The Technique of Breathing for Wind Instruments

By Stephen Maxym

Much has been written about breathing and breath control, and the many excellent teachers of wind instruments never fail to stress the importance of these factors as a basic requirement for sound wind technique. Much of the stress has been placed on where to direct one's breathing, but much less attention has been devoted to how to breathe. It is to this aspect of breath technique that I would like to devote the major portion of this series of discussions.

Breathing technique is to the wind player what bow technique is to the string player. In the case of the string player, would you say that the left hand is more important than the right, or vice versa? You cannot play string instruments without the use of both hands, and the question of which is more important in terms of the development of an adequate technique is slightly absurd. In the same way, you cannot separate proper breath technique, which is equivalent to the one hand of the string player, from the other factors which go into making a proficient musician. The analogy with the string player is not as forced as it appears. There is much to be learned from closely observing the good string player and translating his bowing technique into a related phase of breath technique.

But a string player's faulty bow arm can be more easily detected, since his whole technique is visible, whereas breathing is an internal process and the faults are more difficult to perceive and correct. There are, however, outward manifestations that provide clues to the hidden difficulties. There are ways and means of resolving these problems with proper diagnosis and prescribed practice.

A player who breathes well will generally have a fine sound, more variety of tone color, better intonation, greater facility, longer breath and greater freedom from the limitations inherent in all wind instruments. If you will observe some of the better players, you will notice what fine voluminous sounds they get with little apparent effort, whereas less proficient players will fairly burst a blood vessel and get nothing but a thin, characterless sound. It is certainly apparent that it is not the effort, but the kind of effort that matters.

Let's begin by asking how you utilize your breath. Do you just fill up and blow? Do you use your diaphragm muscles? When do you use them? Do you use your chest and chest muscles? When do you use them? What is their relation to the diaphragm muscles? Do you maintain a reserve of air? Is this reserve air used in conjunction with the chest and diaphragm? If so, what is the relationship? How do you take a breath? Can you direct your inhalation? Is your breath capable of varying its weight? What is this weight? How do you use your breath for high register, low register, staccato, sustained passages, technical passages? How do you use timing in your breath? What is the relation of your breath to tone color, dynamics, technique? The above represents but a few of the questions you must ask yourself!

My purpose in posing these questions is to supply you with a composite picture of the factors that comprise good breath technique. In this article I want to arrive at an

understanding of some basic concepts and to agree on terminology. In subsequent articles, I will take up these problems in detail.

The first aspect I wish to discuss is not the application of breath but the act of breathing itself. Is it not strange that the very thing we do from the moment we are born to the moment we die should be subject to so many different interpretations and concepts? There are many muscles in our bodies that function completely without any conscious effort on our part. The heartbeat, the blinking of the eyelids and our breathing are evidence of this fact. In the case of the eyelids and breathing we also have the power to control them at will. Our difficulties arise when we make a conscious effort to duplicate that which is a natural and unconscious function.

While it is obvious that air can only go into the lungs, the resultant action of the expansion of the lungs affect many parts of the body. The following is a good illustration:

You certainly must have noticed at some time or another sunbathers in various positions of repose. For our purpose, let us watch one who is lying on his back, asleep. In this position, at rest, you can see the action of the breath directly below the ribs, in the region of the stomach. I need not tell you that the lungs certainly do not extend that far down. Actually, there is a membrane which separates our internal organs from the lungs. This membrane, known as the diaphragm is dome shaped and flattens out with each intake of air. Let us call the air which causes this diaphragm action, the “diaphragm breath.” Notice that the entire abdomen expands as the diaphragm flattens. So, in effect, you get muscular action almost to the bottom of the torso. The breathing of our sleeping sunbather is easy and shallow. There is either little or no motion in the chest. Occasionally he will take a deeper breath, in which case the chest begins to expand. A full breath will reveal breathing motion in the entire body from the shoulders to the hips. This represents the natural way of breathing.

Any method that we adopt which has a tendency to be contrary to the natural way of breathing, will also counteract the natural muscular action, resulting in a constricted, rather than a relaxed breathing action.

The important point which I wish to bring out is that the simple act of breathing involves practically the entire body.

