positions, much as the violinist must "feel" his positions on the strings. The Trombone sounds its lowest note when extended to the furthest point of the slide, this being known as the seventh position. The Trombone has a powerful, military quality of tone, and is a most important instrument in the brass band. It is built in the key of Bb. Its range is about two and two-thirds octaves, and music for it is written in the bass clef.



The Valve Trombone

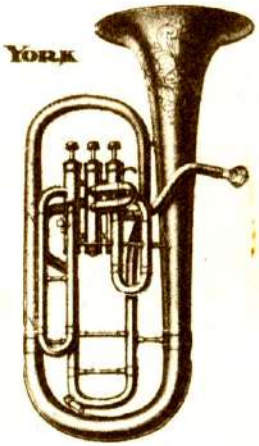
As its name implies, the Valve Trombone depends upon a set of three piston valves similar to Cornet valves for providing the necessary changing of length of the air column. Its tonal qualities are practically the same as those of the Slide Trombone. In America, the Slide Trombone is most generally used, while in some European countries the Valve Trombone predominates. It is built in the key of Bb. Its range is about two and two-thirds octaves, and music for it is written in the bass clef.

MUSIC is the one school activity which is open to *all* students, irrespective of sex or physique. It has a universal hold and can be indulged in outdoors or indoors—day or night—summer or winter—regardless of seasonable or weather conditions.



Band and Orchestra Horn

The Band and Orchestra Horn is really an Alto Horn, built in a circular model, similar to the French Horn. In tonal qualities, it largely resembles the French Horn and is much used for that instrument where proficient horn players are not available. It is built in the key of F with slides for changing to the keys of Eb and D. Its range is about two and two-thirds octaves, and music for it is written in the treble clef.



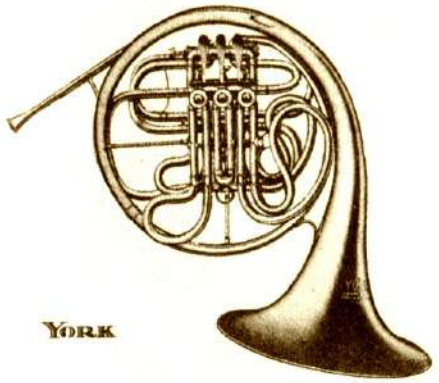
Alto

The Alto is an accompaniment instrument, and no band is complete without its Alto section. Sometimes derisively called the "peck" horn, although many of our finest brass performers made their start on the Alto. The Alto is built in the key of Eb. Its range is about two and two-thirds octaves, and music for it is written in the treble clef.

What Will a School Band Accomplish?---

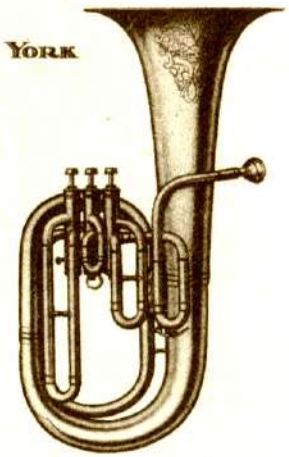
Just This—It will develop a strong school spirit—foster discipline—improve scholarship—and reflect credit upon the school.

--Has Your School a Band?



French Horn

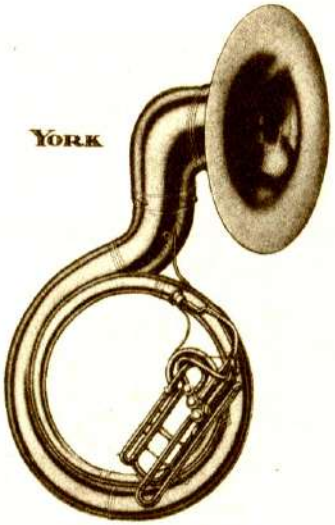
Of all brass instruments, the French Horn is the most mellow in tone—in fact, because of its tonal qualities, it is often classed with the wood-wind instruments instead of the brass. Formerly French Horns were rarely found outside of large Symphony Orchestras, although in recent years, they have been finding their place in bands, where they add a tonal color not possible with any other instrument. The valves are fingered by the left hand. Tone color is controlled by manipulating the right hand in the bell. There is a "single" horn built in the key of F and a "double" horn built in the keys of F and Bb. Eb Slides are also made to enable the performer to play Eb parts without transposing. The French Horn is generallly built with rotary valves and in the double horn there are two sets of these rotary valves, one placed along side the other. The range of the French Horn is about three and one-third octaves. The music for it is written in the treble clef.



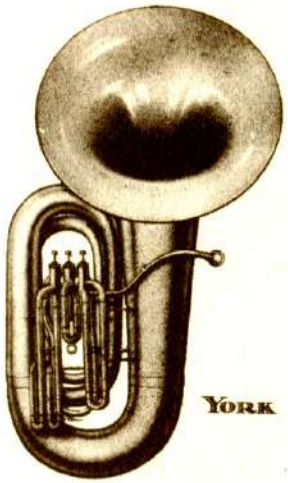
The Baritone

As its name implies, the Baritone Horn takes instrumental parts corresponding to baritone parts in vocal music. In band music, it is used mainly for harmony effects, altho many extremely beautiful solo parts are written for Baritone. To the band, the Baritone is what the Cello is to the orchestra. It is built in the key of Bb; and music for it is written in both the bass and treble clefs. Its range is about two and two-thirds octaves. Baritone horns are usually built with the single bell, altho there is a double bell Baritone. In the double bell Baritone, there are really two distinct and separate sets of tubing, the extra set having the same length and voicing as the Trombone. The use of the extra bell is controlled by means of a piston valve, and while the performer may change from one bell to the other, still both bells may not be used at the same time.

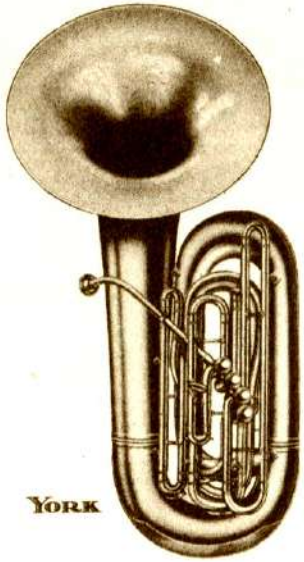
Basses



Sousaphone Model



Bell Front, Top Action Model



Bell Front, Side Action Model

Bell Up, Side Action Model

Bell Up, Top Action Model

The Bass

The Bass is the foundation of music. Without a good solid foundation, music lacks in fullness and majesty. While the Bass is virtually all accompaniment and harmony, still it forms a most important part in the band. A poor Bass section can ruin what would otherwise be a first class band. Bass Horns are built in Eb and BBb in a variety of models. For instance, there is the standard bell-up type, most commonly used. Then there is the bell-front or recording model which is gaining in popularity. And there is the Sousaphone model which is a helicon type with bell turned to the front. In the upright models, there are the top action and side action models, both of which are illustrated in this booklet. Both the Eb and BBb Basses are built in all of the above models. Music for Bass Horns is written in the bass clef, and the range of both the Eb and BBb Basses is about two and two-thirds octaves.

The Flute

The Flute is the oldest instrument known. Flutes or rough instruments resembling them have been discovered among the ruins of paleolithic times. The Flute tone is marked by rare purity and is produced by blowing over an open hole at one end of its cylindrical tube, much as a tone is produced by blowing over the mouth of an open bottle. Its tone-color is gentle and pensive in the lower register, and brilliant in the upper register. It offers wonderful possibilities for rapid, clean-cut execution, and is therefore much used to embellish passages. Its music is written in the treble clef and its range is a little over three octaves.

