Notes from Abe Kniaz

On playing the horn

Collected by Thom Gustavson

Dedicated to Édith Bédard

First Edition

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Introduction

Abe Kniaz was my teacher, colleague, and friend. His accomplishments were considerable, but I discovered them mostly by listening to recordings of his performances because he was also modest. He did not publish any pedagogical theories, but he left notes on his thoughts about teaching horn playing. This is a distillation of his notes, organized into categories.

Perhaps one reason he didn't publish his theories was that he never thought he had all the answers. One of his strengths was that he was willing to change when his approach was not working or when he saw a better way. Another friend of Abe's, A. Robert Johnson, wrote in *The Horn Call* (October 2007) about his experience playing second to Abe in the National Symphony:

> Abe's was not a natural gift, and he made no secret of that. His was not a "natural" embouchure. He learned how to make it conform to his will by sheer effort and endless experimentation. And he succeeded. Colleagues in the brass section let it be known that for a season or two his tenure was in doubt because he hadn't yet mastered the idiosyncrasies of the instrument across the spectrum of demand made on the first horn. It is fair to say that this combination of will and uncertainty were one story of his life in music. The main one however, was his consummate musicianship. Anyone of my acquaintance who heard him from the audience confirms that he made a beautiful case for the horn in the orchestra by the way its voice was heard while in his hands.

Stephen Lawlis, who studied with Abe at Indiana University, wrote:

> Abe had quite a reputation during his years at Indiana University for changing embouchures. While there was some truth to this, in general, he would patiently demonstrate his own way of playing through lip and mouthpiece buzzing. This often resulted in the students themselves wanting to make the change, particularly after discovering that this change could help correct an existing weakness.

CD

The CD accompanying this book is of Abe performing familiar orchestral excerpts (unaccompanied).

1 Beethoven Symphony No. 2
2 Wagner Siegfried Call
3 Ravel Piano Concerto
4 Beethoven Symphony No. 7
5 Bach Mass in b minor
6 Strauss Till Eulenspiegel
7 Strauss Don Juan
8 Strauss Four Last Songs
9 Strauss Der Rosenkavalier
10 Brahms Symphony No. 3
11 Brahms Symphony No. 1
12 Brahms Symphony No. 2
13 Brahms Piano Concerto No. 1
14 Mussorgsky Pictures at an Exhibition
15 Bizet Michaela's Aria from Carmen
16 Rossini La Gazza Ladra
17 Mozart Sinfonia Concertante
18 Mozart Symphony No. 40
19 Tchaikovsky Symphony No. 5
20 Abe speaking

Biography

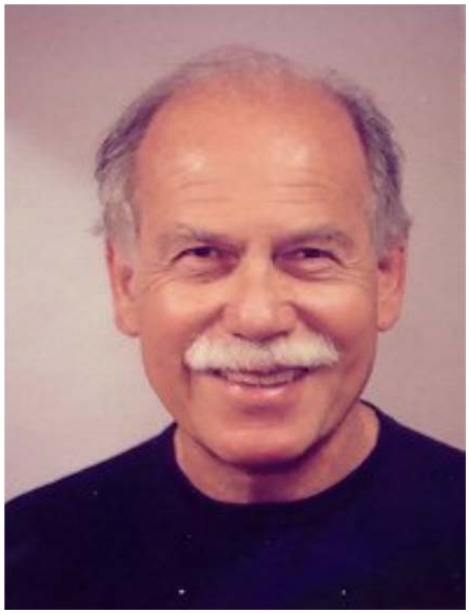
Abe Kniaz was highly regarded as an orchestral horn player when he left the National Symphony Orchestra to teach at Indiana University in 1961. Perhaps he has not been as well known in the United States as a teacher, especially after he moved to Canada, but many students attest to his influence on their playing and also in their lives. Abe is remembered by many as a kind and caring mentor.

Abe was born in 1923 in Milwaukee, grew up in Chicago, studied at the Curtis Institute in Philadelphia, and earned a master's degree at Michigan State University. He played in Pittsburgh, Houston, and Columbus, Ohio. When the Columbus orchestra collapsed in 1947, Abe free-lanced in New York City and then served as principal horn in the National Symphony in Washington DC from 1950 to 1961.

After such a distinguished playing career, Abe felt ready to teach. However, years later, after decades of teaching, he regretted that he had not continued to play longer. After ten years at Indiana, he moved to Canada, playing for a year in the Quebec Symphony and then taking a professorship at Laval University, from 1972 until his retirement in 1994. He played with a brass quintet in Quebec over the years and even after retirement. He was proud of keeping up with the other members of the quintet even though he was by far the oldest of the group.

George Housenga (retired principal horn of the Orquesta Sinfonica de Xalapa in Vera Cruz, Mexico) studied with Abe at Indiana University. "He didn't just teach you to play notes," George says, "he taught sound, for one thing." For six months, he had George play only the second line G. "I thought he was nuts, but he wasn't, because at the end of the six months, I had something."

Abe died in 2007. His widow, Édith Bédard, says, "Abe was a warm person, full of doubt, but who loved music and the search for perfection." Abe's gravestone reads: "The journey of the soul and the journey of music were one to him."



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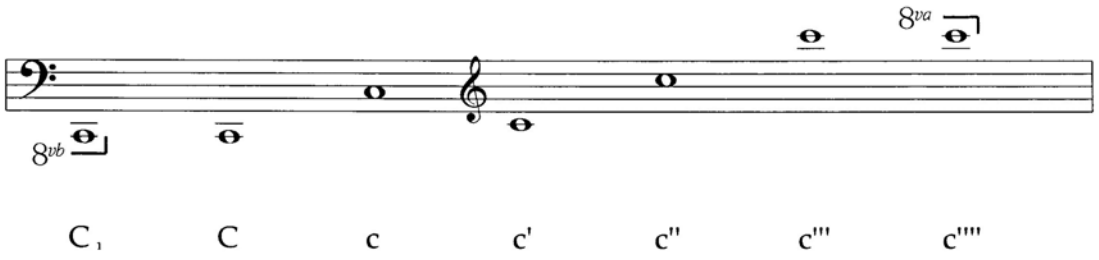
Octave Designations

The octave designation system used in this book is the one preferred by the *New Harvard Dictionary of Music*, edited by Don Randel (1986), and by *The Horn Call*, the journal of the International Horn Society. All notes and references to notes are for horn in F. Bass clef is new style; i.e., sounds a fifth lower than written.



Philosophy

Teaching

In this lesson room you must:

- Strive to satisfy my musical demands more than your own
- Learn to be patient with yourself
- Put reliability and control way up, and put speed, and flashy playing way down
- Do a small amount of literature played well rather than a lot played poorly

The student starts playing and he plays badly. How soon should I stop him? How can I make it clear to him that my opinion is correct; i.e., that he is playing badly? Do people become better players by playing badly for a sufficient length of time? Is progress inevitable?

One problem in teaching is trying to explain to students why they do not get better quickly and why they can't benefit from simply playing through a lot of music. A good teacher understands the systems of playing and can watch the student more carefully than the students themselves.

Intonation, rhythmic control, control of dynamics, and consistent accuracy are four skills that separate the men from the boys or the ladies from the girls.

Talent or Method?

Some players play better than others. Is the difference in playing ability due to only such intangibles as talent and willingness to work, or is it due to the difference in physical approach? Does some of the "way of doing it" lead to more control than other ways?

The same types of differences pointed out in connection with brass players can be observed (if one substitutes wrist position for embouchure, etc.) with string, woodwind, and keyboard players. Examples are also found in athletics: several schools of thought on how to hold a golf club or swing a tennis racket.

Some of the different ways of accomplishing a job may seem like small, unimportant differences. Does it really matter which physical method one pursues, in view of the fact that all of the ways seem to produce results some of the time, and that none of the methods can guarantee to produce results all of the time? One might say, "If the job is getting done, what does it matter how I go about doing it." The truth is that all too often the job doesn't get done because of these small differences.

It's the end of the story that counts, and the sad truth is that many who have tried for years and have failed could have succeeded had they done the right physical things. The "small differences," more than differences in talent, determine who becomes the expert player and who remains the unreliable player.

What is the right way? Is there a right way, or at least a way that is better than other ways?

It is difficult to describe physical activities in exact detail. The simple physical activity of walking is actually an incredibly complex series of orders from the brain, through the nervous system, to the muscles in various parts of the body. We walk well by habit, but one only has to see an unskilled actor try to walk casually across the stage to realize how complicated walking can become when the habit is disturbed by self-consciousness. That is the reason music teachers sometimes say, "Don't think so much, just play!"

Many famous virtuosos are unable to describe their methods. They may not have analyzed their physical approach in a way that would enable them to express their knowledge in words, but they are so "perceptually gifted" that they always perceive and choose the most logical solutions to the physical problems of playing. Those who are by comparison "perceptually handicapped" must

analyze and then deliberately choose the physically logical methods. The help of an experienced and patient teacher is of great value in the solving of such playing problems.

The physically most logical way to play is the way that brings muscles together instead of separating them. This is the way of strength, endurance, and control. Muscles should act together in an organized manner; for example, the greater power of the closed fist as opposed to the open hand. E PLURIBUS UNIM – one thing made of many parts.

Like in anything else, one gets out of a thing proportionally to what one puts into it.

Natural Players

A quick definition of a natural might be: a person who seems to learn to play decently in a relatively short period of time. A high proportion of professional players can be placed in the category of "naturals."

The term "natural player" should apply primarily to that period during which the learning process takes place. It is during the learning period primarily that the player either makes fast progress and hence is described as a natural, or during which the player seems to struggle forward very slowly if at all, and then is perhaps described as "untalented," but certainly not as a natural.

The natural (fast learning) player may be compared to the untalented (slow learning) player as the hare is compared the tortoise in the familiar story. But unlike the tortoise who wins the race against the hare (only in the story), the race to learn to play an instrument is almost always won by the quick learner – the natural. The moral of the story in the original sense is that persistence, perseverance, and keeping one's eyes on the good always wins out in the end. Of course, no one has ever proved that moral with an actual hare and a real tortoise.

For our purposes, the moral could be just about reversed. It might almost be said that the slow, struggling learner never makes it and the natural player always wins the race. Animal categories notwithstanding, that sadly is what generally happens. If a quick learner (a natural) is matched against that rarity – an equally capable and artistic player who was a slow struggling learner – can any difference be readily noticed? No!

Does the quick learner really learn how to play, or does he simply play? If he can't say what he is doing, if he has learned something and doesn't know what he is doing, then how can we know what he has learned? Can he tell someone else how to do it? What has his teacher told him that has helped him so? If the teacher's advice and information is so true and useful, why do not all of his other students show equally fast results?

It is no great thing to turn out good players if all of them were good to start with and perhaps simply lacked experience and sufficient exposure to a well-rounded and musically stimulating atmosphere. Does the New York Yankees manager make great players or do the great players (enticed by the wealth and prestige of the Yanks) make the team and hence the manager seem great?

If we as teachers keep hoping to get naturals as our students, aren't we possibly admitting our inability to really teach people to play? Doesn't the typical complaint among teachers that "I don't have a single talent (or several) among my students this year" constitute an admission of the same lack of knowledge of how to teach bad players the truths that will transform them into good players?

Unfortunately, teaching people to play musical instruments is not an exact science. Quite often those music students who learn the most "about music" – history, theory, repertoire, aesthetics, etc. – are the worst performers. And often those who become really proficient on their instruments are poor students in every academic discipline of music.

Getting back to the natural. What is he doing that works so well? Can the slow learner gain by observing the natural in action? Given identical physical equipment, why does one play so much better than another? Is the problem physical, mental, or is it perhaps a problem of perception and

coordination? The slow to average learner might be said to be perceptually handicapped as compared to the fast learner.

The natural perceives almost at once that to produce such and such a desired result, he should combine and coordinate certain physical efforts in just one obvious manner (quickly obvious to him). The point is that it is only obvious to him, and to the non-natural player it is not only not obvious – it is obscure. The non-natural player doesn't perceive the ready solution and struggles ahead on the long hard road of trying every possible way of playing in the hope of discovering the one truly right one for him. The efforts often become so bullish and the confusion so great that he is no longer even able to distinguish bad from good or right from wrong and therefore often passes by the very clues to correct playing production for which he is so ardently searching. He truly may be said to be handicapped in his perception of what is happening.