Let us go back to our friend at the beach and follow him through the process of exhalation. Assume that he has taken a full breath. At the moment of exhalation, you will notice that the entire body begins to contract. The weight of the chest plays an important role in determining the manner in which the breath is exhaled from the lungs. Consequently, the portion of breath in the chest will be exhaled more quickly than the breath in the diaphragm region. Therefore, the air which is directly affected by the action of the chest will be called “chest breath.” Incidentally, it must be remembered that there is always a slight pause before the point of inhalation, and a similar one before the point of exhalation, in all normal breathing. This pause is an integral part of our breathing process and will play an important part in the future discussion of timing in attacks and in other phases of wind playing.

In normal breathing, after the breath has been exhaled, and just before the point of inhalation, there is still a reserve of air left in the lungs. In fact, it is quite possible to continue a conversation for some time, utilizing this reserve air. If you were to force out as much of that reserve air as possible, you would find that you could barely utter a few sounds. This reserve air we will refer to as "residual air" in our further discussions. Meanwhile, consider as one of the most important points in this section of the series of articles the fact that breath technique is predicated on a skillful control and utilization of the natural processes of breathing.

To sum up – there are three phases to our breath: the diaphragm breath, the chest breath, and the reserve breath (referred to above as "residual air"). As a preliminary to further discussion it is advisable to perform a few simple experiments in breathing and coordination. Through these experiments will come an understanding of the principles to be discussed and a working knowledge of the various factors involved. After these factors have been clearly impressed upon the mind, an adequate discussion of the application of breath to wind instruments will be possible.

In all of the following experiments it is absolutely essential that a position of complete relaxation be assumed. It will be found that the experiments vary slightly in a reclining, sitting or standing position, however the principles are more evident when performed in a reclining position. It is therefore suggested that the experiments first be tried in a reclining position and thereafter repeated in both sitting and standing positions.

In a reclined and relaxed position breathe normally, comfortably and lightly, as when resting. Place the hands on the shoulders and notice that there is no motion at this point. Rest hands on the chest and again no motion will be found. Now with the hands on the lower part of the chest so that the lower ribs and the solar plexis can be felt at the same time, continue breathing lightly and note that the air fills up from the bottom and that at the crest of a breath it reaches up into the lower chest. That part of the breath that lies below the ribs and involves the action of the abdomen is termed the "Diaphragm Breath."

Repeat the experiment a few times making each successive breath deeper than the previous one. Carefully note how the breath fills up from the bottom; first the diaphragm, then the lower chest, then it raised the chest and finally a <u>full</u> breath even raised the shoulders. The breath is now free, easy and in one continuous line. This continuous line represents a kind of body rhythm.

Now try to duplicate the full breath naturally but at the same time consciously, gradually increasing the speed but maintaining the same relationships and body rhythm as when done experimentally.

The next experiment involves placing the hands on the chest and taking as a deep a diaphragm breath as is possible <u>without causing the chest to rise</u>. It should be noted that the air can be directed to the lower portion of the lungs at will. Exhale. With hands resting on the abdomen take a full chest breath but do not allow the abdomen to swell. In this experiment

the air has been consciously directed to the upper portion of the lungs. The ability to direct the air is a very important factor and must be emphatically noted.

With hands on the chest, repeat the diaphragm breath experiment, allowing the breath to exhale through the mouth. Repeat this procedure several times and note that the volume of air, the air pressure, and the velocity is greatest at the start of exhalation. The pressure, velocity, and volume diminish as a breath tapers to an end. With time and volume as a medium, and using a musical analogy, the effect can best be described by likening it to a diminuendo-rallentando combined.

At the close of one of these breaths, it is possible to pause comfortably or even to converse for short while before feeling the need for a new breath. This is possible because there is always a certain amount of air remaining in the lungs at the end of any normal breath. The reserve air remaining in the lungs is termed “Residual Air.”

Breathe using the diaphragm again, but in exhaling, try to overcome the tendency toward the diminuendo-rallentando by joining normal exhalation with residual air to form one continuous column of air of equal intensity.

Keeping in mind the three factors: velocity, volume, and pressure, repeat the foregoing experiment using the chest breath only. It will be noted that the diminuendo-rallentando effect is more apparent. Pressure, volume and velocity are greater at point of exhalation and the breath is terminated much quicker than when using the diaphragm breath. Here again, it is possible to tie the chest breath to the residual air by following through. Thus we find greater pressure, faster exhalation and less control over chest breath and greater control, less pressure and slower exhalation by using diaphragm breath. In addition, more ease is felt using the diaphragm in the experiment. It will also be found that in normal exhalation, chest and diaphragm breath arrive at the same point and can be joined to the residual air.

The following concluding experiment will demonstrate the relationship between diaphragm breath and chest breath. It will be recalled that earlier these two forms of breathing were joined into a very normal and relaxed fashion. If a good diaphragm breath is first taken one can readily continue inhaling by filling up the chest area, but if the reverse procedure is used, once the chest is filled it is much more difficult and uncomfortable to then continue inhaling to fill the diaphragm. It will become more apparent that by initiating the breathing in the chest area the diaphragm area becomes immobilized and the instrumentalist becomes shackled by inadequate breath support. Such inadequate breath support is one of the biggest if not the biggest fault in wind instrumental breathing.

It is therefore apparent that correct breathing must start from the bottom. The diaphragm must be the starting point in all breathing. Regardless of the demands of any musical passage this form of breathing will make for greater ease and control.

Summing up briefly: a full chest breath and a full diaphragm breath left to their own devices will have a natural tendency toward a diminuendo-rallentando effect. This can be countered by deliberately making a crescendo as exhalation draws to a close.

When taking a full breath, with all the factors involved, it will be found that the chest exerts greatest pressure and it is only after the chest breath begins to exhale that the diaphragm breath will come into play.

For the greatest breath support it is necessary to take a full breath, allowing the chest to exert its weight and pressure; then as it would normally lose pressure, follow through with the diaphragm breath to compensate for loss of pressure. (In effect a crescendo is made with the diaphragm breath.) As the diaphragm breath draws to a close the residual air is brought into play by pushing with the diaphragm muscles until the very end of exhalation. In this faction, it is possible to secure the absolute maximum out of each breath.

Bringing the diaphragm into play behind the chest breath is a very delicate technique, and the point at which to utilize the residual air is even more so. Correct Breathing enables the instrumentalist to sustain a tone for greater lengths with much more security than in any other fashion. It makes for a breath that maintains a constant pressure, a constant volume of continuous air, and a constant velocity.

After this is achieved, the next step is the ability to vary the breath support so that there will be a corresponding variation in the following factors: weight, volume, velocity and pressure. The degree and type of variation will be determined by the way these factors are to be utilized. Let us take each of these factors and analyze their relationship.

WEIGHT

In this discussion the term weight has a specific meaning and a specific function. This is the weight of the body on the breath at the moment of exhalation. This body weight is the natural force that the chest, the diaphragm, and the tendency toward exhalation exert on the air at the moment of exhalation. The degree and force of this weight is determined by the type of inhalation and the relation of chest to diaphragm. The deeper the breath, the more natural weight will be exerted. A simple illustration of this would be to take a deep breath, and at the moment of exhalation, place the back of the hand against the lips to prevent exhalation. This is to be done without any special effort other than the natural tendency toward exhalation. Notice how the cheeks puff out and how the breath exerts a definite force against the back of the hand. The force that is felt in the cheeks and against the back of the hand, is air pressure that is directly due to the weight of the body and the natural force for exhalation. Observe that at this point unless the hand is removed there is no motion of air despite the weight and the pressure. This weight and pressure can be varied by the type and degree of inhalation. This is an important point to remember and will play an important part in the discussion of dynamics.

PRESSURE

In the paragraph on weight, the term air pressure was introduced and shown to have a direct relationship to weight. In the illustration in the paragraph on weight, the results were due to purely natural tendencies. Using the same experiment as in the paragraph on weight, it is possible to increase the air pressure substantially by the muscular use of the diaphragm and chest. This muscular action has the effect of also increasing the weight although it has no weight of its own. In this case the pressure and weight is induced whereas in the previous experiment it was natural. It then becomes increasingly evident that weight and pressure become synonymous. The difference lies in the natural weight-pressure, as contrasted to induced weight-pressure. The more natural weight used the less induced weight is necessary for any given breath support. It is therefore better to take the kind of breath that will allow the body weight to be a substantial part of the breath support. The proper use of weight will make for less tension and more controlled support.

VELOCITY AND VOLUME

Both of these terms are self-explanatory; however, their relationship to each other is a bit more involved. It is possible to have a high velocity of air with little volume. Whistling is a good illustration of this. It is also possible to have low velocity and a large volume of air and an excellent example of this is the exhalation of a yawn. Lastly it is possible to have high velocity and large volume of air. A simple illustration would be blowing out the candles on a birthday cake. Thus we see that both of these factors can function as opposites or work together. Understanding this is essential for the future discussion of various instrumental registers and is also essential in learning the proper use of the embouchure.

The relationship of all the aforementioned factors to the breath support and the embouchure can easily be shown by the following series of illustrations:

The action of the chest, the diaphragm and the resultant breath support, act in very much the same manner as the water that comes out of the water tap. With a closed spigot there is pressure and weight behind the spigot but neither volume nor velocity. With a partially open spigot there is weight, pressure, little volume and little velocity. As the opening of the spigot increases the volume and velocity increase. In this case the volume and velocity have a direct relation.

The action of the embouchure is very much like the action of a nozzle at the end of a garden hose. Here the adjustment of the nozzle for maximum volume would give minimum velocity, and if adjusted for maximum velocity the result is little volume. The result this time is an inverse ratio.

The action of the embouchure and breath support together can be described by attaching the hose to the water spigot. Now there are two control points, the spigot and the nozzle. Watering a garden is a simple matter and generally the spigot remains wide open and all the control is done with the nozzle. However, in wind playing the two control points, the embouchure and the breath support, are constantly adjusting to meet the demands of the

instrument and the music. It does little good to have the nozzle wide open when the spigot is closed or the spigot wide open and the nozzle closed. Yet, this happens all too frequently in wind playing with the player squeezing the embouchure and raising his blood pressure by blowing his head off with little to show for all this effort. There must be a balance between the embouchure and the breath support where the slightest move on either part must have a related move in the other. It then becomes apparent that breath support must become a technique capable of following a musical line, just as embouchure technique and finger technique. Furthermore, all these techniques are inter-related in such a manner that each suffers without the proper aid of the other.

There is a physical law that illustrates, perhaps better than any other, the big problem of playing a wind instrument. This law simply states that opposing forces of equal strength will cancel and nullify each other. After a few examples, I want to show why this law is so important in this discussion.

1. A simple balance scale with a five pound bag of sugar on one side requires a five pound on the other side to counterbalance and cancel out the weight of the sugar. When the weights are perfectly matched, all motion stops. If however a seven pound weight were put on, to counter balance the five pound bag of sugar, two pounds, (the difference between them), would be the force that would cause the scale to move.
2. A grocery spring scale with the same five pound bag of sugar will depress the spring until the resistance of the spring is equal to the weight of the sugar. At this point, with all forces being equal, a static situation exists. In this example, the resistance of the spring opposes the force of gravity.
3. In a tug-of-war contest, with both sides evenly matched, a similar static situation results. The moment one side weakens, there is motion, and a force that is the difference between the two. In this case these forces had stress in opposite directions but were held in balance by a common bond.
4. A simple hand wrestling contest, where two contestants face each other with elbows on the table, palms facing each other and thumbs interlocked attempt to match their strength by forcing the opponents hand down to the table, provides the illustration best suited for our discussion. In this example, the forces are opposite but they act toward each other. If they are equal, a static situation results, but the moment either force becomes greater, there is motion and a resultant force that is the difference between the two.