The Piccolo

The Piccolo is really a small flute, being about half the size of the regular flute and sounding an octave higher. Its tone is of a wild, feverish brilliancy, and is frequently called "the imp of the orchestra." Its music is written in the treble clef, and its range is about three octaves.

The Clarinet

The Clarinet, although invented about 1690, has really received its greatest improvements in the past fifteen or twenty years. Although termed a "wood-wind" instrument, Clarinets are now made of ebonite and metal, and the wood Clarinet is fast disappearing. The Clarinet is played with a single reed of cane, clamped to a conical mouthpiece. Its lower register has a deep, sepulchral tone—the middle register has a smooth, liquid-like tone not unlike the human voice, while the upper register has a cutting, piercing quality of tone. Music for the Clarinet is written in the treble clef, and its range is about three and one-half octaves. Clarinets are built in the keys of A, Bb, C and Eb, although the Bb and Eb only are used in band work. There are two systems of fingerings—the Albert and the Boehm, although the Boehm system is fast pushing out the Albert system, which is now used only by performers who learned to play some years ago. In Symphony Orchestras and concert bands, there are also used Alto and Bass Clarinets, both of which are larger and consequently deeper pitched instruments.

The Oboe

The Oboe is also a wood-wind instrument, and is what is called a double reed instrument—that is, there are two reeds placed against one another—and these two reeds really form the mouthpiece. The tone color of the Oboe is thin, penetrating and nasal. It contains more overtones than any other instrument and its peculiar individuality suggests its sparing use, exactly as a painter would be sparing with scarlet, although he might achieve some striking results by its moderate use. Music for the Oboe is written in the treble clef. It is built in the key of C and its range is about three octaves.

The Bassoon

The Bassoon, commonly called "the clown of the orchestra," is a double reed instrument of the wood-wind family. Its effects can be made either very grave and earnest, or extremely grotesque and comical. It forms a most excellent bass for the wood-wind quartet, but is generally used sparingly in both band and orchestra. It is a non-transposing instrument. Its range is about three octaves and music for it is written in the bass clef. There is also the contra-bassoon, being about double the size of the ordinary bassoon. The contra-bassoon is the deepest of all orchestral instruments and has about the same range as the regular bassoon. The contra-bass Sarussophone often replaces the contra-bassoon.

English Horn

Contrary to its name, the English Horn is not a "horn" but a wood-wind, reed instrument somewhat similar to the Oboe. It is a double reed instrument and is voiced a fifth lower than the Oboe, in which respect it corresponds to the Oboe as the Viola does to the Violin, the Viola being a fifth lower than the Violin. The English Horn has a melancholy, guttural tone and like the Oboe, should be used sparingly. Music for it is written in the treble clef. Its range is about three and one-quarter octaves and music for it is written in the key of C.

The Saxophone

One of the wonders of recent years is the world-wide wave of Saxophone popularity of the past ten years. Although invented by Adolph Sax some seventy or eighty odd years ago, the Saxophone remained practically in obscurity until about fifteen years ago, since when its amazing growth has been the wonder of all those familiar with the history and development of musical instruments.

So well known is the Saxophone that it is needless to describe its tonal effects here. Its great popularity is due, no doubt, to the fact that it blows easily, is very easily learned, and possesses a pleasing and appealing tone.

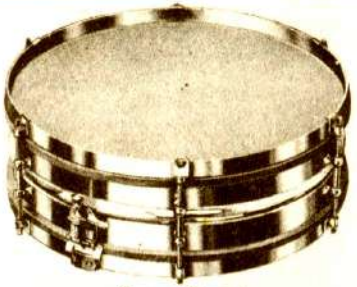
It is a single reed instrument with a mouthpiece similar to that of the Clarinet. The Saxophone family consists of nine different Saxophones, each possessing its own peculiarities of tone. Because of its many models, a complete band may be formed entirely of Saxophones. In this respect it differs from the other wind instruments, which must be grouped with other types of instruments in order to form a band.

