

### *The Arnold Jacobs Legacy\* by Brian Frederiksen*

Dr. Arnold Jacobs was born in Philadelphia on June 11, 1915 but raised in California. The product of a musical family, he credited his mother, a keyboard artist, for his initial inspiration in music, and spent a good part of his youth progressing from bugle to trumpet to trombone and finally to tuba. He entered Philadelphia's Curtis Institute of Music as a fifteen-year-old on scholarship and continued to major in tuba.

After his graduation from Curtis in 1936, he played two seasons in the Indianapolis Symphony under Fabien Sevitzky. From 1939 until 1944 he was the tubist of the Pittsburgh Symphony under Fritz Reiner. In 1941 Mr. Jacobs toured the country with Leopold Stokowski and the All-American Youth Orchestra. His was a member of the Chicago Symphony from 1944 until his retirement in 1988.

During his forty-four-year tenure with the Chicago Symphony, he took temporary leave in the spring of 1949 to tour England and Scotland with the Philadelphia Orchestra. He was on the faculty of Western State College's Music Camp at Gunnison, Colorado during the early 1960's. In June 1962, he had the honor of being the first tuba player invited to play at the Casals Festival in Puerto Rico.

Mr. Jacobs, along with colleagues from the CSO were part of the famous 1968 recording of Gabrieli's music with members of the Philadelphia and Cleveland Orchestras. He was also a founding member of the Chicago Symphony Brass Quintet, appeared as a soloist with the CSO on several occasions, and recorded the Vaughan Williams *Concerto for Bass Tuba and Orchestra* with Daniel Barenboim conducting the Chicago Symphony.

The late Sir Georg Solti praised Jacobs, "*Through his unstinting support and encouragement of generations of brass players the world over, he has justifiably become a legend in his own lifetime.*"

Mr. Jacobs had the reputation as both the master performer and master teacher. He taught tuba at the Northwestern University School of Music and all wind instruments in his private studio. He was one of the most sought teachers in the world, specializing in respiratory and motivational applications for brass and woodwind instruments and voice. His students include many in orchestras and university faculties around the world.

Mr. Jacobs had given lectures and clinics throughout the world. During the CSO's 1977 and 1985 Japanese tours, Mr. Jacobs presented clinics in Tokyo. In January 1978, he lectured at Chicago's Michael Reese Hospital about playing wind instruments for the therapeutic treatment of asthma in children. He presented masterclasses at Northwestern University a week each summer from 1980-1998. The Second International Brass Congress presented its highest award to him prior to his lecture to them in 1984. In 1991 he presented a clinic for the United States Marine Band in Washington D.C. Mr. Jacobs presented masterclasses as part of the Hearst Scholar program at the University of Northern Iowa and the Housewright Chair at Florida State University.

The Midwest Clinic presented Mr. Jacobs their highest award, the *Medal of Honor* in 1985. In 1994, The Chicago Federation of Musicians awarded him for Lifetime Achievement at the first *Living Art of Music* awards.

During his eightieth birthday celebration in 1995, he presented a lecture to the International Brassfest at Indiana University and the International Tuba-Euphonium Conference at Northwestern University.

Northwestern's School of Music presented him the first *Legends of Teaching* award. Mayor Richard M. Daley proclaimed June 25, 1995 as *Arnold Jacobs Day in the City of Chicago*.

Mr. Jacobs was given an honorary Doctor of Music degrees from the VanderCook School of Music in 1986 and DePaul University in June of 1995.

Two books written by students about Mr. Jacobs are available, *Arnold Jacobs, The Legacy of a Master* by M. Dee Stewart in 1987 and *Arnold Jacobs: Song and Wind\**, released in 1996.

### ***The Teacher***

While Jacobs earned a reputation as a world-class performer, equally significant were his teachings. In more than sixty years of teaching, he had been called the "Brass teacher's brass teacher" and a modern Aeolus, the Greek God of Wind. Dale Clevenger, principal horn of the CSO, writes, "Nearly every brass player in America has studied with Arnold Jacobs, whether they know it or not."