Every wind instrument offers resistance of varying degree throughout its entire register (with the exception of the flute, where the lips create the resistance). In playing any note it becomes necessary to produce an effort that is slightly greater than the resistance of that note. Part of the effort is used to cancel out the resistance and the remainder plays the note. Added to the natural resistance of any given note is the resistance of the embouchure pressure itself. The player then is faced with the problem of learning what the resistance of every note on the instrument is. In addition, the player must decide how much embouchure pressure to give, what kind of

embouchure, and the amount and kind of breath support to give that will cancel out resistance and produce the tone. Since the basic resistance of each note is constant, it is the amount of embouchure resistance that makes a note more or less difficult to blow, assuming of course that there is sufficient breath support. If there is insufficient breath support, then the embouchure must assume the burden of the work. The more body weight in the breath support, the greater will be the ease in matching the resistance of the various notes, and the less will be the burden of the embouchure. The less the burden, the more air will be applied to the tone, resulting in more ease and fuller and better tone. Finding the proper matching point will also result in better intonation, more resonance and better focus to the sound.

ATTACK

There are several important aspects to the attack, namely, body rhythm, tongue action, embouchure placement, and timing. The proper organization of all these factors is essential to a good attack. Since some form of attack initiates every tone, a good attack with its components in proper balance is essential to a good tone.

In preparing for an attack it is important to develop body rhythm. Body rhythm involves the manner, organization and timing of inhalation, exhalation and application of support. This rhythm must be accomplished with ease, without hesitation, and in one steady continuous motion. The motion must be directed to the attack, thru the attack and to the note that follows. During inhalation it is necessary to govern the type and degree of inhalation, and the ratio of air in the diaphragm and chest. In preparation for exhalation and attack it is essential that the factors, weight, pressure, diaphragm and chest arrive at the attack in perfect balance. This technique requires great sensitivity and must be practiced very slowly at first, and when mastered, attempted at faster tempos.

Judging the proper time for placement of attack is a delicate and critical matter. It can best be illustrated by repeating an experiment that has been done in the previous issue on weight and pressure. The experiment called for taking a normal breath and stopping the exhalation with the back of the hand against the lips. By trying this experiment several times notice that all motion stops a fraction after the point that exhalation normally begins. At this point, where motion stops the weight, pressure, diaphragm and chest come into perfect balance and act as one unit. If the inhalation phase of the breath is properly executed this balance should occur every time. It is at the point where motion stops, that support is applied. Point of support always comes a fraction after point of exhalation and the difference between them is the time necessary for all physical factors to get into balance. Therefore it is when the breath reaches this point of support that the attack should take place. It is important to be able to recognize when this point of support is reached for if the attack is attempted before or delayed beyond this point the rhythm will be upset and the balance of weight, diaphragm and chest will also be upset.

Tongue action must be clean and timed perfectly so that it does not hinder the support of the rhythm. Embouchure must arrive at point of support in full position to be played. If the embouchure reaches full position too early it will have a tendency to constrict the support and the flow of air that follows. Needless to say, the attack will be very bad if arrival of the embouchure to playing position is delayed. Therefore, the embouchure must be timed accurately in order that it arrive in perfect playing position at the point of support.

In discussing attack it becomes necessary to take into consideration the various registers of the wind instruments. Obviously, a high note cannot be attacked on a low register position or vice versa. Therefore both the breath and the embouchure have to be planned for each note and the register in which it is to be played. High registers require a high velocity with less volume of air whereas low registers require more volume of air and less velocity. Support must always be constant and full. As music progresses from one register to the other, requirements change according to the demands of the register. This sort of musical marksmanship makes it necessary to know beforehand what register demands will be and to make the necessary adjustments to meet such demands.

STACCATO

Breath support and breath technique play a very important part in staccato playing. Much attention has been devoted to the development of speed in tonguing and far less devoted to quality. Yet quality is most important in the development of a good staccato, as is also good timing and correct breath support.

The problems in playing a single staccato note are slightly different from those of repeated staccato notes. In the single staccato note, the preparation is made from position of rest to a position of full support and attack. This involves all the problems that were discussed in the explanation of attack. Everything must be there, body rhythm, tongue action, embouchure placement, and timing. The point of support is especially important in staccato playing. The closer it is to the sound the less distance the support has to travel to get into the sound, the less the time lag, and the easier it is to correlate tongue action with breath support.