The real job of the teacher is to teach this perceptually handicapped player how to play, and to play so well and with so much understanding of the mechanics involved (with so much perception) that he equals or surpasses the natural player.

The natural player of course is not just one thing only. He may perceive clearly how to coordinate toward the desired results in certain problems only. He may very well be plagued with a lack of perception regarding some other problems (perhaps tonguing, intonation, etc.). It is conceivable that the slow, seemingly untalented player surpasses the natural player because he becomes skilled at working out some problems and then can apply this experience and skill toward working out the remaining problems.

Of two performances by two different players of the solo in Tchaikovsky's 5th, the things to be compared are such things as tone, accuracy, phrasing, dynamics, security, etc. Only foolish partisans of one player or the other will say, "Yes, but it took your hero ten years to play. My hero could play that well in three years." Or my man doesn't get nervous or your man takes too long to warm up or even worse, your man can't play the Strauss horn concerto.

Most of the ordinary physical things that we do are not subjected to any sort of critical analysis. Such seemingly simple things as walking and talking are actually the result of an incredible combination of physical and mental efforts and gradually acquired skills. Emotion also plays a part in these seemingly simple acts as when, for example, we do them on the stage as public performers. Then anxiety or nervousness suddenly makes a previously simple and natural act into a difficult, unnatural one. Trying to analyze "what just happens" usually spoils the performance because it disrupts the natural sequential flow of gradually acquired skills. Nevertheless, if we want to measurably improve our playing, we must analyze in great detail just exactly what it is that is happening. We must sometimes completely disrupt the natural flow and "take apart" in order to reconstruct with understanding.

This is one reason why it is foolish for a player with many weaknesses to attempt to copy the non-analytic approach of a player who may be playing relatively well. The advice to forget about the theories – just go ahead and play – does not work for a player with too many fundamental weaknesses.

Hard Work

Perhaps the main secret to playing an instrument well is that hard work is necessary. Without this hard work, no amount of theorizing will help. In fact, it is often the case that theories about how to play can do more harm than good. This is especially true when the student begins more in theory than in work. A good teacher, accordingly, is one who demands a great deal of work from the student and insists that the work be accomplished.

Some of the other secrets (none of which are really secret at all) are that the student must have patience, courage, and determination. He must have good musical goals, which will develop naturally if he listens to a lot of good music, including many different performers. Just as there is no substitute for hard work in developing the player, so is there no substitute for listening to develop musicianship.

However, to say that work is more important than theory does not mean that we dispense completely with theory. We can similarly say that a conductor who talks too much is generally not much good, which does not mean to say that a conductor shouldn't talk at all. If a student practices a great deal, but is doing many things wrong from a physical point of view, he will most likely wind up unsuccessful and frustrated, in spite of hours and even years of hard work.

A great number of good etudes and musical pieces have been written for brass players, and more will be written. All of this provides the basic material which players should use regularly and in a determined and disciplined manner. The hard work refers directly to the time spent mastering this musical material.

But students must do more right things than wrong things if they are to reap the benefit of all that work. The ideas are more to be seen as a prerequisite to the daily work on etudes and musical pieces. They are in the category of warm-up material. They are warm-up routines that require work in themselves, and they are based on theories of playing. In other words, they are designed to develop the right things.

Many years ago my first horn teacher used to begin my lessons by having me play some low note patterns, consisting of several chromatic figures without changing valves. The reasoning behind it was never explained, and we gradually discontinued the idea. In recent years, I have seen many trumpet players practicing a similar idea on the extreme pedal tones, followed by attempts to develop the extreme high register. This approach of extreme low followed by extreme high has proven to be highly successful in many cases.

The patterns themselves supply no theory as such. The same thing can be said of patterns presented in the books of Arban, Schlossberg, Clark, and others. Written material presented for practice (generally of a warm-up style of pattern) gives no explanation of any theory behind the patterns.

I feel that it is worthwhile for the student to understand the reasoning behind the patterns. For example: Why play pedal tones? How should they be practiced? How do they relate to high notes?

Physical Effort

Playing a musical instrument is a form of physical labor, physical effort that is directed toward the accomplishment of specific goals. In this sense, it is essentially no different than any other form of physical labor. Like all laborers, the musician is applying force to achieve specific goals.

The specific goals of unskilled labor are obviously different from those of skilled labor and are immediately apparent. Unskilled labor is generally thought of as using more force to accomplish simpler goals. Conversely, skilled labor uses less force to accomplish more complex goals. The instrument is no more than a contraption that emits sounds resulting from the player's physical efforts. Perhaps it is more important for us to stress the points that are similar rather than those that are different since we musicians tend to think of our work as being so highly skilled (cerebral) that we ignore, or greatly underestimate, the presence of force in all music making.

At bottom, the problem is and always remains how to achieve controlled force. When the problem is stated in this way, we can begin to see that playing musical instruments need not be approached in a haphazard way. The general question of controlling force is what mechanical engineering is all about, and many of the principals of that discipline are directly applicable to our

work. Basic mechanical theory is concerned with: the study of movement and changes of direction, inertia, resistance, compression and storage of energy, force, and momentum, etc.

We would do well to think of our bodies as machines that are guided by our intelligence. When we say that a person has a high degree of physical skill, we are saying that the person has discovered how to temper his force with his wisdom. He has discovered how to use his own physical power to accomplish goals he has set for himself. When we say that a person has a low degree of physical skill, we do not necessarily mean that he is either physically weak or that he is of low intelligence. What we are saying is that the person in question has not discovered how to temper his own force with wisdom.

By and large, we all have enough strength to play a musical instrument if we exclude the very young, the very old, and the sick. Most of us also have the potential, in terms of intellect, to control and direct that strength.

A player must be able to create and store power, and he must be able to apply or direct that power toward an intelligent purpose. We use our physical strength to implement our ideas.

The comparison of music with sports is apt because in both music and in athletics the performer must develop physical skills (directed strength), which must be capable of quick and accurate action, usually in the public eye, with success or failure immediately apparent.

Physical Strength and an Area of Physical Intelligence

The mind as such does not do any of our jobs for us unless we can consider it a function of thinking, deciding, considering, rejecting, choosing, or wanting as jobs.

By "jobs," I mean to say the physical effort required to achieve the goals chosen by the mind. As an example, if we want to turn a page, it is at work. But the mind cannot turn that page. The mind tells the body to do the job and a marvelously complicated, yet effortless, series of coordinated physical efforts follows to do the job. A simple way of stating the case is to say that the mind cannot do the work of the body.

Playing a musical instrument is a form of physical labor, no different essentially than any other form of physical labor. But, like all forms of physical labor, playing an instrument calls for its own particular directed efforts.

Intelligence in the body has a hierarchy. The brain is of course at the top of the hierarchy, but it has helpers throughout the body. We could call them "intelligence agents." We can also say, in effect, that some parts of the body are smarter than others.

Which are the smarter parts of the body? For our purposes, only a few have to be suggested in order to make the point. We can agree, without seeming prejudicial, that our fingers are smarter than our toes. Certainly we would be in total agreement that our fingers are smarter than our kneecaps, our arms are smarter than our legs.

Simple acts are those in which this process: desire -> command -> power (physical strength necessary for the particular command) -> local intelligence agent -> success. We call the acts that fail difficult.

The lips are definitely one of the more intelligent areas of the body. Although not in the category of the fingers or eyes, the lips are used to following various orders from the brain (whistling, talking, smiling, etc.). It seems logical therefore to conclude not only that the lips can intelligently handle and control the simple release of air (by creating compression), but that they can, in some magical way (using great cleverness or great strength) actually alter themselves and the air passing between them so as to produce notes over the full range of any brass instrument, notes that are sometimes long or moving at high speed, notes that are chromatic or very far apart, loud, soft, legato, or staccato.

All of this is, of course, illogical. And yet, it is an easy trap to fall into because we let ourselves exaggerate the intelligence of the lips.

Musicians often do not bring an analytic approach to their playing problems, which is understandable and even natural in view of the fact that music is an intuitive and expressive art. The first, strongest, and most lasting attraction that most of us feel for music is the personal response we feel for the meaning and beauty of the music. This personal, emotional response is a necessary prerequisite for a musician.

In order to be willing to change one's playing system from a merely workable system to a more correct and relaxed system, one must honestly appraise one's playing limitations. Ask yourself, "What can't I do?" rather than "What can I do?"

Musical Performance: Theory and Practice

A developed intellect and musical understanding are, of course, prime prerequisites. High standards, courage, and patience are important. But the actual notes, the sounds themselves, are produced ultimately by physical means. No one has ever thought a note into audible existence. The thought or concept of the note should come first and it should guide the physical activity, which produces the sound. The concept, the muscles, and a responsive instrument work together to produce artistic results.

A correct warm-up should prepare the player, physically and mentally, to either perform a piece of music successfully or to begin to learn it successfully. This definition implies that a correct warm-up is almost necessary (with exceptions) if a player hopes to succeed in either the learning of a piece or in performing it.

The process of learning a piece is not quite the same as the experience of performing it. Generally speaking, we can perform what we have learned. The quality of the learning will be reflected in the quality of the performance. That is why performance remains the true test of learning. That is also why examinations remain the true test of the quality of the study and preparation that preceded the exam. This is true in any discipline.

In music there are a greater number of failures in the successful learning of a piece than there are failures in successful performance. The obvious reason for this numerical difference is that most players will not attempt to perform a piece in public that they have not succeeded in learning in private. Literally thousands of players try to master a piece of music, but relatively few have succeeded sufficiently so as to be able to perform the piece before others, especially before a discriminating audience.

The requirements of a degree program in a school of music demand that students perform an exam each semester and finally, a solo recital, whether or not the students have mastered the material. All this is as it should be, as it is the only true test of learning. It explains why such exams are often painful to students and teachers alike. However, out in the real world, the new graduate rarely subjects himself or an audience to a performance of music that he has not truly succeeded in learning.

An implication in all of the above is that there is a right way and a wrong way to go about learning successfully. The implication is that the right way will lead to successful learning, and therefore to successful performance. It follows that the wrong way will lead to failure and frustration. Anyone who has been in the music business for an appreciable period of time has known many individuals who have devoted hours and years in the frustrating pursuit of their dream of becoming good performers. People who have worked with an almost maniacal persistence, who have expended real effort, but who have not succeeded in their goal. A convenient catch-phrase to explain these failures is to say that these are individuals without talent. Another phrase so often used

is that "some have it" and "some just don't." I think that these characterizations contain some truth but also a great deal of untruth. These are concepts that deserve further examination.

For my purposes, I would like to proceed on the assumption that most people (and certainly most music students) have the potential to learn successfully and therefore to perform successfully.

Progress and playing ability must be measured and tested accurately and precisely. Attempts to do so appear ridiculous in cases where basic playing problems have not yet been solved. If they serve a value at all, it is that they do make clear that the problems are unsolved. It follows that players in such a condition should not waste time trying to practice such test materials. Full time and effort must be devoted toward the solution of the puzzle of playing. This of course also uses note patterns, which might by chance coincide with test patterns (scales, thirds, studies, etc.). But the thrust of practicing is quite different. Only when the player is indeed on the right track do test patterns make sense. And at that point, they do make a great deal of sense.

Looking for Answers

One looks for answers; when young with the help of a teacher; when older, usually on our own. Students soon realize that even the best players and teachers are still looking for answers.

Some of the answers are never found. It should be obvious that any teacher who knew all of the answers would produce only successful players. He would be swamped by students and professionals from all over. As of yet, no such teachers exist.

One can only hope to get experienced and intelligent help while looking for the answers. The feeling should be something like: somewhere in these pages lies the truth. Now I must search it out. This is true in any art form.

The premise is to take a series of separate notes, each of which has been mastered as perfectly as we are able, and to combine them to create the music of the printed page, be it a study, concerto, or orchestral passage, which might still not be perfectly played but which can come much closer to perfection.

This approach, rather than the approach of working on the combined totality of the music to be played, without attempting to refine each of the individual notes, is more likely to be successful.

If you can:

- have accuracy, security, and confidence
- play loud and soft in all registers
- change registers at various speeds and at different volumes
- play slurs in time
- control the time placement generally

Then you don't need this book!

Patience, hard work, and a bit of experimentation can lead the player towards a better and more direct way of doing things. One could imagine as an example the way professional golfers are always striving to find a swing that is more efficient. The more efficient the motion becomes the more reliable the result. Playing the horn is a very physical process that can be learned!

It is my hope that this book can be something that can be reread and referred to on a "bad day" and that it may help to remind the player of important things being neglected.

Confidence

It is more important to know by "feel" just how the lips and wind are today and to know what to do with them to make them improve enough to get by if they are in poor shape. This is more

important than to recall that I played well yesterday, so I know I can do it. Such thinking is merely an attempt to artificially bolster confidence.

The real confidence comes when you have learned how to judge the condition of the ingredients needed; knowing that you can usually bring them around enough to make it when you're on the stage. You should feel ready to play right, each entrance as it comes. It isn't enough to recall that you really felt ready to play yesterday or even this morning but now in the midst of the performance.

It follows that the sensible test for a horn player is not how fast he can whiz around the whole range of the horn but how reliably and predictably he can play. More specifically stated, how secure he feels in his playing abilities.

One should try to arrive at the moment of performance with the feeling of security that comes from being in touch with physical forces required for the battle.

Teaching Intonation

Can people be taught to play in tune? Who is to be blamed when intonation is bad? Is there hope for those who are "hopelessly out-of-tune"?

Intonation – playing or singing in tune – is often a painful and embarrassing subject. It is one of those subjects that are ordinarily avoided, or at best briefly touched upon with careful delicacy in polite company.

Among musicians, everybody worries about intonation but nobody ever does anything about it (to paraphrase Mark Twain). We all know that it is important to improve intonation, but we don't quite know just how to go about it. The answer is avoided because it is so simple and because the answer to the problem requires honest self-appraisal and patient work.

The control of intonation is frequently the one thing left unlearned even by otherwise competent players or singers. We have all heard people who manage to produce all or most of the notes (regardless of speed), who have good control of rhythm and volume (who even sometimes perform excitingly), but who don't perform in tune.

Control of intonation is perhaps one of the hardest things to teach. It is, as a matter of fact, rarely taught at all. People who play in tune generally teach themselves to do it. They learn by listening to other performers and to themselves. They learn from thinking. They learn from understanding or perceiving. They learn by comparing.

The answer to the intonation question is to first play in tune with oneself. The person who plays in tune with himself can be then able to play in tune with others. The same concept is true about playing in time.

What does it mean to "be in tune with yourself"? It doesn't merely mean trying to tune each of your notes to the others of your own scale. It means tune to that mental pitch that you are or ought to be thinking.

Playing in tune depends ultimately on sheer mechanical control; i.e., being able to make the instrument do what you want it to do. In intelligent practicing, the player knows what he wants, he knows his goals, and he has standards. When he is able to achieve what he wants, when he can reach his goals, and when he can meet his own standards, then he may be said to have gained control. It follows of course then, that before one can begin to work for control, one must have standards, one must really know what one wants. To apply this specifically to intonation, the player must first know the exact pitch of the note he wants to produce. Not merely the name of the note, but the exact location of it in his head and in his mental ear. It is much like a painter trying to get the exact shade of a color that he wants or needs.

Let me say at this point that I feel that players get busy working for mechanical control before they have taken the time to know what they want to sound like and what their goals are as regards

intonation, rhythm, dynamics, tone, etc. This kind of practice is like a chicken running with its head cut off. It never knows where it is going and never gets anywhere. To return to intonation specifically again: you hear a clear mental statement of the note before you even try to play it. You must hear it in your head. To proceed without this mental statement is dishonest and wasteful. With the mental image as a goal and a standard, play the same note on the instrument and compare notes, the mental invention as against the physical copy of it.

The real note is the silent mental one. The inner note that the mind is thinking or hearing. The mind is always more in tune than any instrument. Copy the note that you are hearing. Strive to copy it, and as you strive you will learn to tune, first to yourself and then to others. There is no shortcut, no substitute for inner hearing. Nobody else can hear for you.

The student wishes he could play as well in tune as the professional. He thinks he would be happy then about having finally solved that problem. But the professional, who is clearly superior to the student, is not always made happy by his own intonation. Intonation is an always-present problem for the instrumentalist or singer who is responsible for the pitch he creates. This includes all players except those who play the piano, the organ, or non-tuned percussion instruments.

The most urgent place for a concentrated attack on the problem of out-of-tune playing is on the student level. This is true not only because the problem is often severe at that level, but because the successful teaching of intonation control at the student level is the only way to improve the professional level of the future.

We will often judge intonation and then give our opinion. It's good or it's bad, or you're sharp or you're flat. But is rarely is the important problem faced directly, and rarely are students advised how to practice for intonation.

First, it is import to confront the problem honestly. Sweeping it under the rug won't help. Next, it is important to realize the individual nature of the problem. I must hear the desired pitch before I try to play. I must take the time or trouble to compare the mental pitch with the pitch produced.

Hearing is not quite the same thing as listening. Hearing is primarily a sensory function. Listening is an intellectual effort. Most of us can hear, but few of us listen. Listening is thinking and comparing. Step number one is to listen, listen hard, listen searchingly, and listen tirelessly.

Most of us are more skillful listeners for someone else's playing than we are for our own. We find it easier to remain objective (better able to think and listen) and calm when we are not worried about our own performance. Some players never listen to themselves and, at the other end, some players hear themselves only enough to know if they've missed a note. The quality of the listening itself is also important. It is not enough just to listen to one's self; one must listen critically.

Only when we have become skilled listeners can we hope to correct and improve our basic playing weaknesses. Only when we can listen critically to ourselves while playing can we begin to bridge the gap between amateurism and professionalism, between professionalism and artistry.

Solfège

Why Study Solfège

The air must know the name of each note in order to blow at (aim at) each note. If the air doesn't "know" the note, the result will be more pressure and less blowing. If the mind doesn't know what is happening, and if instead the physical apparatus is trusted to do the job, the performer is then trusting to luck (of which there are two kinds).

Even though the eyes see the notes; even though the ear thinks the pitch in advance; even though the fingers know how to depress the keys; and even though the lips and air know how to make the required specific effort to produce the desired note (as proven simply by the fact that they have played any note on many occasions) – yet none of these separate bits of localized knowledge can be depended upon to combine at the needed moment with all of the other required bits, unless the player's mind is leading the action and has a mental alertness of the name of the note in the passage and of its melodic and harmonic relationship to the other notes in the passage.

For beginners, a good way of starting correctly in terms of the solfège problem is always to say correctly the syllable mentally as the note is being played. The fingers benefit, for example, by following a mental command before they act. Playing by rote is not sufficient.

The order of meaning and application of solfège to playing is as follows:

- The notes are produced as a result of a certain specific combination of the face muscles and the air.
- The ingredients can combine successfully only if they combine together at a specific moment, and in as positive a manner as possible, with a minimum of hesitation and doubt.
- If the air is wandering to any degree and is not absolutely sure as to just what note it wants, this uncertainty and hesitation are transmitted to the actual playing ingredients and then being less than certain, make less than their best effort.
- The player cannot afford to have any mental uncertainty as to the note sought.
- Solfège amplifies benefits to rhythm and time control.

One should be able to turn on and off the mental solfèging. One of the great benefits from solfège is its help in stopping rushing.

In addition to knowing the fingerings, which is simple, and learning to hear musical sounds intelligently and to control the breathing apparatus which is far more complicated, we must go that one step further and actually know mentally (as opposed to knowing physically) the name and location harmonically and melodically of each note.

Solfège improves musical and performing abilities by keeping the brain "turned on."

Purpose of Solfège Study

Solfège is not primarily an "ear trainer." Its purpose is to insist that the lazy, unwilling mind cut out all the nonsense and know what is going on. The mind cannot assume that it can drift because the fingers know the fingerings or because the ear can hear the pitch. Or also because the eyes see the notes or because the lips and air are educated enough to produce the required notes. A mental awareness of the actual name of the note is required. This awareness can be extended to understanding the harmonic setting of the note. Only for single notes, or for slow passages can the player trust to physical knowing. He will then have time enough to move and play without using his brain to think and know each note.

The "physical knowing" is itself related to the brain. The brain functions in this case as a clearing house, an information desk, or a receiver of reports and a sender of orders transmitted by the nerves to the muscles. The mind is aware of what the eye sees, it is aware of what the ear hears, and it certainly knows at least as much about fingering combinations as the fingers do. But this passive awareness of what is going on cannot take the place of a situation in which orders are given by the brain. Before the brain can give such definite orders, the brain itself must go through a process of education. This can be accomplished by solfège.

The use of letter names of syllables with the "fixed do" is most important. The idea is to know always where you are on your instrument, which is almost hopeless with the "movable do."

It is fairly easy to grasp mentally the idea of a pattern, say descending fifths or descending or ascending triads. It is also not difficult to sing such a pattern with or without printed music, so long as one sings la-la-la as a name for each note. But when the effort is made to pin down clearly just what is happening by singing a correct name for each note, such as syllables or letters, then the trouble starts, especially at moving tempos.

One is surprised to find out just how fuzzy one's thinking is regarding intervals both large and small. The tongue-tied pauses and hesitations are not all simply the result of an unfamiliarity with the use of syllables. This can easily be proven by substituting letter names (A-G). All of us are familiar with the whole alphabet and are certainly experts with the first seven letters of it as used in music. Yet when we try to use those very letter names when singing something, we find ourselves stopping and stammering and calling mistakes that are ridiculous on the face of it. This, in spite of the fact that the passage being sung might even be a very familiar one, familiar as to sound and time.

The experienced professional often becomes more lazy mentally about giving specific orders than the learner.

If the physical apparati had to be taught and ordered by the mind, then the process would not stop. One should fight playing by ear.

Only when no fingering is involved, as say in a repeated C major triad, is it ever remotely possible to trust to play by ear. Change the E-natural to E-flat or the G to an A and suddenly mistakes start to happen. Are the notes that much harder to produce? The fact is that a lack of thinking control is the cause. One cannot prove out the passage by singing the notes with their given names. This is actually because the mind is working too slowly to think of each name. If the mind is so slow, why expect the lips to be any faster or more accurate?

The use of solfège can aid the general subject of having confidence; also having something to think about can help avoid nervousness. It can destroy that excuse of the so-called (self-styled) nervous player that his troubles are the result of "nerves." He is nervous to that destructive degree primarily because he does not understand enough about the mechanics of performing, which in turn means he can't teach his "physical" and can't even act with enough concentration so that at least his incorrectly used physical apparatus might with luck accomplish. The physical can't act with the required conviction if the mental doesn't take charge by knowing each note and by sending commands or orders to the physical.

The player can "forget" to do something, which he has previously learned he must do. He can "misjudge" something; e.g., the amount of air needed or the exact condition of his physical equipment at the moment, etc. Or he can be unsure intellectually of the notes he is supposed to play. He can see them, he remembers how they sound melodically, but he isn't sure enough of the names of each note (as they pass swiftly by) to enable him to act with conviction.

Therefore even though he is able to play each note separately, consecutively, at a slower speed (by applying the lessons of his practicing), he cannot maintain his physical control over each note at higher speeds because he is not thinking fast enough to ever know what notes he is playing. If he doesn't know the notes (the names of the notes) then he cannot intelligently order his physical

servants to act together to produce the notes. The servants are then left to depend on themselves and we are soon given proof that Indians need chiefs and that soldiers need generals.

Solfège is not as much needed for slow passages or for single notes, because almost any mind can "recognize" notes that pass by slowly, and can send the required orders to lips, wind, arms, or fingers, etc. The mind is fast and the physical equipment is by comparison slow and lumbering. Unfortunately, most players proceed as though the reverse were true. Their physical equipment moves with lightning speed (as dangerous as a blind man running) and their minds are wandering aimlessly about or nervously awaiting an impending disaster.

Even this feeling of impending disaster makes the situation worse. It further detracts from the authority with which the mind sends orders. The player tends to relax his lip just when he should retain or increase muscle control. He tends to hold back the air thus using insufficiently an important ingredient. Or if he realizes that he isn't using enough air, he may overcompensate and begin to blow an excess of air, more air than the lips can accommodate and control.

Solfège is finally applied to the actual playing of the instrument by experiencing (while singing) the recollection of the physical sensations that accompany the production of each note on the instrument. Solfège therefore becomes an aid to the physical control in the playing of musical instruments.

The study and regular use of solfège is of tremendous importance as an aid in developing the physical control that is needed for musical performance. It is a basic truth that the control of the physical is necessary for the creation of musical sounds. Good playing results when the physical apparatus has, with conviction, committed itself to the correct course of action. Lack of conviction, leading to a half-hearted physical commitment, affects all performing adversely.

The problem is further that one cannot physically act with conviction if one doesn't know what to do; and that even after one has learned (understood) what to do physically, that still will not work unless it is done with conviction. Further, even the learning of what to do will not be accomplished unless each attempt, right or wrong, is made with conviction. Go at each note as though you are sure you are going at it in exactly the right way. By a process of elimination you will find the right way. The feeling of conviction is almost as much an ingredient as are air, lips etc.

If the player has practiced carefully and has analyzed and understood the functions of the physical; he is theoretically ready to play with security most of the ordinary repertory. The player knows how much air to blow and how to shape his lips and cheek muscles. He also knows how much the air stream should be pushed by the diaphragm, abdominal, and lower back muscles. He knows all these things if he has practiced carefully, trying to observe and record his own physical sensations and also because he has repeated each note frequently during his practice. Therefore if he misses the note, it is not because he doesn't know how to hit it, or can't hit it. Neither is it because of nerves. Rather, it is because a last moment's doubt, a lack of conviction held him back from actually doing those things that he already knew must be done.

Solfège can be described as that system which consciously brings intellectual control and guidance to the otherwise disorganized physical efforts made in the playing of music. To make music without this mental direction may be compared to driving a car with one's eyes closed. Performing without it means that the performer is trusting to a combination of physical, rote, melodic memory, and that vague thing which is often called "musical feeling." Without intellectual self-direction, the player is actually relying too much on luck.

What is mental awareness like? It is like knowing where you are when reading the music. It is however, an ultra-refinement of simply knowing the place on the page. It means that one can at once give a specific name to the note, know exactly where it must be placed in time, and also something of where the note fits into the melodic and harmonic logic of the surrounding notes in the passage.

Solfèging a passage repeatedly imparts specific information to the mind. Playing a passage repeatedly without mental awareness (without thinking) is an attempt to impart information to the fingers, lips, or other physical tools in the production of sound. This must also be done.

Some benefit is gained from repeating physically a series of notes. But the benefits are far greater when both the physical and mental are being used together. The physical is practiced by repeating single notes and then the complete passage many times, striving also for the correct tone quality. The mental is practiced by calling the note a specific name and singing it in rhythm.

Embouchure

General

Lip tension + lip arrangement + mouthpiece placement + support + pressure = output.

The enemy of a good attack is a flabby, unarranged lip. The embouchure has to be good enough to turn on loud and full with control and also soft with control. If the embouchure can't do those things, practicing becomes more detrimental than helpful. Building on no foundation gets one nowhere. Test early in each day's practice to be sure the facial arrangement can do the demands of secure loud and soft over the range. Only this way is one building security.

Perhaps a better approach than saying that the embouchure produces a loud note is the right one is to play softly (or loudly) but with little air and good support and insist on immediate response.

The separate notes should anticipate the slur problem. Portamento tonguing is an excellent way and possibly the best way to practice everything. It keeps the embouchure just right.

One of the main reasons for my kind of embouchure (white on white with firm held corners) is that it gives a great feeling of security, of knowing what's going to come out.

Mouthpiece Placement

The shape the lips assume and the location of the mouthpiece on them is only the first stage. What counts, as far as the lips are concerned, is the directional effort made by lips and cheek muscles even during notes, like a hug. A good "hug" keeps up a slight pressure. The lips are different in the center, at the corners, and in the cheeks.

The "O" circumference of the mouthpiece is small and yet it must cover three things: two lips and a hole that becomes larger for low notes. There will obviously be too much lip for the mouthpiece, so we must get rid of some. We can get rid of the bottom half of the lower lip by playing *einsetzen*. Or we can get rid of the top half of the lower lip by covering the red part of the lower lip with the upper lip.

The lower lip turns in slightly towards the teeth. When the bottom teeth are lowered to enlarge the mouth cavity for low notes, the lower lip finds itself unsupported by the teeth and it falls back slightly into the mouth. This leaves the large hole required for low notes; it makes the mouth cavity larger as required for low notes. And because the lower lip has hidden most of itself in the mouth, it enables both lips and the large hole to fit within the rim of the mouthpiece.

As the jaw is raised for higher notes (to create a smaller mouth cavity) the lower lip must be rolled back out of the mouth or run the risk of being bitten. When the jaw has been raised again and the mouth cavity is smaller (and the lower lip is again all in front of the lower teeth), then probably again the lip will be too much for the mouthpiece.

At this point, the lower lip can (if it's large and needs to) make itself smaller by rolling itself inward in front of the lower teeth. This again gets rid of some lower lip and enables us to cover both lips with the mouthpiece.

The idea is to bring in from the sides some of the flesh and muscle to a point where it acts as a supporter (a backstop) to the vibrating center flesh. When the side flesh gets used to staying in that supporting position, when it gets stronger and more sure of its meaning and importance of the sounds of the sounds produced, only then will the center begin to vibrate as freely as it should in an unpressured (mouthpiece) manner.

Collapsed lips means ignoring the side flesh. The side flesh and muscles have a slightly different feeling for each note, a different stress or pull on different muscles or parts of the same muscles.

The surest way of getting the mouthpiece to the mouth exactly as needed is to hold it in the hand. Putting it in the horn and holding both ends of the horn means a great loss of control over

the placement and positioning. Holding the mouthpiece with the hand only can help one to find the right angle, position of mouthpiece on lips, body position, and head position. The mouthpiece should feel as though it is supported primarily by the lower lip but that it nevertheless covers a good deal of upper lip. Think of the mouthpiece needing to grab just the right piece of flesh.

The whites of the lips should be compressed horizontally. White on white is best if the structure of the lips allows. Also a feeling of dryness where the mouthpiece meets the white part of the lips is desirable. This way the red part of the lips can relax and allow the supported air to flow through. The movement of the air flowing through the red of the lips will produce the amount of moisture needed. Too much moisture on the mouthpiece rim will cause the mouthpiece to move around too much. If the mouthpiece is always in motion, the muscles of the face will always be in a constant struggle trying to figure out where to go. A stable working facial position is one where the air is leading the way and the lips are almost a secondary factor. This concept will help develop reliable endurance, accuracy, and a feeling of being in control of various playing situations.

Although it is true that the lip arrangement can be thought of as a function of the air (that is the act of blowing air), this cannot imply that any lip arrangement can be "brought to health" (corrected) merely by attempting to blow a good air stream.

It is well worth it to spend a whole practice session doing little more than getting the lips ready to play: light pressure and free flow of air.

Lip Tension

The correct lip and cheek tension is something that is difficult to teach. One reason is that the varying degrees of tension soon become so familiar as to be almost unnoticeable. At such a point, a critically listening ear is the prime way of correctly judging lip tension.

The player who is using the correct lip tension soon forgets he is doing just that and can concentrate on blowing only. This same player in a teaching situation can overlook telling students about lip tension. It is easy to forget about and overlook something that has become automatic.

With the beginner or with one who is too relaxed, it may help to try to get louder on a note without using more air. A recipe could be:

- Air support
- Tense the lips and face except at the center hole where the air is coming out
- Blow far like a bird flying over the music stand
- Listen hard and strive hard for pitch and volume consistency

To avoid over-relaxing or over-changing the lips and cheek muscles when going from note to note, the player should concentrate on the change in the size of the mouth cavity and attempt to keep muscle tension as before. It is logical to decide that the change from one note to another (especially for an interval larger than a third) is the result of a change in lips. Though this does take place, the change is very slight and does not mean a change in tension.

The danger lies in that if one decides to change notes by changing lips, then one will go too far and in fact collapse the embouchure. This must be avoided because loss of control comes with an over-relaxed lip. Commit the lips to a shape (neither over-relaxed nor over-tensed) and leave them that way, ready but quietly waiting. They are then activated by the supported thrust of the air stream.

Two contrasting feelings: One, the lips are very relaxed, grabbed and held by the mouthpiece, and vibrating as the air is expelled through them. Two, the lips are more actively involved in the concept of blowing the air, more intelligently changing and shaping to direct the air. Even then, the buzz of the lips alone can reflect the different degrees of lip muscle participation.

The corner control should be maintained. We make both the mouth cavity small and the lips small for higher notes. Going toward the low is a feeling of the lower lip coming upward (and inward) and of the lower teeth going downward. Coming down can be helped if the corners don't over-relax. If they do, the lips immediately follow suit and find no need of rolling up the lower lip over the dropping lower teeth.

Study not only the lip feeling and tension during each note but also the feeling between each note. In other words, don't collapse and lose watchful control between. Practicing any other way is too careless and too wasteful of time. Try to make each note uninfluenced by the others near it or far. This may be best accomplished not by taking the horn away from the lips quite so much, but by passing between each note with the mouthpiece on, and carefully arranging the next note.

Rolling the lips out of the mouthpiece for lower notes seems a bit dangerous because it feels like letting go, like a cat able to climb a tree but unable to come back down. But it can be carefully practiced until it is done with control and great security. The muscles surrounding the vibrating hole must be regularly strengthened and made responsive and flexible to the commands. This is the chief purpose of practice and warm-up.

Mouthpiece practice by itself may be as valuable as it is because the teeth and lip adjustments must be made on it if the corners don't collapse. When playing on the horn, the horn sounds even if the lips over-relax, in which case the lips are forced to make their changes inside the mouthpiece.

Mouthpiece Pressure

Central to the whole question of how to learn to play a brass instrument is the problem of pressure of the mouthpiece on the lips. Why is it bad? Is some pressure necessary? How can one change from much to less pressure? What are its harmful effects?

And yet this central problem is usually skirted, approached indirectly and in an indefinite manner. Students are told "don't press," but a fantastic fortissimo should be possible, a test of a good, correct lip use (embouchure) with corners are locked.

Compressed Air

Compressed air is an important concept. We must understand:

- Why the air must be compressed
- The ways in which to compress the air

This understanding should be thought of as being almost a prerequisite to discussion of all the other factors in the playing process; namely, lips, attack, legato, and mouthpiece pressure. On teaching a beginner, one might therefore attempt to initiate the student into feeling the sensations of correct compression; i.e., glottal resistance, which does not even use the instrument or mouthpiece at all. Compression can also be achieved by means of lip and tongue resistance (especially the back of the tongue) to the flow of air.

Compression of some sort is always used by every player, beginner or advanced. No one plays totally without it; no one plays with totally flaccid, uncompressed air. Such normal air is simply not capable of delivering power, of acting as a form of energy.

Compression achieved by means of lip resistance does not immediately give the player the feeling of having gained control of the situation. To start with, he literally feels that his air (at the mouth) is transformed into a usable controllable thing, which he can release at will, and with some control of its speed and its volume. If the lips' resistance efforts are carried just a bit further, another benefit is achieved; i.e., the player produces a "buzz." This greatly increases the player's feeling that he has gained more control because the buzz is immediately usable as a means of making a sound on the instrument. The buzzing system has no more an advocate than myself.

The main hurdle to overcome at the outset (when teaching a relaxed lip, glottal compression approach) is to get the student to proceed without using the familiar and reassuring lip and tongue means of achieving compression.

The buzzing system of playing uses the lips to do two jobs at the same time.

- As a means of achieving air compression
- As vibrators to produce sound that is capable of changing pitches

The relaxed lip approach uses the lips only as vibrators.

Practicing should include timed breaths and entrances on short and long notes to encourage deep, full breathing. Intentional glottal constriction during the long tones so as to ensure that the full length of the note is nourished and supported by compressed air. One technique for doing this is to pulsate rhythmically with the glottis.

The air should be kept in a state of mild compression by the action of the muscles (which can apply pressure to force air from the lungs) and by the action of the glottis (which can resist and control the flow of air).

Relaxed Lips

The lips should be relaxed; they should start relaxed and remain relaxed in all registers and when moving from one note to another as well as for holding any sustained note or notes. This rule applies equally to loud notes, soft notes, to crescendo and diminuendo, and to legato and non-legato. In short, the lips should stay relaxed for all playing. The lips act as a reed, passive and pliant, following rather than leading.

The air should be released at the glottis. Changes in the amount of air, and in the speed of air are also essentially controlled by the glottis. Using the syllable "K" formed at the back of the tongue is essential to this approach. The air itself should be kept in a state of mild compression, which results on the one hand from the action of muscles that apply pressure to force the air from the lungs and on the other hand from the action of the glottis, which can resist the release and flow of the air. Without this mild compression, there can be no control of the air.

The tongue has a subordinate but necessary role in the release of air that is used for attacks and non-legato notes. That role is somewhat difficult to describe explicitly.

Summary of relaxed lips approach:

- Lips do not tighten or loosen to produce different notes.
- Mouthpiece pressure is necessary.
- Tongue release of air replaced by glottal releases.
- Jaw movements are minimal.
- Glottis functions as compressor of air.

Using buzzed lips:

- Lips tightened to resist air, change pitches, and create compression.
- Minimum mouthpiece pressure.
- Tongue assumes important role as compressor and releaser of air.
- Jaw changes highly likely.
- Glottis hardly used; so called "open throat."

It is obviously more important that a player be doing the correct things physically than that he is doing a certain routine or etude that one can only wonder at how often this fact is ignored. Another way of saying it is that it is more important how we play than what we play.

Technical Topics

Ingredients

- lip (reeds)
- air (power, energy, etc.)
- attack (or release) system – glottis and tongue

Playing can be compared to cooking, and good playing is the result of having correctly measured the ingredients. The ingredients are the same for all players. Each of us has lips, fingers, teeth, lungs etc. Just as in cooking, even a bad combination of the ingredients may be edible or will at least end up by being recognizable as food. So in playing the wrong proportions of the ingredients called for may still produce tolerable playing or at least bad sounds and wrong notes.

The moment of truth is when the various physical efforts, each measured to the correct degree, combine at precisely the required instant. It is achievable only when a unity of all the required parts occurs at the desired moment. Any mis-measurement or tardiness of any effort suffices to create the musical accident.

The whole result of good playing is the combination of the individual efforts of various ingredients in the player. They become a unity of action. Because they are basically separate things, each ingredient can be separately understood and developed.

When the parts become a unity, a subtle and slight change takes place in the way each does its job in so far as it is affected by the others; for example, the embouchure not being set quite exactly right without a well-blown airstream.

Sound

The danger of searching for a particular sound is that it can get in the way of doing certain basic things. As the basics are developed, the sound will find its place.

The tone of the horn can be forceful, almost unbelievably strong and sustained, and at the same time be of great nobleness and purity of quality and intonation. The horn can achieve a truly spine-tingling sustained fortissimo. A horn can grow from soft, to loud and louder with slowly increasing intensity. We are talking about intensity, about projection, and not merely about sheer volume as such, although that is needed also.

An embouchure must be the kind of arrangement that can make this intensity, this projection, and also this sheer great volume easily possible and controllable. Warming up must always be built around this concept.

The concept of sound is always present with the player, whether he is practicing, playing a concert, or simply listening. His concept of sound influences the type of facial arrangement that develops. It influences every muscle used in playing the instrument. When the player rejects a sound he has produced (because it's not intense, not compact, etc.), then he is also rejecting the way it was produced. He is saying no to the combined efforts of the muscles involved. He is saying, "That was the right note, but it wasn't right enough. Try it again some other way." He may have to repeat the note many times until it has the right ring to it, the right intensity, and the right sound of reserve strength waiting to be used when needed.

In this sense, your sound can be your teacher. The old fashioned Prussian type of teaching, in which the professor offered no more than a growl (or a rap on the knuckles) when displeased could sometimes produce great players. No discussion of facial arrangement, no advice on tonguing, no theories, or teaching as such. Simply great anger when the student sounded bad or an occasional "Ja, gut" when the results pleased the teacher. Can one learn in such a manner? Yes, if the teacher's

standards are true and valid ones. One must admire and desire to emulate the musical concepts of one's teacher. In the absence of such a teacher, one must foster and develop one's own musical concepts, one's grand idea of what a sound can say and mean.

The benefits to the embouchure of such sound-oriented practice are many. The muscles are alert, they don't collapse, slurring becomes sure and smooth, and missing becomes rare. Nervousness decreases, endurance improves, and extreme loud and soft improve.

Crescendo and Forte

To start with a sound that is small, that hardly lets its presence be known, that is one small unnoticed voice in the orchestral palette, hidden among the husky low strings, the shining high strings, and the busy twittering woodwinds; to slowly begin to rise with mysterious intensity and increasing size of sound, a controlled growing that sounds like it will never stop, much like a genie released from a bottle growing before your very eyes to a terrifying size and power until all the sounds of strings and winds is covered and replaced by your own full sound and musical meaning – such is the drama and the power of the crescendo of a brass instrument. And that dramatic power has been understood and used by the good composers.

What a pleasure it is to hear the horn player who is capable of filling the demands of this role, who can ride with sure authority over the orchestra. What a pleasure for the conductor to be able to call for and receive this bonus from his player. How satisfying it is for him to know that he can afford to ask for it without risking frustration both for himself and for the horn player.

What a blessing it is for the horn player who can achieve this strength. He knows how to combine watchful accuracy with dramatically projected sound. He does not have to let the musical phrase fall before its climax and know that he has failed to satisfy the conductor and the music.

While practicing, a student should think more about the problems of projection (and of accuracy with it) than about sheer beauty of sound. The dangers of always going for the pretty gentle sound are that you end up with an embouchure that can't produce the real fortes, but will produce less accuracy and no projection. A flabby embouchure will not produce the firm loud sound, but the firm embouchure will produce both soft and loud dynamics.

Tonguing

Why practice tonguing before slurring? Because in attacks, one can pay more attention to the glottis and the resulting compressed air from the diaphragm and surrounding muscles, making sure that the glottis is completely closed before each note. This gradually becomes habitual and the player gets the habit of using glottis (with relaxed lips) for each note. This then transfers over, in modified form, to notes that are slurred.

All attacked notes are somewhat "catapulted" by the release of air by the tongue. In the case of long notes, the catapult effect is obscured by the length of the note, which hides the suddenness of the beginning. Making a note speak every time is good practice, a reason for many repeated notes.

In the case of short notes, the catapult effect is far more apparent. This should not be resisted or hidden but used. Staccato (short separate notes) is regularly confused with a sharp, somewhat tense action of the tongue. The short note should be judged not by what the tongue is doing, but by how short the note sounds, with quality. Each separate part of a note is a different moment in sound than every other part of the same continued sound. It's like a river passing by in front of us. The sound must be kept alive with live air and lip alertness. The same concept can be used for intonation.

Even a quarter note or a slow eighth note is a series of connected sounds. Once the air that is used to blow the first part of a note has entered the horn, the balance of the note is played with a continuing series of air puffs that must be as carefully and artistically controlled as that used for the

initial effort. The hammer blows of air against the lips build up the lips and especially the supporting muscles adjacent to the muscles which actually shape the notes.

Articulation is like clean clothing and good manners. It is like well-groomed fingernails or shined shoes. It is that which precedes and presents each note in a specific way. Important for embouchure and for good tonguing procedure is to practice double and triple tonguing on moving figures.

Legato

Slurring or legato playing need hardly be practiced as a separate thing. It is the putting together of notes that are produced with the same physical effort as non-legato notes, but without the use of the tongue. In slurring, go for more clearly produced notes than for a smooth connection. The cleaner the notes, the smoother the connection.

If the face is committed to the correct arrangement and tension for any note; and if the supported air is blown through the small hole in the lips, then the right note must and always does come out. The slur is simply to move or change from one facial arrangement to a different one without the articulation of the tongue.

The best way to prepare for a good legato is to repeat often, separately, each note in this passage, trying to remember the facial, muscle, and air sensation of each. When each note feels and sounds secure when played separately, then the player is ready to try them slurred. If the player actually does repeat when slurring, the efforts and sensations experienced while playing the notes separately, the clear, absolutely even slur is inevitable.

The trouble too often is that at the sight of the symbol denoting legato, the player melts into a debilitating feeling of sentiment and begins a wishful type of blowing. This is especially true if in addition to the legato line are also included such directives as *dolce*, *pp*, or (the very worst) *dolce expressivo* (or *cantabile*). At the very time when the player should be most watchfully sustaining the physical efforts of each note and then sharply – at once! – changing the efforts to produce another note, he is relaxing and giving up all control.

Sometimes an effort is made to counteract this tendency to relax before a slur by following the suggestion to glissando in between the two ends of the slur. This is locking the barn door after the horse has been stolen and shouldn't be necessary if watchful control has not been dropped.

Range

One of the causes for the development of problems with regard to lip position in both high and low notes is that we do have to contend with an instrument which can, in fact, play quite high and quite low. Composers naturally use both these extremes (as well as all of the notes in between), and we are forced ordinarily to produce all of these notes with the same mouthpiece and instrument, and the same pair of lips. I venture to say that the problems of lip and jaw positions, etc. would not exist at all if the instrument could produce a range of no more than one octave.

In attempting to play the full range of the horn, we face what appear to be almost insurmountable differences in the requirements needed to produce these extremes. What takes place often is a piecemeal approach, which tries to resolve separately the problems of each register. This approach gives way to a sometimes agonizing array of choices and sometimes contradictory advice.

Examples of piecemeal solutions could include advice to drop the jaw for lower notes and raising it gradually for high notes. This generally leads to more puckering for low notes and more smiling (or a different kind of puckering) for high notes. This raises, or exacerbates, problems of various kind with regard to the position of the lips. Should the lips roll inward against or even over the teeth, should they open outward toward the mouthpiece? Just how much should they do in either case? Should the lips be quite relaxed, mildly relaxed, or tense enough to buzz? Perhaps

mouthpiece placement is the answer. Should it be higher or lower? Or in the center or off to the side of the mouth? The list of choices could continue on and on. It is no wonder that this Pandora's box of choices often leads practical teachers sooner or later to advise students to think less and play more. The problem is further compounded by the fact that the arrangement found for the low notes is so radically different than that for the high, that the player then faces the arduous task of learning how to successfully connect the registers within the same musical passage.

These are all familiar choices that are faced by the player who has not had the luck, or intuitive perception, to chance upon a workable arrangement from the beginning. Some players overcome these difficulties admirably, and become highly competent in playing the entire register of the instrument. Most simply settle by becoming either "high" or "low" players.

High versus Low

In all three registers, the correct sized mouth is the one that not only helps hit the note (by virtue of its proper size), but which allows the lips their own necessary muscular control over the notes (connected with fortissimo in middle register). This why Tchaikovsky 5th practiced fortissimo has been so helpful to me. It makes the lip develop a muscular control, awareness, and recollection in the easy-to-lose middle register.

The high isn't simply more like the firm middle register. It is not only a smaller mouth, but a different pull and shape of the lips. The three different registers are therefore really quite different. The problem as always remains of getting from one register to the other.

The middle c' area is a sort of hybrid section. It is a cross between the low and the high. More specifically, it is a cross between the feelings of the lips working with the jaw lowered (for low) and the feeling of the lips when they are pulled more laterally (for high) with the jaw up.

The horn has become a split personality divided into sectors, and players have been characterized as low or high players because too many players have tried to play the low notes with the same sized mouth cavity as the high notes. This they do by keeping their lower teeth position constant relative to the upper teeth and relative to lower lip, and then simply over-relaxing their lips and cheeks, which is a useless way of producing low notes.

Such a system makes high horn players only from those few who manage to gain both facility and security up high, and it makes low horn players from the large majority of high horn failures. So we end up with no true low horn players, just merely players who are hopefully (and gingerly) playing at low notes using a high note mouth cavity and lip shape and over-relaxing to get low results instead of high results.

Low notes should not be played with the same sized mouth cavity and teeth placement and by over-relaxing the lips.