Listing all of the musicians that Jacobs has taught is impossible—there are far too many and are not confined to just tuba players. Other brass instruments, all woodwind instruments and even singers and string players come for lessons. One student was not even a musician! Jacobs' students generally fall into one of the following groups:

Long term students, One or two timers, Referrals from others, Aging problems, and Therapeutic

When asked about his therapeutic specialty, Jacobs responded, "*It's just a form of therapy, as though I were a physical therapist, in the sense of normalizing respiratory muscles, establishing the psychological, general attitudes in the brain as far as what thoughts to think in the art form. I do the physiotherapy, normally away from the instrument, normalize respiratory function away from music, establish patterns of normalcy, and then transfer them back to the instrument, so the brain is free to concentrate on the musical message.*"

An important fact is that Jacobs knew that his role was only as a therapist. He held no medical degree and did not treat anyone or prescribe medications. If he discovered a medical problem, he would immediately advise a student to consult a physician. In turn, several physicians had referred their patients to him, but only as a therapist. Jacobs gave no medical advice except to see a physician.

The student absorbs information. The teacher imparts information and guides the student through his development. According to Jacobs, "*The ability to learn is greater than the ability to teach.*"

An important consideration in Jacobs' philosophy of teaching is that all students are different, as every person has his own way of thinking. One person may be highly developed in visual stimuli, such as shades of color that are valuable in art. Another person may have developed in the sense of hearing and pitch recall that is beneficial in music. There are those who think with logical thought and others who think emotionally—it all depends on the individual. Students also have different physical needs, strengths, weaknesses, experiences, desires, and other variables.

Because there are as many teaching problems as there are students, Jacobs treated each student individually. He was concerned only with the student sitting in the chair beside him. Often, he will tell one student one thing and change emphasis with the next student—what he was looking for were results.

There are those who have studied with Jacobs who have interpreted the way that he taught them as *The Arnold Jacobs Method*, and attempt to imitate Jacobs' style with their own students. Jacobs taught them as individuals and the methodology would therefore change with the next student. There is no set Arnold Jacobs method of teaching *all* students. Jacobs individualized the methodology to the *individual* student. He was the master with his vast knowledge and decades of experience.

Jacobs separated performing from his teaching. He stated that he wore several hats. While performing, he wore a performer's hat. When teaching, he wore a teacher's hat. When investigating respiration, he wore an investigator's hat. He knew when to put a hat on, and more important, when to take a hat off. When he performed he only wore the hat of the performer. It was not the time to investigate or analyze. Those hats are removed to avoid making simple procedures complex.

Unlike many teachers, Jacobs worked with the student's strengths—what he is doing correctly being dominant over what he is doing wrong. For example, many students come to him with an unorthodox, but functional embouchure. While many teachers would work with a student to change it to perfection, Jacobs may leave it alone, as it is perfectly functional, and concentrate on other problems.

Jacobs relies on a multi-sensory approach to teaching. Students learn through their senses and Jacobs uses tactal, visual and aural clues. He rapidly imparts the strongest message for the particular student using the various senses.

With the aid of external devices he motivated students with different senses. Away from the instrument, he would have a student blow a ball to the top of a tube. During this time he was making the student aware of the feeling of the physical activity. Finally he would have the student play on their instrument and tell them to forget the external device and return to the art form of music.

To Jacobs, the *art form* must come first, last, and always. Making music should be approached as an artist rather than as a mechanic. The art form, creative thought, or *song* is 85 percent of music. The artist must prevail in musical thoughts.

Jacobs did not teach a player of a particular instrument, but, rather, taught an artist who plays a particular instrument. All students, from the beginner on up, are performers, although their levels vary from elementary to highly advanced. While technique is important, they should put the study of music first and the methodology [technique] second.