Playing repeated staccato notes, the first note has the problem of attack from a position of rest but the succeeding notes carry on from that position and support of the first note in very much the same manner that a sustained tone would. There is a difference however, as support never goes into the sound as much in staccato playing as it does in sustained playing. The staccato support stays just short of a sustained playing support position. It is from this position that the staccato goes into the sound and rebounds back to the staccato support position. If staccato action is clean and with quality it will rebound quite readily. The action from the support position and its rebound will ultimately determine the ease and rapidity of the staccato. If the support position is too far from the note, the distance air has to travel creates unnecessary

weight and time lag. Keeping support close, quality of sound, timing, good tongue action, plus elimination of weight and time lag are the essentials necessary for a good staccato.

In the paragraph on weight and pressure, it was indicated that it was possible to have full breath support without any external movement of air. Therefore, there can and must be full breath support before any note is played, and this support is quite independent of velocity and volume (air). Support becomes active only when it is applied to the instrument, and only when applied can it be said to have motion. By increasing the velocity of the motion it is possible to increase the dynamic level, and by decreasing the velocity to decrease the dynamics.

The body controls the breath support and by controlling its motion also controls its application. Another way to control dynamics is through use of the embouchure to govern the volume of air. Constricting it diminishes the air for a piano and relaxing it, to permit more air, for forte. A third way is a technique that combines both methods. In this technique the best results will be achieved when the body exerts a primary influence over the dynamics and the embouchure a secondary one; the embouchure being used as an aid. At no time should the embouchure assume the major burden of governing dynamics. Support must always be full and constant even in pianissimo. It is the motion and application of support that controls dynamics. If application of the support provides more air and greater velocity, the embouchure must relax to allow its direct effect on the instrument. It will become very apparent that the embouchure position will be sustained only if the support is firm. If support collapses the embouchure will collapse also. The embouchure, therefore, is very dependent on this support and appears to float on air, which is as it should be.

TONE

Since tone is subject to individual conceptions and musical tastes, it is difficult to lay down a hard and fast rule for a good tone. There are as many tones as there are instrumentalists and each is as individual as the player's signature. However, there are common goals in all good sounds and the realization of these goals will permit a choice of development in accordance with individual musical desires. Once the basic relationship of embouchure and support is established, other factors can be taken into consideration. Subtle and minute changes in the relationship of embouchure and support provide the key for all the facets that go to make up a good tone. Tone must have resonance, core (body), quality, intensity and color.

The factor that is most directly related to the basic embouchure support position is the point of resonance. In any given note, trial and error will reveal some point of embouchure-support position that will produce the greatest resonance. This point will readily be recognized by the clarity and ring in the instrument when once located, its location being essential for the projection of the sound. Completely independent of dynamic demands, it is this factor that will permit a soft passage to be

heard in the last seat in the theater. The building of a tone should start with finding the resonant position for every note on the instrument.

The next step is the structure of the sound. Sound must have solidity and body, qualities frequently referred to as the core of the sound. After having found the resonant position of a note, the core to the sound is established by adding additional weight to the breath support. This must be done with care so as not to disturb the fundamental resonant position.

Thus far the sound is very much like a newly built house that needs furnishing. Having established the structure of the sound via core and resonance, it is now necessary to furnish it by adding color variation, quality and different degrees of intensity.

Color variation is perhaps the simplest to comprehend. Practically every wind player can darken or brighten the sound to some extent. This is generally accomplished by varying the placement and texture of the embouchure; in other words, by taking more or less reed in the embouchure, using a deep or a shallow embouchure, or a firm or a soft embouchure. All these changes would slightly alter the support relationship and compensating adjustments would have to be made. The embouchure hence assumes a primary role, and the support a secondary one, in the development of color possibilities inherent in all wind instruments.

Intensity variety employs a similar technique with this exception: the breath support assumes the primary role and the embouchure a secondary one. The degree of intensity is determined by the depth of support application. A low intensity uses less support whereas great intensity requires the support well into the sound.

Quality is more closely related to embouchure position and more directly affected by the type of reed and mouthpiece. This does not imply that support does not play an important part, for it is the support that will permit the maximum freedom for the embouchure. Quality is the final polish to the sound and is directly affected by all the preceding factors discussed. The refinement we call quality is not an independent unit and because of its direct dependence on all the preceding factors can be called the sum total and end result of all of the preceding factors.