One keeps oneself on the right track by trusting sound and strength in the middle register. Immediate strong volume is a better test of the lips' reliability than is a slur to a high c'''. Projection with control is the goal. An embouchure that does not project with control is unreliable even though it often feels good and can blithely fly around the instrument. The feeling of the lips of not losing track of what is going on even during widely different types of passages is the goal.

Air

Air is the basic ingredient. Though we can't see it, and can barely feel its movement, it nevertheless is more in motion than any of the other ingredients. It must remain alive and fast moving.

When taking in air, don't smile too much.

Warm-up

Control

Before gaining control on your instrument, and before even beginning to work for that control, you must first have concepts. These concepts become your goals, your standards while practicing. To work toward either a tiny slender pianissimo or toward a masterfully sustained, forceful fortissimo, you must first conceptualize musical situations that would call for these things.

Control means that every note speaks exactly when you want it to. That you can play with accuracy at the softest level to the loudest level in all registers. On long and short notes, between notes that are close together or far apart, with good intonation and the required articulation, without smacking into notes.

The real condition of the lip is difficult to judge from day to day. It may feel good, but it has to be proven out. Only by patient, dogged repeating of figures that are awkward (and may look simple) can the various muscles in the cold lip be reawakened, reminded, and brought under satisfactory control while critically listening for *forte*.

You pick up the horn, look at the music, and plan to play it. You observe the time signature and begin to mentally hum the written notes against a rhythm or beat within yourself. You understand the key and perhaps can hear the written pitches. You know the fingerings and you recall playing well yesterday. You understand something about air, embouchure, and support but you sound awful when you start. Perhaps you can't even play a simple study beautifully. Why? As in ballet, the pretty result seen on stage is nothing more than the total of all the dry, laborious, physical procedures.

So many of the mistakes that happen are from some little thing being wrong, a slight exaggeration of any otherwise correct action. It is clear from this that one of the most important aids to playing well is to practice with care and alertness. Good routines, carefully practiced and with great effort not to miss is one of the secrets of playing well.

A certain amount of sheer determination is necessary for results on some days. When the lip is truly sluggish, stiff, or feels weak, then the player must with careful determination proceed through a warm-up routine, during this warm-up saying to himself, "I ought to be able to play these notes clearly and accurately, and I am going to!"

When the sound is bad, and the mind seems to wander, and the flesh doesn't feel willing, then one must determine to turn such a bad day into a good one. One must proceed as though a concert were to start in thirty minutes, and with an intelligent warm-up make the lips do the work that they have previously proven themselves capable of. Never mind the bad sound and the bad lip sensations. If one proceeds with determination and intelligence to produce the notes of the warm-up routine, the sound will gradually improve as the lips find themselves.

Be more impressed by the player who sounds well in the concert after sounding badly in the warm-up than by one who starts out sounding better and deteriorates from there.

The slow, separated, and clear striking of notes breaks the careless movements of jaw and mouth muscles down to exact requirements for each note.

Purpose of Warm-up

Everything that the player has learned through the years of experience is relearned during this period. The reason a very experienced player can often warm up more quickly than the beginner is he has repeated this relearning process a countless number of times, and therefore he can relearn all he knows in a matter of minutes.

Correct methods will work even on a totally cold lip; i.e., application of correct methods is immediately and always effective. But this does not mean that the correct method can eliminate the

need for a warm-up that is slow and careful. Most players need to play slowly and thoughtfully at first each day in order to re-choose the correct methods. Speed comes later. So we must conclude that even finished players (those who have really how to play in correct fashion) must continue to practice to keep in shape.

Playing on a cold lip implies thought above the physical. It is important to be able to play a concert on twenty minutes of warm-up. Be warmed up before attempting the extreme high register. Avoid high notes on a cold lip.

The process of warming up might be described as that initial period during which the lips are made to respond to a direct and sudden thrust of air from diaphragm support.

One note again is like learning to stand. Kopprasch #24 played slowly is like learning to walk. Just being in a place is not the same as getting there. One therefore has to practice the shift between positions. Studies and solos are like running.

When warming up, try for the correct angle and diaphragm support.

- Don't be loud to compete or to show off
- Same for soft
- Start together, stay together, and end together. Change notes together, get loud together, and get soft together
- Articulate similarly, sustain similarly, accompany and follow the melody
- Don't do something wrong musically just to be noticed

Hand position should be like a ruler (inflexible). Choose a hand position for the quality of sound desired, not for intonation needs.

Part of warming up is to change and improve the quality of the lips themselves, which are doing the familiar movements. Make them "fatter"; i.e., fuller, more assured, stronger, more padded feeling, etc. This is done by repeating, by using more air, by more force behind the air, by striving for better range of dynamics and pitch control.

Different sets of muscles are educated and toned up daily, some close in, some a little further out. On a bad day, the quality of the muscles is very poor. So the tone and control, and to some extent the accuracy, will suffer. But the warm-up effort should then be to at least educate those muscles that find the notes, ignoring the extras that add tone, control, quick attacks, short notes, etc.

False Low Notes

The warm-up routine should be more than just a wake up experience for the lips and muscles involved in the use of air. It should be a daily learning (or re-learning) experience that guides the lips to a position, a facial arrangement that enables the lips to play the full range of the instrument. It should also make the necessary demands upon the system of air support. In that sense, the warm-up experience should be teaching or reminding something important to both the lips and the air.

Practice patterns based upon the use of "false low notes" are a means of helping the player to discover and develop just such a correct lip arrangement that is capable of playing the entire range with little or no change in lip or jaw position. The idea of using the false low register is not a new one. Some players on all the brass instruments have been aware of the benefits of false low register practice for many years, going well back into the days of the natural instrument. What may be new here are the ideas advanced to explain why developing the false low range helps in the development of the high notes. Possibly new also is the application of these ideas specifically to the horn as their use has become more and more common on the trombone and trumpet.

It is not the central purpose of these false range studies to develop a richer and fuller low register (at least not at the outset), just as they are not to be thought of as primarily a method of

extending the range of useable low notes. It seems paradoxical that the main purpose of working in the false low range is to aid in the development of the very high notes. When that main purpose is achieved, the player can then practice connecting the high and the low, and can work on the development of technique and rich sound in all registers.

The main reason why this learning process must take place in the false low range area lies both in the nature of brass instruments and in the nature of the studies themselves. The idea is that the lips are changed from note to note in scale and chord patterns without the aid of valve changes. This cannot be done within the normal playing range of the instrument.

Practicing the False Low Notes

Do not exaggerate the dropping of the jaw, as our object is to teach the lips a position that will remain basically the same for the total register of the instrument without too much jaw movement. Try moving the jaw slightly forward during a low note.

Do not try at first to play with a big sound. Premature attempts to produce a big sound in the low register may encourage exaggerated positions of lip and jaw. These somewhat contorted positions, while they may achieve some volume and control in the low register, are altogether different than what is needed in the upper register and work counter to the goal of a position that will work the same for high as well as for low.

The very low notes will sound airy and be barely audible at first, possibly with the sound of air escaping. This is natural, to be expected at first, and occurs mainly because the mouthpiece is barely attached to the lips. True sound begins to appear as the mouthpiece and lips start to form a seal, and the air enters the horn instead of escaping around the mouthpiece.

The patterns are written with legato, but there is no reason not to play them attacked occasionally.

Mouthpiece and lip arrangement. These two things are influenced and improved by practice in the false low range, and one of the reasons for doing such practice. However, to start the process, it is suggested that you arrange lip and mouthpiece about as you would for a g' to c' and try to keep the same arrangement in descending. Keep both lips in the mouthpiece; i.e., keep the lips near each other (somewhat as in saying the letter M). As you attempt to play a low note in this position (without consciously dropping the jaw) the air stream will gently push the lips toward the mouthpiece and you will find yourself gradually producing a very quiet version of the note you are thinking. The lips gradually learn to assume and hold this position.

Do not turn the lips in for the high notes but try to produce those notes by retaining as much as you can of what you were doing lower. Keep the lips slightly opened out, hold firm to form a cushion around the opening, and blow with a good air stream.

The purpose of these studies is to help you find a lip arrangement which functions in a basically similar way over the entire range of the instrument and which, in addition, extends the usable high range as well greatly increasing endurance.

As the exercises to be practiced extend well below the ordinary written range of the instrument, it is necessary to get used to reading in the bass clef and the ledge lines below the staff. The bass clef notation used here is the so-called new notation, in which the notes sound a fifth lower than the written notes.

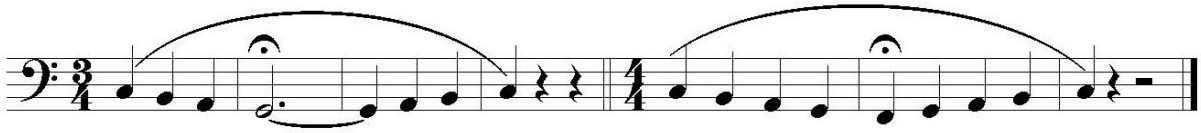
Here is further explanation of false notes. The purpose of doing the low false notes is to draw the lips out as a beneficial exercise in a search to develop a good lip position for the high notes. As such, the player is advised not to play them loudly or with a real sound. They are truly false notes. The mouthpiece is barely touching the lips, air leaks out, and you have little feeling of control over the notes, especially at first.

The lips project slightly. They turn out slightly as the air blows through toward the horn. They begin to form the cushion arrangement that is sometimes referred to by players who have achieved a good lip position. This cushioned arrangement with the lips slightly turned toward the mouthpiece, slightly puckered (and supported unconsciously by the corners), is then held in place as you attack a note in the upper register.

That is why many of the patterns jump from the false notes to a note two octaves higher. The false notes act as the teacher to set the lips in a good position, and the position is held (more or less) for a distant note.

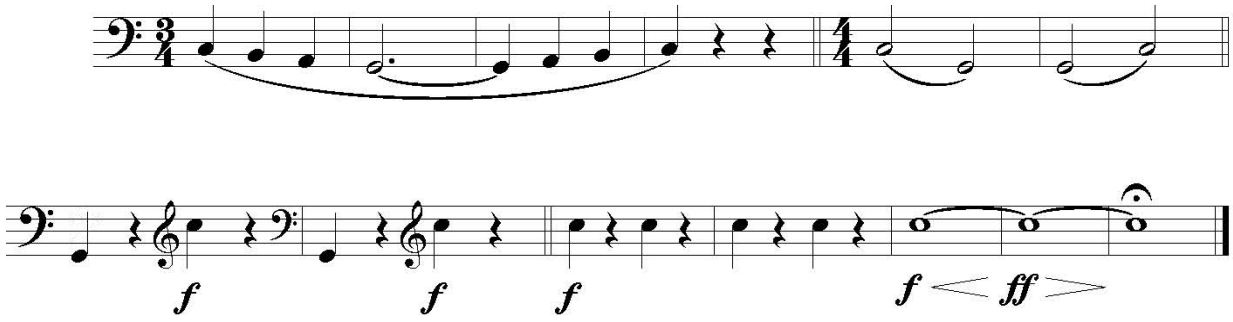
Good brass playing can result only when the lips are doing what they should, when the air is being used as it should be used, and when these two main ingredients are working well together. Although it can be added that once the player is using both elements properly, it then seems as though the whole secret of playing lies in simply blowing well. In other words in using the air stream properly.

Exercise 1: All F horn, open horn, no valves. Repeat the same pattern going down in half steps (i.e., 2nd valve only, then 1, 1+2, 2+3, 1+3, and finally 1+2+3 for F#).



Exercise 2: Again, all F horn, open horn, no valves. Repeat the pattern going down in half steps.

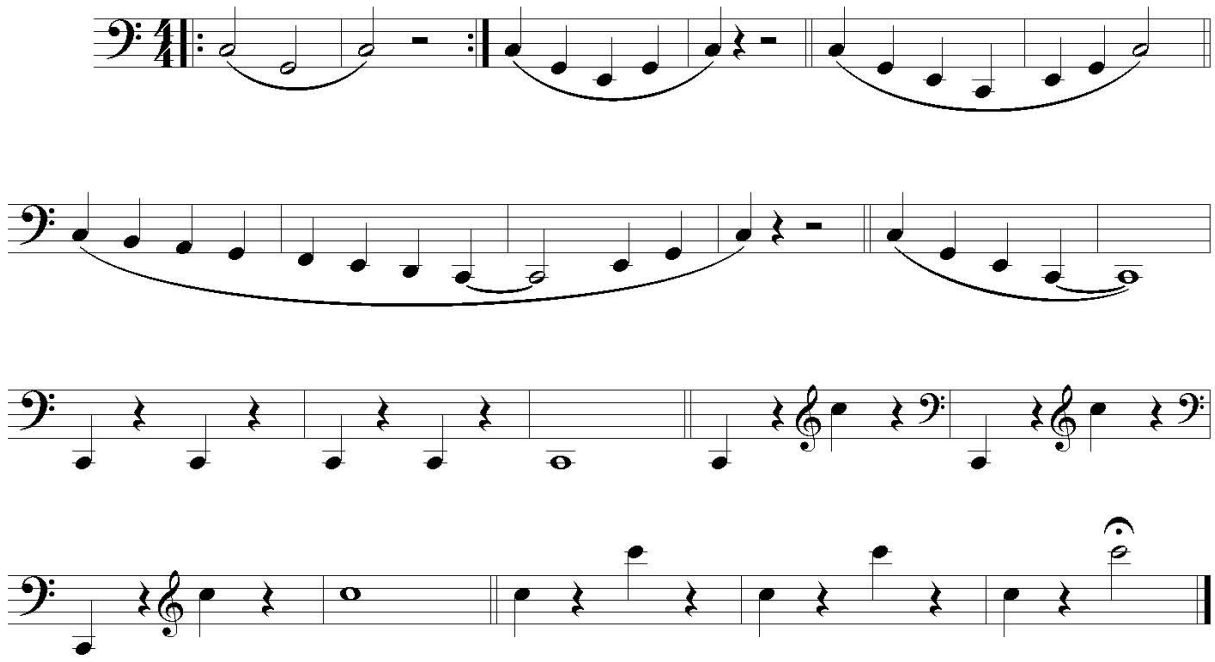
Exercise 3: Play each section several times, working downward from the low c to G. You can also practice the first and second section chromatically, but always without help from the valves. In the third section, stay on the F horn on the upper notes. In the fourth section, alternate between F and B-flat horn. Repeat the pattern going down in half steps.



Once you have gotten the knack of how to produce these lower notes, you can choose to reduce practice time by starting out with this similar series, which works chromatically toward the upper register at the same time that it extends the lower notes. In any event, success in reaching the extreme high notes will be directly related to the results gained in extending the lower register.

The first three exercises deliberately ignore the notes between low c and f#' and do not go above c". The next series focuses on further extension of the lower "false range" and work upward from c" into the extreme high register. This procedure ignores the two octaves between c and c".

Exercise 4:



The extreme high and the extreme low are then connected during what can still be considered as a first phase of daily practice, by scales and arpeggios, which include all the notes on the instrument.

This first phase is a method of warm-up and of disciplined practice, which can be used by beginners as well as advanced players.

The second phase of practice should consist of etudes, solos, excerpts, etc., according to the needs of the particular player. The first phase of practice can in no way be considered to be a substitute for the second phase of practice. The nonuse of valves of the first phase is that in doing it resolves (or avoids) all kinds of lip and breathing problems.

Practice

General Procedures

Goal number one is control of right notes, right sound, right intonation, right length, and right volume. Goal number two is to be able to be in shape at the time of the concert.

First make individual notes familiar and bring them under control. Then go back and forth in interval work between two notes (or two notes of a study or solo) guarding against over-changing (collapsing) the lips and familiarizing yourself with the difference in the distance of lower teeth from upper. Then apply the above to all playing.

Some things lips can do only themselves and other positions that the lips can take only with the help of the mouthpiece. Studies should be put together on the mouthpiece as well as playing each note separately. This also applies to scales.

Demonstrate buzzing of lips alone (on a specific tone), then on the mouthpiece, and then on the horn. Play daily a C scale on the mouthpiece separating notes repeatedly and then the building of a connected mouthpiece scale (not slurred), keeping the muscular structure alert.

The first downward scale (or any first notes) should arrange a solution for the problem of embouchure – diaphragm. Repeat many times *pp* (quite a few should be done getting emptier of air) so that support begins to come without overblowing and the consequent distension of the embouchure.

Practice a daily routine that gets you around the instrument, but which doesn't abuse the physical, which, instead, creates security and a feeling of control and doesn't force you to indulge in bad habits of collapsed embouchure and excessive mouthpiece pressure. Sometimes in warm-up, when the effort is made to use good support, the blowing of air is neglected and more than desirable pressure is used on the lips. The important thing is to achieve a combination of both. Also the "blowing at the mouth" feeling is harder to feel on high notes when the pucker is less and the pressure greater.

Make the connections between on-off practice and endurance; the obvious one is more moments of rest when playing on-off. The less obvious is that fatigue is caused by legitimate (acceptable) factors and by non-acceptable ones. On-off creates and finds the exact rightness for each note and helps therefore to eliminate fatigue because fatigue is caused by unsmooth production. The other valid reason for fatigue is pressure. This is more needed in the high register. Pressure is reduced to its proper degree by the finding of exactness in embouchure resulting from on-off practice.

Making Correct Physical Choices Each Day

Understand as much as you can about the principles of muscle control and the way muscles work together. Try to know exactly what you are doing (puckering, tightening, pressure of mouthpiece). Pay attention to standards of performance. Do the notes speak immediately? Can you play both very loudly and very softly? Can you control intonation? Do attacks and slurs feel and sound completely secure?

We are always presented with a choice in our way of hitting the notes. We are examining here not so much the notes themselves but the physical means that are used in making the note play. We have a choice of these physical means. Many muscles are involved and also many ingredients. The muscles in the lips and cheeks are either pulling, pushing, or supporting. Diaphragm, abdominal, and chest muscles are working in different directions, with the combined object of supporting the air stream. Muscles in the jaw move to make the interior of the mouth larger or smaller in size for low

and high notes. The tongue must be considered. The invisible air itself is an extremely important ingredient.

The nature of all practicing is to prepare one to be able to perform. The purpose of all practicing is to prepare for a better performance. Therefore practicing may be described as preparatory in nature. I believe that practicing should be divided into sections.

1. Like calisthenics, warming up, during which emphasis is consciously given to correct muscular usage (diaphragm and face muscles).
2. More like actual performing in that the player uses the warmed-up, educated muscles to put together studies, etudes, excerpts, solos, etc.

This sequence imitates the situation of and prior to actual performance; i.e., warm up and then perform.

Hitting the Right Notes

What does it take to hit the right notes? Why are "easy" notes so often missed?

There is a right way, at least a best way. And practicing that consists of watching only for the right note, instead for the right way of making the note, is in the long run wasteful and deceptive practicing. It is superficial to examine only the note itself and not to examine the method of production. A note that sounds secure when listened to casually may not feel secure and may in fact not be secure. If practicing does not lead to that feeling of security, the player will be inviting disaster during performance.

It follows then that during practice the player should not merely be trying to hit the right notes, but should be trying to learn the best way of hitting them so they will be reliable. It is true in fact that only when that way is found and developed do the notes become secure and reliable.

Too many players produce notes in a physically unwise manner. They do not realize the precariousness of their situation because while practicing they are judging only to see if they hit or miss notes. Hitting the note is their proof that they are approaching the instrument correctly and making logical physical efforts. They would be a good deal better off to be developing a correct system of playing even if during the development they miss more notes temporarily.

A correct procedure, a correct physical approach leads to good results in all directions, not just in some directions. It may not lead to a spectacular and sudden improvement in any specific direction such as the addition of several notes to the high register (as might another approach), but it leads to uniformly excellent total picture of quality.

Practicing should be a time when you are not trying to see how many notes you can hit in an hour. Rather, it is a time during which you should be preparing yourself to be able to play notes later when called upon to do so. Playing the concert in the warm-up room is not the way to assure doing it right on stage. Practicing should prepare you for the demands of a performance. Practicing is not, in itself, a performance.

Practice Procedure

- Tonguing, long tones, arpeggios, slurred thirds, etc.
- Open throat for *ff* playing (with relaxed lips)
- Figure out if fast tonguing or tonguing in general tends to close the throat

A certain amount of loud playing with open throat, diaphragm support, plus repeated tonguing of individual notes should find the best, most natural embouchure.

When the throat is closed, the vibration is sometimes cut off unintentionally. The player in an effort to continue the vibration attempts to force the lips tightly together. A final result can be that

the throat is too closed to permit the passage of air and the lips are too tense and tightened to permit a sustained vibration.

The throat begins to try to play the high notes. Can the throat remain relaxed with the stomach muscles and diaphragm tense? One can slide all around the horn – up and down – without making any definitely noticeable lip changes at all. But this is a stupid procedure. Oo going down towards Ee going up, even though the Ee on the way up will be able to produce sounds on the way down.

Studies are good that are built on well-known difficult solos using just two consecutive notes at a time (then three, etc.) so that the solo source is completely unrecognizable and suddenly surprises by appearing in original form.

It is well worth taking the extra few minutes during warm-up to get the lips to feel right, to feel warmed up, not to just slowly go through a routine and pound most of the notes out whether the lips are feeling responsive and alert or not. To master the understanding and control of teeth, jaw movements, mouth size – and also to master lip and cheek alertness – is to master the horn technically. The lips must retain their tension to cooperate in the jaw's efforts at closing for high notes and also (perhaps less) for opening for low notes.

The alertness of lip and even the speed of a slur is best practiced on separate notes. Lip alertness is extremely quick to go. The short-pause attacks are an excellent way of making the lips stay awake and trying. This together with the correct changes in the size of mouth cavity is the correct combination.

"Something" must be repeated again and again, always striving for perfection. But what exactly is the "something" to be practiced?

Things to Watch For and Practice

- Diaphragm push
- Movements of jaw for register changes
- Alertness of lip and cheek muscles

One is either playing with a lip that has alertly formed the note or one is not. The lip cannot be both alert and asleep at the same time. The lip rarely sustains its alertness for long, especially in the first minutes of playing daily.

The player should play notes that are only as long as the span of alertness. This means no slurs, long tones, or even consecutively played notes at first, but plenty of repeated short notes to take the place of long tones. The initial attack should be the moment of great alertness. Do not let the muscle alertness sag; however, the full sound is more important than that the note be extremely short. The note should last long enough for the muscles to try a bit. The time span is gradually lengthened to include long tones, slurs, and entire pieces. True endurance is built this way and not by playing a great deal on a non-alert lip.

One of the simplest ways of examining the value of the practice of the separate notes is that the lips should learn the separate requirements for each note and then strive to copy exactly the same efforts in combined notes.

Remember that daily beginnings are not just for so-called beginners; they are the daily beginnings for advanced and professional players also. We are all beginners as we start each day, but the experienced player relearns in thirty minutes what the inexperienced beginner takes months and years to learn.

Start with one note and stay with it for a little while. Play it many times. Try to make it sound and feel secure, full and in time, and under control. Play it in a steady pattern of note, rest , note, rest. Does it speak at once? Try to play it a little louder until it is quite loud. Now a little softer each

time. Not as softly as you can play, but a little softer each time until it suddenly will be as soft as you can play.

The warm-up is the most important part of your daily practice. The goal is to make all of the physical ingredients familiar with their jobs in the production of each separate note when it is played with a strong controlled tone. You have the choice of proceeding over the whole range of the instrument, playing studies, for example, before the goal is achieved. That is step one. The rest follows logically.

Next is combining notes into patterns (either tongued or legato), playing slowly or quickly, loudly or softly, or in a connected or widely leaping manner. All these steps can be accomplished when a secure foundation of separated, strong notes is prepared. Even in ice skating or bicycling, in which a state of relaxed naturalness seems to be the secret in order to be able to glide about so effortlessly, one can see that the real truth is quite otherwise. The skater must assume a physical pose or a series of poses, an aware and quietly changing series of arrested movements, balancing his body in a learned position. Only then can his body help instead of preventing the blades and the ice to accomplish their wonderful duet of smoothly gliding movement.

The skates are doing the skating and the body above is perceptively, sensitively, and intelligently staying out of the way. Sometimes directing, but always leaving the movement as something to be accomplished by ice and skates. The quality of this movement, be it in ice skating, a bow on a string, or the air being blown through a wind instrument determines the quality of the visible result. This quality of movement is a thing that is the result of the control of surrounding physical factors.