### ***Song and Wind***

Jacobs' teachings are based on one of his most famous phrases, *Song and Wind*. During his lecture at the 1995 International Brassfest in Bloomington, Indiana, he explained:

*"My approach to music is expressed as Song and Wind. This is very important to communicate a musical message to the audience.*

*"This approach is one of simplicity as the structure and function of the human being is very complex, but we function in a simple manner. When we bring it to the art form it becomes very simple.*

*"Song, to me, involves about 85 percent of the intellectual concentration of playing an instrument, based on what you want the audience to hear.*

*"You cannot get anywhere without wind. If you think of a car, the wheels will not turn without an energy source ♦ the engine. Brass players must have a source of energy as there must be a vibrating column of air for the instrument to amplify and resonate. The musical engine is the vibration of the lips. However, the lips cannot vibrate without wind."*

*"When we combine Song and Wind, the musical message, song, is the principal element comprising 85 percent of the consciousness. The remaining 15 percent is the application of the breath, wind, to fuel the vibration of the lips."*

### **Song**

With a ratio of 85 per cent to 15 per cent, *song*, or the mental element is the dominant element of the consciousness by nearly six times. Jacobs has always said that he plays two tubas simultaneously ♦ one in the hand and the other in the mind. The tuba in his hand is the mirror image of his thought. It plays a pitch a split second after the proper signal is sent from the tuba in the mind ♦ the brain. *"It does not matter what octave you sing in the mind. What comes out of the instrument should be a mirror image of the conceptual thought of the brain. It is a conceived sound."* Although conceptual thoughts such as these have been around for years, Jacobs formalized them for musicians.

Unfortunately, many musicians play without a concept of the end result ♦ the sound coming from the instrument. Their concept is like building a house with no plans. They play with the instrument in their hand but no instrument in their mind and many mistakes occur. Instead they should conceptualize on the end product ♦ the sound coming from the instrument.

*"A constant effort must be made by the student to think musically. He should develop the ability to hear the sound in his mind that he wants to hear from his instrument. This tremendously important concept should be encouraged by renewing it daily."*

*"The important thing is not what you sound like. It ♦ s what you want to sound like. I have people who come to me and only listen to themselves ♦ they are not conceiving."*

### **Wind**

Many considered Jacobs to be the world ♦ s foremost expert on the study of respiration as applied to wind instruments. Before Jacobs, most of the principles in relation to wind instruments were essentially nonexistent. In the nineteenth century there were studies conducted, but the subjects, for the most part were, large males, primarily vocalists, whose air requirements are different from those who play wind instruments. Many problems encountered by smaller males and women resulted from the misapplication of the techniques of larger males to all others. The school of thought with brass teachers for years was the "tight-gut method." Generations of players were taught this style of respiration for playing believing, among other things, that the diaphragm is located below the navel.

Jacobs is the pioneer of modern-day knowledge of respiration in relation to wind instruments. His research was conducted through thousands of hours of independent research studying the normals and abnormalities of respiration. Several doctors, most notable Dr. Bruce Douglass and Dr. Benjamin Burrows, worked with Jacobs. Many have said that Jacobs knew more about the mechanics of respiration than many physicians, although he was primarily self-taught. There is truth in this because physicians are more concerned with diseases and not as concerned with the physiology of respiration as is Jacobs.

Jacobs realizes his limitations, and if he senses a medical problem with a student, he always recommends that a physician be consulted immediately.

### ***Uses of Respiratory System***

The most common use of the respiratory system's musculature is to exchange gasses, a requirement to sustain life. This is only one of three phenomena of life supported by the musculature of the respiratory system.

The second use is for the contraction of the muscles in isometric opposition where muscles become rigid. This is useful for sports or combat, but not in playing a wind instrument.

About the final use of the respiratory system, Jacobs says, "*I learned more about the lungs not by studying wind for playing my instrument, the tuba, singing, or trumpet playing, but by studying defecation and childbirth* ~~the study of what happens with breath pressure.~~"

The pelvic pressure syndrome uses the respiratory musculature for both childbirth and defecation. Abdominal muscles bear down, increasing internal air pressure. The throat closes to contain the pressure [the Valsalva maneuver]. Inside the body, air is under considerable pressure, far more than required to play a wind instrument.

