



Photo by Todd Rosenberg

# The Voice of the Bass Nightingale: An Interview with Contrabassoonist Susan Nigro

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## Introduction

*It was a daunting challenge for an oboe player to think about interviewing a contrabassoonist, and I certainly could not have prepared without the help of a number of wonderful bassoonists who have played the contrabassoon at some point in their careers. So, before beginning this interview, I wanted to thank all my colleagues who were willing to talk to me about the instrument, answer my numerous questions and help me try to wrap my brain around the contrabassoon. New York Philharmonic retired bassoonist **Leonard Hindell** was wonderfully helpful and has been a fantastic colleague, patiently tolerating my numerous bassoon and contrabassoon questions. Legendary bassoonist **Loren Glickman** was gracious and helpful in ways he probably didn't even realize. Retired Metropolitan Opera contrabassoonist **Toni Lipton** was instructive in a rather hilarious—and much appreciated—way. New York Philharmonic contrabassoonist **Arlen Fast** got me thinking about a lot of things in very different ways and helped me understand some technical design concepts that were eluding me. **Chip Owen** from Fox clarified a number of technical questions I might never have understood without his help. Dr. **Joel Evans** (retired concertmaster/principal oboe of the West Point Band) arrived one day to loan me his contrabassoon, complete with a pile of reeds and books. Joel's contribution to this project gave me a first-hand appreciation for what contrabassoon players do. Interviewing a contrabassoonist at the level of **Susan Nigro** left me with boundless admiration for fine contrabassoon playing.*

## Education

**Nora Post (NP):** *Before we plunge into **All Things Contrabassoon**, I wanted to ask you about your education. You have a Bachelors in Music Education and a Masters in Bassoon Performance from Northwestern University in Evanston, Illinois. Then you also have a Masters in Educational Administration from Chicago's Roosevelt University.*

**Susan Nigro (SN):** Yes. When I graduated from Northwestern, I took a job in the Chicago Public Schools. I am a retired schoolteacher now. Early on in my teaching career, I had an administrative opportunity to go along with my teaching, but I didn't have the credential for it. So, while I was teaching full time, I went to Roosevelt

part-time and got a Masters in Administration and Supervision. I taught for twenty years, teaching band and theory to high school students. Teenagers are great—they are terribly underrated—and I enjoyed working with them so much. The last twelve years of my teaching career were the most rewarding. I taught in a high school for physically handicapped teenagers. I was a band director and, believe it or not, I had a concert band of thirty-five disabled students. They were great. You can't think about what they can't do, you have to think about what they *can* do, about what is suitable, given their disability. For example, I had a tuba player who was hearing impaired. But he had only lost the upper part of his hearing, so he did just fine with the tuba. I had four bassoon players in my band. They were all in wheelchairs, but you sit to play the bassoon anyway, so it didn't matter. I had a young man who played the xylophone and had lost one arm in an accident. But he could play more notes with one arm than most people could play with two! After four years teaching there, I had the opportunity to become the assistant principal. So I finished my teaching career as assistant principal at that school. I retired from the Chicago Public Schools in 2008. I am now happily devoting myself to all my musical activities.



## Getting Started

**NP:** *Now, to the contrabassoon: One of your reviewers has described you as the Paganini of the contrabassoon. This is an eighteen-foot monster that weighs fifteen pounds—probably not the first choice of instruments for a lot of people. How did you get interested in the instrument and how did you get started?*

**SN:** Like so many other kids, I started with the piano. Then I had the opportunity to play in my school band, and I really, really, really wanted to play the trombone. But there weren't any trombones left, so the band director gave me the flute. I played the flute for two years and hated it. It's a wonderful instrument, but it just wasn't for me. When I got to high school I had the chance to switch to bassoon. I saw one sitting in the corner, no one was playing it, and so I asked the band director if I could play it. He was delighted. So I played the bassoon for four years. During my final year in high school, I became a member of the Chicago Youth Orchestra. I was last chair bassoon, since I was a latecomer to the bassoon and had less experience than the others. They needed a contrabassoon player, and that's how I got started.

**NP:** *Did you like it?*

**SN:** Not initially. I didn't really know what I was doing. And the first piece I had to play was Strauss' *Death and Transfiguration*. I can't even imagine what I must have sounded like! Then I enrolled at Northwestern University. I got into the orchestra, but



I was last chair bassoon again (since everyone else had a lot more experience than I did). That meant more contrabassoon, so I decided really to learn the instrument. That's when I got serious about it and started taking lessons on the contra. My teacher was **Burl Lane**, the contrabassoon player in the Chicago Symphony Orchestra. He became my mentor, my teacher and my friend.

**NP:** *He was my next question! But wasn't Wilbur Simpson the bassoon teacher at Northwestern at the time?*

**SN:** Yes. I started studying with him during my last two years of high school. I had won a competition and because of that I received a scholarship through the Union



Chicago Symphony contrabassoonist Burl Lane with Susan Nigro

League Club of Chicago. That paid for my bassoon lessons with him. He helped me get into Northwestern, since he was teaching there. So I studied with him at Northwestern, and also studied with Burl Lane privately.



Chicago Symphony bassoonist Wilbur Simpson with his Heckel bassoon, currently owned by Susan Nigro. The photo is inscribed by Simpson for Hugo Fox.

*Photo courtesy of Alan Fox*

**NP:** *Wilbur Simpson was a member of the Chicago Symphony, but wasn't Willard Elliott the principal at that time?*

**SN:** Yes. Simpson was second bassoon and Burl Lane played contra. The way all this happened for me was that I told Wilbur Simpson that I really, really wanted to become a contrabassoon player. Of course he thought I was kidding. Once I finally convinced him I wasn't joking, he told me that if I wanted to play contra, I should study with Burl Lane, since he was the expert.

**NP:** *And I would guess you probably weighed about 105 pounds at the time!*

**SN:** Well, maybe a *few* pounds more!

**NP:** *And Burl Lane has such an amazing reputation. He was the saxophone player with the Chicago Symphony for all those years as well, and was a fabulous saxophonist.*

**SN:** Yes. He played on all their major recordings—*Pictures at an Exhibition*, *Lieutenant Kije*—all the big saxophone pieces. While he was at The Juilliard School in New York, he studied saxophone with **Joseph Allard** and bassoon with **Harold Goltzer**. He was originally a saxophone player and then took up the bassoon later.

**NP:** *On the CD you recorded with him, there was a jazz piece at the end by Mike Curtis. It's really fantastic playing. Was Burl Lane playing the first part on that?*

**SN:** Yes he was.

## The Instrument

**NP:** *Once you decided to get serious about the contrabassoon, what did you do for an instrument?*

**SN:** Northwestern University had a couple of contrabassoons. I also played with the Chicago Civic Orchestra, and they also had an instrument. Northwestern had an old Buffet and a Heckel. The Heckel was really a lovely instrument, and that is what I played on. Chicago Civic had a Mollenhauer at the time, and I think they have a Fox now. So, I played on borrowed instruments for a number of years. I didn't get my own instrument until after I left Northwestern. My instrument is a Fox, made in South Whitley, Indiana. It's an early instrument—the serial number is thirty-seven (by now they have made almost eight hundred). It was manufactured in 1977. I was the original owner, and that's still the instrument I play.

I spent three wonderful summers as a Fellow at Tanglewood starting in 1976. By that point I was pretty tired of borrowing instruments, and decided I was going to buy one. So I had my own instrument by my second summer at Tanglewood. It took about six months for Fox to make the instrument. Back then, it cost about \$8,000 (I think it would be just under about \$40,000 now). Since I was working in the Chicago Public Schools, I could get a loan. I went to my bank and explained what I wanted to do. They didn't know *what* to do (\$8,000 was a lot of money back then) and the banker said, "Hey, what if we just give you a car loan?" That was fine with me. Instead



of the make, model and license plate for a car, I just wrote down the make, model and serial number for the instrument. It was a five-year loan.

**NP:** *Was your contra teacher Burl Lane also playing a Fox?*

**SN:** No. He was playing the Heckel that belongs to the Chicago Symphony. It's a wonderful instrument with a huge, resonant sound. One day I wrote down all the features he had on that instrument, and had Fox build me an instrument with similar keywork and a similar setup.

**NP:** *A quick question on the rest of your equipment. What are you using?*

**SN:** I buy gouged contrabassoon cane that I profile and shape. But I also play a lot of bassoon, so we should talk about that, too. In terms of orchestral playing, it's about 50/50 between bassoon and contra. But for solo work, it's almost 100% contrabassoon. My bassoon is the instrument that belonged to my first bassoon teacher, Wilbur Simpson. It's an old Heckel made in 1922 and it's my pride and joy. I love playing it. What I was going to say is that I try to make my bassoon reeds and my contra reeds as similar as possible in terms of shape, scrape and overall design. That way if I am switching back and forth in a Mahler symphony, for example, it's less of a shock to my system because one reed feels so much like the other one—just a bit bigger, but it isn't a completely different style. For many years I used a Knockenhauer shape for my bassoon reeds. It had a thinner throat, and I felt like I wanted to get more air through it. So I switched to a Fox #1; for me, it has a wider throat and better projection. My Heckel bassoon is number 5810. From what I have always been told, it is a long bore instrument.<sup>1</sup> Most of what is being made today is short bore. Being long bore, my Heckel plays the lower notes a bit lower in pitch, which is a very good thing for me, playing so much 3rd and 4th bassoon. And it turns out the Fox shape is quite similar to my contra shape, so it's worked out very well for me.

**NP:** *I wanted to ask about the instrument per se. There was so much experimentation with contrabassoon design throughout the 19th century until the time Heckel standardized things around 1880 or so. It's a fascinating history of some very eccentric instruments for which there was very little repertoire other than band music—mostly military band music—at the time. It's hard to believe, but some contrabassoons were actually played on horseback. Then there was a tritonicon made by Cérvány—it was actually a metal contrabassoon. Cérvány also made a subcontrabassoon—an octave below the normal contra. