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Some Fundamentals for the Saxophone

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THE CUSTOMARY introduction to any such discussion as this is for the speaker to define his subject, and after all the names a saxophone has been called, I doubt if any specific definition is necessary. *Grove's Dictionary of Music* states that the instrument "consists essentially of a conical brass tube, furnished with about twenty lateral orifices covered with keys, and with six studs or finger plates for the first three fingers of either hand, and is played by means of a mouthpiece, and a single reed of the clarinet type." In a magazine article the saxophone was defined, not so long ago, as "an ill wood wind that nobody blows good."

The saxophone was invented by Adolphe Sax about 1840 and was an outgrowth of his experiments with the ophicleide, a long tubular keyed instrument with a brass mouthpiece. Sax hit upon the idea of the single-reed mouthpiece and designed and built the instrument which he called the saxophone. His fundamental design or system of fingering has never been changed. Five years after his invention, the saxophone was introduced officially into the French army bands and has been an important part of those organizations since that time.

In due credit to Sax, it should be stated that he also was responsible for improving and developing many of the brass band instruments in use today. He more or less standardized the mechanism of the valves and went a long way toward perfecting the intonation of band instruments which were at that time in a deplorable state. It is not commonly known that many of the instruments in use today are fundamentally known as saxhorns, namely, the Flügelhorn, the alto horn, the tenor and baritone horns, the euphonium, and the bass tuba, and were all the inventions of Adolphe Sax.

It must be realized that the saxophone is about the only instrument that was not in existence at the time when most of our symphonic literature was being written. Due to this fact, the saxophone has necessarily been an outcast of the symphony orchestra. Had the saxophone been in common use when the great masters were writing for orchestra, undoubtedly they would have included it in their scores. This would have given the instrument the normal development which it needed. In the past few years, more genuine interest has been taken in the saxophone than ever before. Alexander Glazounow and Jacques Ibert have each written a concerto especially for the saxophone.

Touring Europe, there is at present, an organization known as the Paris Saxophone Quartet which is composed of members of the Musique de la Garde Républicaine. This organization has successfully demonstrated that music in the orthodox quartet form can be played to advantage on a group of four saxophones. Most of their repertoire was at first made up of string quartet music of the more well-known composers and transcribed for these instruments. However, so much interest and favorable comment has been received by this organization that now many of the contemporary European com-

posers are writing specifically for the saxophone quartet.

The saxophone as an instrument is very similar to most of the other wood winds with one radical difference, this difference being that it has a much more extreme conical bore. This presents one of the biggest problems in tone production regarding the saxophone. In any cylindrical bore instrument, such as the clarinet, a large amount of resistance is built up in the instrument itself, which offers the performer an aid in controlling the tone. The saxophone, on the other hand, is much more open, and the air space beyond the reed offers comparatively small resistance to the column of air coming through the lips. This large open space in the saxophone requires a high degree of breath control in order to produce a solid, even tone and is largely the reason that proper breath control is very necessary to the saxophonist.

We must realize that in playing any musical instrument we are more than doubling the amount of work which our respiratory organs normally perform. The object of normal breathing is to supply the blood stream with oxygen and carry away carbonic acid. The action of normal breathing is brought about either by the elevation of the ribs which expands the chest and increases its circumference, or the contraction of the diaphragm which lowers the floor of the chest and enlarges its capacity. These two actions may go on either together or separately and will draw into the lungs of the average adult approximately thirty cubic inches of air. This breathing normally occurs at the approximate rate of fifteen times a minute. In wind instrument playing, we have a greatly increased breathing rate, the main object being to produce a well-controlled and lengthy air column for exhalation, and a very short period for inhalation. The rate of respiration also must be cut down from the normal rate of fifteen times a minute to sometimes as low as two per minute. In addition to this, instead of supplying only the blood stream with air, we must give the blood stream its normal supply and the instrument an additional supply. Our problems are (1) to get as much air in the lungs in as short a time as possible, and (2) to control the exhalation of air so that it agitates the reed, but does not fatigue the instrumentalist.

High chest breathing is commonly known as "costal breathing," due to the fact that the ribs are stretched by means of the small intercostal muscles between them. Diaphragmatic, or "abdominal" breathing, is performed by lowering the diaphragm by pushing out the abdomen. In supplying the necessary amount of air to blow a wind instrument, we should attempt to make use of both forms of breathing by expanding the lower ribs and at the same time lowering the chest floor, or diaphragm, by pushing out the abdomen. This sort of breathing is known as "central" breathing. After we have lowered the chest floor and expanded the lower ribs so that the chest has its maximum load of air, we will find that it is very easy to blow a column of air



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sufficient to make the tone easily. If we need a stronger column of air for attack, then this attack should always start from the stomach. Should we try to attack by suddenly contracting our chest muscles, air will be forced both towards the lips and toward the stomach in the same manner as if we squeeze a tube of tooth paste in the middle, causing the back end to bulge out and making the effort expended about fifty per cent wasted.

Fine control of breath can be developed by starting all our notes with an inward movement of the stomach muscles. There are many far-reaching advantages to be obtained by proper breathing, among the main ones being the relaxation of the entire body itself. Forced muscular exertion or an attempt at tightness to produce a sound tends to tense the body, the fingers, the neck muscles, and the all important muscles of the face and embouchure. The saxophone embouchure differs radically from the clarinet embouchure because of the fact that we do not use the lower teeth as support for the lower lip. This lip must be supported by the mouth corner muscles coming forward and the chin muscles being drawn up. If we say the word "doo-m," drawing the mouth corners in on the word "do" and the lower lip up on the "m," we will have a firmness around the mouth which, if developed, will give us all the necessary pressure around the mouthpiece. This type of embouchure frees the lower jaw so that we can use it for vibrato.

The subject of vibrato is a very delicate one, and if the use of vibrato is not intelligent, then it is better left alone. The development of good vibrato, however, can be a big asset to a beautiful

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tone and its use is almost universal among better saxophonists. Correct vibrato is produced by a steady movement of the lower jaw in the up-and-down direction. I believe the easiest way to develop this is to practice this movement in a definite rhythm, preferably with the metronome. It is a good plan to set the metronome at seventy-two and play all the scales giving each note four pulsations. When perfect evenness has been attained at this tempo, gradually increase the speed of the metronome until a tempo of ninety-two is

reached. It must be clearly understood that vibrato is an embellishment of the tone, and should not, under any conditions, cover up the tone. It should be studied first purely as a mechanical exercise, and when evenness is attained, then the distance the jaw moves should be cut down so that it does not affect the pitch or make the tone sound bumpy. Anyone who will master the mechanical elements of vibrato and then pattern the artistic effects after fine instrumentalists or singers, will not be far wrong.