Often during master classes, Jacobs has a man blow into a modified blood pressure gauge with as much air pressure as possible. Usually he can only blow three pounds of static breath pressure as sensors in the lungs protect the tissue and prevent larger pressures.

Next, he has this man lie flat on his back on the floor and tense up the muscles of his abdomen by isometric opposition. A small woman [usually Mrs. Jacobs!] then stands on his chest and abdomen.

"On the trumpet, which is the highest pressure instrument in the brass family, I have measured many people and they hardly go up to three pounds of pressure. The average will be between one-half and one and one-half pounds. When they are working really hard, they may get up to two to three pounds."

This demonstration shows that the muscles of the abdomen can only sustain a pressure around three pounds, but can also support 100 pounds or more. "*Physically, we have reflexes in each lung that will not permit us to use any of this kind of strength. Anytime you exert a great power in these powerful muscles, this has to do with reduction. There would be an enervation of the muscles that make you large. That would cancel it out and this goes on all the time. It's foolish to use enormous strength when you are dealing with one to two pounds.*"

Excess contraction of the abdomen's musculature is unnecessary, as it limits the potential of the respiratory system. It is contrary to the old "tight-gut" method that decades of wind players have been taught.

### ***Shallow Breathers***

Jacobs commented, "*The most common problems I have seen over the last sixty-odd years I have been teaching are with respiration and the tongue. Surprisingly enough, I rarely find problems with the embouchure. That might sound strange because people come to see me because of problems with their embouchure, but frequently it is the embouchure reacting to a bad set of circumstances and failing--it is simply cause and effect. If we change the cause of the factor, it is easy to clear up the embouchure. The*

*embouchure is not breaking down, it is trying to work under impossible conditions. When you are starving the embouchure for air volume, giving it all sorts of air pressure but not quantity, it cannot work. Very quickly you will be struggling to produce your tone. Just increase your volume of air not by blowing hard, but by blowing a much thicker quality of air. Very frequently the air column is just too thin."*

When a student comes to Jacobs, he always asks them their age, height and weight. Through experience, he determines their vital capacity [the amount of lung tissue with the physical capability of holding a certain volume of air]. Total lung capacity cannot be increased beyond what nature grants to a particular body. Only the elasticity of the lung tissue or chest wall can be increased.

The following charts based on a formula from the American Thoracic Society can determine an estimate of a person's vital capacity [in liters] based on height, age and gender.

### ***The Use of Breathing Devices***

To determine a person's actual vital capacity, a test is given to determine how much air [in liters] can be moved in or out of the lungs in a single breath. These tests are given on medical equipment such as a respirometer or spirometer. In 1982, Jacobs introduced to the music world the Voldyne®, an inexpensive medical device that can give an approximate reading up to five liters. There are two chambers—the larger [right] is to measure the air volume and the smaller [left] for air pressure.

To use, place the tube between the teeth over the tongue so as not to obstruct the air passageway. Inhale with a fast breath, keeping the ball in the pressure chamber as close to the top as possible. Watch the main chamber for the amount of air inhaled indicated by the top of the disk. There is a marker to manually mark the amount of air previously inhaled.

In hospitals, after determining both the estimated vital capacity [from the formulas] and the actual vital capacity [from pulmonary function testing], the ratio is reported. It is determined by dividing the actual capacity by the estimated capacity. If, for example, a person has an actual capacity of two liters and an estimated capacity of four liters, this person would have a capacity of 50 percent of normal. If there was an actual capacity of five liters and an estimated capacity of four liters, this person would have a capacity of 125 percent of normal. It is important to realize that wind musicians seem to have a higher than normal vital capacity.