The Saxophone family consists of the Eb Soprano, C Soprano and Bb Soprano in the straight models. In the curved models, there are the Bb Soprano, the Eb Alto, the C Melody, the Bb Tenor, the Eb Baritone and the Bb Bass.

All excepting the C Melody are used in brass bands and dance orchestras. The C Melody is used principally in the home and church. Being a non-transposing instrument in the key of C, the performer has a wealth of music at his command in the form of vocal parts, violin parts—or, in fact, any parts written in the key of C. With the C Melody, the performer can also "pick" out a part from the piano score.

For some time, there existed opposition to the Saxophone in certain circles, due no doubt to the fact that capable, finished performers were scarce, and also the fact that the earlier models were somewhat crude and far from being perfected musical instruments.

In late years, however, there has grown up a vast army of real artists on the Saxophone—and at the same time manufacturers have been perfecting the instrument to the point where it is today a legitimate instrument, worthy of a place in any musical organization striving for better music.



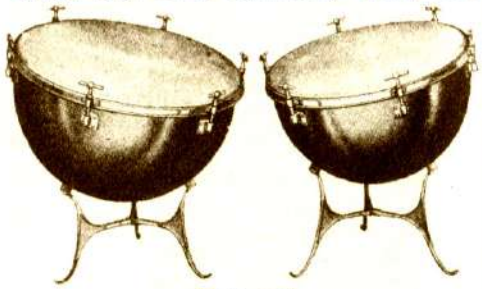
Snare Drum

The Drums

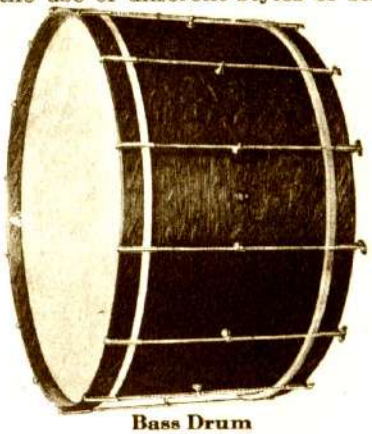
The Drums, instruments of percussion, may be divided into two groups—those having definite pitch and those without pitch. The latter are used purely for rhythmic effects.

The Bass Drum and Snare Drum, which are most commonly used, are used for rhythm, inasmuch as neither of them has definite pitch. Each consists of two skins or "heads" drawn over the open ends of a "shell," consisting of a wood or metal tube having a diameter much greater than its depth. Both the Bass and Snare Drums are indispensable to the band.

The Tympani, or "Kettle Drums" are rounded copper shells with a skin drawn over the open portion. Tympani are tuned by means of tension screws and have a range of about five full tones. Many beautiful effects are possible with a proper use of Tympani. Different tone shadings are obtained by the use of different styles of sticks.



Tympani



Bass Drum

"SCHOOL BANDS," the book shown at the left, was written especially for school officials desiring to organize bands. Starts in with fundamentals and shows, step by step, just how the new band is to be promoted, organized, and trained. Now in its third edition, and proving more popular than ever. Is sent FREE on request to music supervisors and teachers. If you wish a copy, send your name and address today to the York Band Instrument Co., Grand Rapids, Michigan.

This Catalog Shows the Complete Line of Super-Quality York Instruments——

IN the foregoing pages, we have confined our remarks to purely descriptive matter, purposely avoiding any reference to the special features of York Instruments, which have made Yorks the first choice where quality, correct performance, and dependability are the deciding factors.

York Instruments have been known as a quality product for nearly half a century. And yet, Yorks cost no more! Comparisons of models and prices invariably surprise the intending purchaser when he finds that the Super-Quality York can be obtained at no higher price than any other standard instrument.

Also—Yorks are sold on easy monthly payments, which place them within the reach of every musician. Be sure that you send for the York Catalog and Price List before buying any instrument.

York Band Instrument Co.

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