This is like the movement called blowing on a wind instrument or like the bow on a string instrument. It is always inanimate objects that are coming together at the heart of the movement. Bow and string. Air and horn. Golf club and golf ball. This is why the blowing is all-important for winds and the bow arm for the strings.

We must educate the muscles to do the blowing and the bowing so that they help and never interfere with the movement of inanimate objects. The art of the possible in working with musical instruments, golf clubs, or any other tool is in knowing how to relate our bodies to the dumb tools. Is the answer relaxation? Hardly. The other side of that coin is helplessness. Control is certainly not gained by giving up the idea of control.

Art is artificial, not natural. Art is disciplined, alert, and intelligent. The injunction saying, "don't try so hard, just relax" should be changed to, "try harder so that it will play." To play well as a result of relaxation is to invite great nervousness.

Mouthpiece Practice

Mouthpiece practice provides a way of developing the utmost of independence within the embouchure itself. The horn is not being used to make the notes easier and the lips therefore have to shape and form and assume a pose that will play the notes with little pressure.

To arrange the muscles for strength, we bring together as much muscle, supporting flesh and bone – everything toward one focal point of strength. Pucker because it brings muscles toward each other, instead of dividing them into weaker sections, like a fist, but avoid bringing so much together that it gets in the way. Don't press too hard because this divides the mouth into two halves and restricts the freedom of muscular arrangement within the lips themselves.

The mere fact that a note is being produced is no proof that it is being played with enough physical control. It is possibly being played with so little physical control that its existence might almost be termed "accidental." Practice sudden attacks to force all the ingredients to meet at one moment. Intelligent players will view practicing as that time of preparation during which their

muscles, singly and in combinations, are educated, reminded, and strengthened so that they will do their part to achieve performance goals.

The ultimate goal of practice should be to develop and maintain physical control. Without physical control, you have no predictable degree of reliability in performance, and the attainment of virtuosity becomes impossible. Playing a musical instrument is in some ways as much a physical endeavor as is, say, golf. It is also as much a physical skill as, for example, carpentry or welding.

Lesson and Practice Routines

The object of all learning efforts is to gain the ability to perform in a given situation. A lesson is a place to perform and to learn what good playing is. A student who understands what good playing is has already become his own teacher. Becoming your own teacher is a result of good teaching.

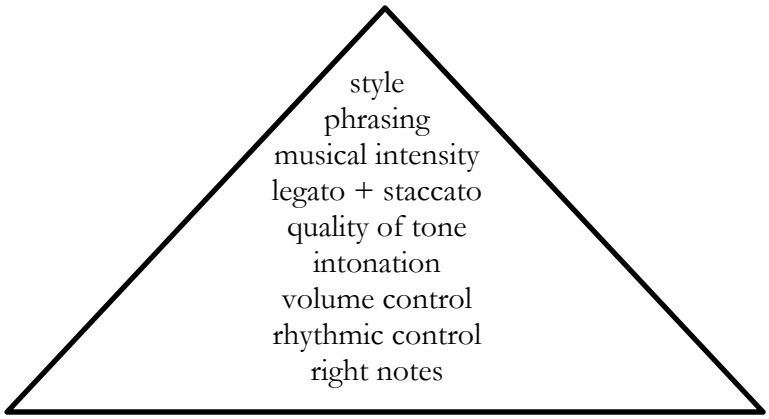
Good playing consists of such things as:

- right notes
- clean attacks
- good intonation
- ability to project at all levels of dynamics
- ability to connect or separate notes

Two things a student should attempt to gain from lessons:

- That which he feels he needs
- That which the teacher feels he needs

Playing an instrument is a skill or craft that can be learned. Once the basic approach is mastered, creativity can take over. A pyramid of ingredients for quality playing:



Control is really the by-word. Practice should be measured with the same standards as actual performance. One problem in teaching is trying to explain to a student why he does not get better quickly and why he can't benefit from simply playing through a lot of music.

Knowing when to rest during practice might be considered as the "art of timing." This "timing" is off when one doesn't play regularly on a steady job. Resting and playing are equally positive and constructive acts.

Kopprasch #24

In Kopprasch #24, play each top note three or four times, alternating F and B-flat horns.

In the Kopprasch #24 type of warm-up (in reverse low), the diaphragm should support the soft notes and the lips should feel as if they could play loud, but mainly the warming up should be done without the risk of blowing out the lips through *forte*.

The "just right" way of hitting single notes is the way which you will be able to produce a satisfactory Kopprasch #24 (slurred, fast, etc.). But other ways (less correct, or more pressure, or not effortful enough by all the involved muscles) will not produce a successful Kopprasch #24, even though the single notes seem producible reliably. Kopprasch #24 then becomes a means of taking the supreme correctness of methods used to produce the isolated notes.

Daily Practice

We practice:

- While learning how to play
- After having learned how to play

Why practice after having passed the first stage?

- to learn new music
- to perfect techniques; i.e., speed, legato, intonation, intervals, etc.
- to keep muscles in shape

After all, muscles are involved even in very relaxed playing. Even the lips, which merely act as a relaxed reed, are composed of muscle tissue and will show the results of exercise; for example, strengthening and becoming responsive to commands, and gaining familiarity with requirements.

Routines can definitely help to bring the player up to a certain level. He must later know when to leave the routines if he wants to leave that level.

To keep the embouchure in minimum shape play intervals daily.

- Horn off between each note
- Each note loud and solid without over-blowing
- No perceptible fussing with lips between notes such as licking, twisting, or running tongue between lips
- Some long tones

Practicing must include (not necessarily all at once or every day):

- Work on range, close intervals, medium intervals (3rds and 4ths), large intervals, staggered directions, and consistent directions.
- Timed breaths and entrances on short and long tones to encourage deep, full breathing.
- The opening-out experience of the extreme low, some of which is retained into the high register, plus the demands on the full length of the air column.
- The lips gradually turn in only the necessary amount on ascending, and therefore avoid the dangerous "swallowing" of the lower lip (playing a scale from the very low to the top).

The purpose of daily practice might be defined as giving strength, responsiveness, and intelligence to the muscles that surround and shape and control the size of the air hole, also the muscles that push and support the air. Practice therefore should be directed toward helping the "stupid" to "catch up." This is done (stupid lips, etc. as compared to fingers) by copying that which

caused the hands to develop so highly countless orders from the brain to accomplish a specific job; nothing moves without muscles.

Basic principles are the same for all instruments. It is necessary for the student to:

- Gain an understanding of those basic principles
- Understand the way in which the basic principles are applied to and related to the specific problems presented by the instrument
- Intelligently practice (master) study materials (etudes, characteristic studies, etc.) that present the problems and difficulties of the instrument
- Separation of and relationships between physical and mental understanding of coordination between physical elements, primary ingredients, relative importance, and the relationship of each

Any method or discipline used to teach an instrument must incorporate the basic principles which govern learning of all instruments. The student must concentrate on:

- gaining physical control
- standards of quality for tone, intonation, phrasing
- mental grasp of the printed page
- rhythmic understanding
- how to use the ear
- system of tests
- practice procedure
- when to rest and how long

It is important to develop a method of using the tongue for the attack that does not interfere with or inhibit the proper functioning of the lips or the air stream. This is based on legato, which uses no tongue to which tongue is added; rather than a building of air (frequently too much air) behind a tongue rigidly interfering with air release. In other words, it is not the explosive action of the tongue that produces the note, but the correct control of lips and air.

Security (accuracy) on the instrument comes finally from the successful and determined application of all of the various component parts of what goes to make up any particular system of playing. It is natural (therefore to be expected) that the correct lip arrangement will be harder to find on some days than others. This is a "memory lapse" of the flesh and other ingredients involved in the arrangement. On such days it is important that the player keep the lips relaxed and use good support while giving the arrangement a chance to correct itself.

To some extent, the idea of moving a lot of air is nothing more than the sensation received when the diaphragm pushes the air against the resisting glottis; in other words, compression. If at the same time the lips are relaxed and in a good arrangement, the sensation and sound will be as though one is moving a lot of air.

The best way to make the change (a way that requires much patience and determined practice) is to find a good daily routine of note patterns that is pursued in a disciplined and intelligent manner. This gives the wise player time to:

- Break down old patterns of thinking and muscular activity
- Build up new patterns to replace the old
- Increase understanding of what is happening
- Build muscular strength and habits

This procedure means many hours of practice in which the intent is devoted almost extensively to the routine (Clark, for example) rather than to "music."

Without question, good sight reading is a byproduct of correct and well-established playing skills. Although other factors are involved (experience, quick thinking, good eyesight, etc.), the primary reason for good reading is that the player is familiar enough with a workable system of playing. That is why it is foolish to practice reading before other playing problems are well solved and why sight reading might constitute a valid and fair test of a player's ability.

Instructional Materials

Instructional materials for students of musical instruments can be separated into two broad categories. The smaller of the two categories comprises books that attempt to explain how the thing is done. The how-to approach is theoretical in nature and may be described as an effort to instruct by means of analysis and logic. In its purest form, this kind of writing contains no musical material as such. It is either entirely verbal in context, or it is a mixture of verbal explication in conjunction with photographic or other nonmusical aids.

The second broad category of instructional writing is musical material in the form of etudes, studies, exercises, warm-up routines, etc. In its purest form, the material in this category of instructional writing contains no non-musical material; i.e., no verbal instructions and no explanations of how to play, completely non-theoretical in nature.

These works can be thought of as musical compositions into which are built various levels of performance difficulties. The educational purpose of these works is sometimes stated explicitly but more often it is only implied. The purpose is to present the student with the complete gamut of playing problems, musical as well as technical, in order to develop and test his readiness to perform real music. The distinction between study material and real music is one that is recognized and accepted generally, and most musicians consider it to be self-evident; however, some of these works can be thought of as real music, and they are doubly valuable in that they present playing problems in a beautiful and musically satisfying form.

Very few works can be cited as examples of purely theoretical writing. On the other hand, many authors can be cited as composers of non-theoretical (purely musical) writing whose works are directed primarily toward music education; Kopprasch, Gallay, Kling, and Schuller are examples.

The underlying rationale implicit in the use of this kind of material is that people can learn by doing. A further implication (often stated explicitly) is that explanations and theoretical analysis are largely a waste of time.

Some studies are needed that are limited as to range but still provide interesting solutions to musical and mechanical problems. These may be helpful to players of limited range in that something is provided for practice material that does not exceed the high or low note capacities of their particular stage of development. Etudes within an octave are good for beginners; some advanced type of studies could be used as a warm-up emphasizing the low range as a starting point and encompassing most of the purposes of my present warm up.

The playing of studies is helpful and important. Such practice sets up graded problems for the player to solve. It provides self-test material to prove out production problems that the player thinks he has solved. It tests and builds endurance and also provides melodic interest and rhythmic experience.

However, no number of studies will teach the player how to play or how to practice. Many students end up being little more than collectors of music that they can't play, that they don't know how to play, and that they don't know how to practice.

Is your problem insufficient understanding of the how of playing? That is, are you unclear about the mechanical production? Or are you simply ignorant about how to practice each day so that at the end of a proper warm-up, you end up with a lip that is either tired or still unresponsive?

One of the benefits of long tones is that they teach one how to keep blowing after one thinks all the air is gone; i.e., they bring the diaphragm support into play. This can also be achieved by playing many separate notes without breathing.

Studies give one a way to combine notes in different combinations after a proper warm-up has been accomplished. They help prepare hornists for solo passages in the literature.

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About the Author

Thom Gustavson studied horn with Abe Kniaz at Indiana University and later at Univérsite Laval in Québec City. He has played fourth horn in the Orchestre Symphonique de Québec for 39 years.

Abe always wanted to write a book about horn playing and left copious notes, which Thom categorized after Abe's death. The long friendship Thom shared with Abe over the years inspired the effort to publish this book.


Feldman Chamber Music Ensemble, Norfolk VA – Québec City c1976


At home in Québec City 1983

With Dwike Mitchell and Willie Ruff at the Northeast Horn Workshop in 2005

National Symphony c1955: Unknown, Bill Klang, Jack Wishnau, Abe, Abby Simon

Soloist with Orchestre Symphonique de Québec c 1970

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