Most wind players use less than one-half of their vital capacity when playing their instrument. Jacobs stated, "One of the difficulties, with men as well as women, is that the player rarely, if ever, uses all the usable air in their lungs. They may have a vital capacity of four-and-a-half liters, but that is not what they use. They use only a fraction of that capacity. A trained person might use 75 or 80 percent of their vital capacity, others will use half or less."

For those who are well under 100 percent of their normal capacity, Jacobs would have the student put down their instrument. While teaching music, he divorces remedial function matters from the actual playing of the instrument, and using a variety of external devices away from the instrument, seeks to develop new habits of breathing and air usage with his students.

Since the early 1960's, Jacobs has developed and used various gauges and other such devices to help the student. In 1982, he introduced to the music world some inexpensive devices that, for the first time, allowed the student to use their own equipment on a daily basis.

The simplest to use is the Breath Builder. Developed by Bassoonist Harold Hansen of Las Vegas, Nevada, the Breath Builder is a device used to feel the sensation of inhaling and exhaling. It is a tube of plastic [at least six inches tall] with a ping-pong ball inside. The bottom is sealed and the top has three holes drilled to vary the resistance.

To use the Breath Builder, place the tube between the teeth on top of the tongue. Next, get the ball to the top of the tube by either inhaling or exhaling, [which is easier]. Then hold the ball at the top of the tube while slowly inhaling and exhaling. The Breath Builder requires fourteen ounces of pressure to hold the ping-pong ball at the top of the column.

In use, visualize a string player bowing from frog to tip. Keep the motions of inhalation and exhalation as long as possible, increasing the length of the bow. Find the minimal function to keep the ball at the top. Look in the mirror and observe the body's motions to keep the wind moving with minimal effort. Exaggerate inhalation [expansion of the body] and exhalation [contraction of the body].

Next, lower the resistance by closing more of the holes on the top of the tube. Go for length of breath and mentally increase the length of the imaginary string player's bow.

Another device Jacobs used is the incentive spirometer, or Inspiron [Inspirix♦]. It is a device used in hospitals to give respiratory patients a visual demonstration of how much air they can inhale. While the instrument was designed for inhalation, if it is turned upside down, it can also be used for exhalation. There is a gauge to measure resistance, with the most open position providing the most resistance.

Place the tube between the teeth and on top of the tongue so as not to obstruct the air passage. With the gauge set to maximum resistance, inhale and move the ball to the top. If there is a problem, lower the resistance. Just before exhalation, turn the Inspiron upside down and when exhaling, move the ball to the top. Continue the inhalation/exhalation series.

Keep inhalations and exhalations as slow as possible and exaggerate. Next, lower the resistance and keep the cycles as long as possible. Reduce suction and control the ball. Observe the body motions in a mirror.

Another use of the inspiron is in conjunction with mouthpiece practice. Remove the large hose at the base, replace with a four-inch rubber hose, and place a mouthpiece in the other end. The Inspiron must be upside down [the exhalation position]. Adjust the resistance so the ball can remain in the up position while buzzing several notes on the mouthpiece. Imagine that the air supporting the ball is a fountain of water--its height will vary but it should not hit the bottom between notes. The object is to play throughout the range of the instrument while keeping the ball suspended. When moving into the high

range any attempt to increase pressure while decreasing the rate of air flow will cause the ball to drop. One of the most important uses of the incentive spirometer is to teach the relaxed low pressure/high flow rate concept of playing.

With any of these devices, remember that oxygen is being breathed in and hyperventilation can easily occur. Do only three or four inhalation/exhalation cycles in a row. When dizziness starts, rest for a few minutes and let the oxygen content of the blood return to normal levels.

Using a five or six-liter rubber bag, inhalation and exhalation can be practiced. Since the same air is breathed, carbon dioxide, rather than oxygen, is transferred avoiding hyperventilation.

Practice emptying and filling the lungs by slowly rebreathing air several times in a row. In this exercise the muscles of enlargement will learn to work apart from the muscles of reduction. It is important that the lungs go from extremes, empty to full. Rebreathing air from a breathing bag can be done repeatedly for about twenty seconds without discomfort.