All of the above is essential to a good solo tone and the development of good musical expression. While it is important to be able to play with resonance it is equally important to be able to play off of resonance. This is especially important in orchestral playing where it is essential to differentiate between solo playing, ensemble playing and accompaniment. The development of a solo tone brings out the strong characteristics of each instrument. Composers use solo winds with the intention of stressing their individual characters. Therefore solo work must have maximum resonance and character. In ensemble playing where it is essential to blend with other instruments it is necessary to modify the resonance and the individual character of the instrument to the point where it blends and produces a homogeneous sound together

with other instruments. In an accompaniment it is important that the sound does not intrude and interfere with some other solo passage. It is therefore necessary to alter the color, intensity, resonance, core and even quality of the sound so that it provides the best possible setting for the solo work of another instrument. This approach gives you a share in all other solo work besides your own. There are wonderful tonal effects, colors, timbres that can be discovered by this approach. The total effect is to enlarge the tonal palette and expressive possibilities of every wind instrument.

VIBRATO

Vibrato is a matter of personal preference governed by individual musical tastes and backgrounds. There are some excellent exponents of the diaphragm vibrato school. WOODWIND has done an excellent job of presenting its various exponents and the intention of this article is not to enter this controversy, but to discuss the vibrato itself and the use of the vibrato.

Too many instrumentalists feel that a good vibrato will solve all the needs for a good tone and musical expression. There are many good tones without vibrato as well as with, and many bad tones without vibrato as well as with vibrato. There is no denying that vibrato in the hands of a fine artist is a thing of great beauty. A fine artist will be discriminating in the use of vibrato, employing it in varying degrees, at various dynamics, in varying intensities, at various speeds and at times not at all. The vibrato, then must have discriminating use to achieve the ultimate in musical emotion and expressiveness. Too often everything is covered over with the same paint and the same paint brush.

All the relationships of breath and breath technique must prevail, whatever the school of vibrato. The vibrato is essentially a superimposition of the breath. The better the breath technique, the more control can be brought to bear on the vibrato and the more effective its use. In fact, vibrato demands good breath support and control, especially in the diaphragm region. An inadequate breath support will result in an uneven vibrato with faulty intonation.

Vibrato consists of pitch variation, intensity variation, dynamic variation, and to a lesser degree color variation. All these are present in all vibratos and are inseparable. Since they are inseparable and occur in all vibratos simultaneously the differences lie in stressing some aspect of the vibrato more than others. One way is to vary the speed of the vibrato. If the speed is too fast or too slow it loses character, but other than that it remains a matter of personal preference. The other factors are so inter-related that the only difference is whether the stress is made on a pitch variation or an intensity variation. It is the emphasis that will make one of the factors predominate and govern the basic character of the vibrato.

If the emphasis is made on pitch variation, the intensity, dynamic and color variation will be present to a lesser degree. The wider the pitch variation gets, the less definition there is to the pitch and the less focus to the sound. The intensity also

suffers and the end result is a vague characterless sound. Therefore it is necessary to keep the pitch variation close and at a minimum.

If the emphasis is made on intensity variation, the sound will have strong focus, good pitch characteristics, good tonal color and well controlled pitch variation. It will also have closer contact with breath support and consequently more control over its application.

Numbering both woodwind and brass players amongst my students, I have had an opportunity of observing the results of these techniques under a variety of conditions and a variety of instruments. The results have been most gratifying and have strengthened the concept that breath technique is the common denominator of all wind instruments.

During this discussion I have made an attempt to illustrate the influence of breath technique over every phase of wind playing. This influence is more far reaching than most players realize and its importance cannot be over-stressed. I wish that the knowledge of breath technique were in itself sufficient to translate into practice, but unfortunately there is no easy way to develop this technique. No more so than reading about piano technique will make you a pianist or reading about art technique will make you and artist. If, however, these articles have stirred a desire to probe further into the unresolved mysteries of wind playing and have suggested a direction toward that goal, they will have served their purpose.