An air bag can also be used as a rough gauge of a person's vital capacity. Another use is with an instrument. After a full inhalation, exhale into the bag filling it as much as possible. Hold the air in the bag with a finger over the tube. After positioning the instrument for playing, inhale from the bag and start playing the instrument. The bag gives a visually known quantity of air.

Now it is a good time to use the Voldyne♦ and check vital capacity again. There should be an improvement more towards the estimated vital capacity. At this point, exercise can continue or resume playing the instrument.

At this point, Jacobs will commonly set the marker on the Voldyne♦ to the highest point the student previously reached. While they prepare their instrument, he will hold the Voldyne♦ while the student inhales through it to the set point. Often the improvement in the resulting sound is dramatic!

Unfortunately, A musical phrase does not make a distinction with the lung capacity of the performer. Two players require roughly the same amount of air to play a specific phrase on the same instrument. A smaller person with only a three-liter lung capacity would have to take a full breath to get what a larger colleague with a six-liter capacity gets in a partial breath.

Observing Mr. Jacobs in masterclasses finds that results vary from student to student. By taking in deeper breaths, longer phrases can result with a flute student playing the introduction Debussy's *Prelude to the Afternoon of a Fawn* on a single breath. The tubist can sustain low notes longer in Wagner's *Ride of the Valkyrie* or the trumpet player can have a larger, darker sound in the *Promenade* to Mussorgsky's *Pictures at an Exhibition*. For those who are questioning their embouchure, the additional air volume to fuel the lip's vibration could rapidly solve their problems. The most important results are from older players who have been life-long shallow breathers. With age, vital capacity diminishes and many are having problems. By developing full inhalations, the result is commonly adding years to their career.

The use of these breathing devices shows Jacobs♦ multi-sensual approach to teaching, in this case for the most common problem that students came to Jacobs, respiration. He would use many external devices and have the student use these away from the instrument bringing in other senses. Sight by observing their body in front of a mirror or keeping a ball at the top of a chamber. Touch, by having the

student feel the body's motions. Feel, by blowing air in the students hand. Jacobs stated that with these devices, he could accomplish in weeks and months what would take years without.

### ***End of an Era?***

With the passing of Arnold Jacobs at the age of 83 on October 7, 1998 followed by the passing of his friend and colleague, Frank Crisafulli at the age of 82 on November 5, 1998, many believe this is truly the *end of an era*.

Condolences have arrived from all over the world. Many have stated "*Although I have never met Dr. Jacobs personally, I feel he has been a major influence on my life.*"

Robert Tucci, a Jacobs student, states "*Arnold Jacobs did not pass away, he only changed his address.*" Another student, Roger Rocco, commented to Dr. Jacobs, "*You will live forever because you taught your students well.*" I am sure that all Jacobs student would agree—we were fortunate enough to work with the master himself. Through us, the teachings of Arnold Jacobs will be used throughout the next millennium.

Is this the end of an era? Since Dr. Jacobs is physically no longer with us, it is the end of one era but it is the beginning of another era—he taught his students well and it is time we continue the Jacobs tradition.

On December 17, 1998, a *Tribute to Arnold Jacobs* was held in Chicago. Gizella Jacobs, Arnold's wife for over sixty years wrote, "*Letters from many who studied with him say that when they are playing or teaching, Arnold seems to be right therewith them, his voice guiding them. We must believe this is not the end of an era—but through them, the contribution of the Arnold Jacobs tradition and method of teaching will exist for generations to come.*"

It is impossible to put in writing all of the teachings of Arnold Jacobs. Nearly everything written here is excerpted from *Arnold Jacobs: Sond and Wind\** which is discusses the life and teachings of Dr. Jacobs. For further information, a listing of everything written about Dr. Jacobs is available at:

Frederiksen, Brian. "*Arnold Jacobs - A Bibliography.*" INTERNATIONAL TRUMPET GUILD JOURNAL 17, no. 4 (1993): 25-27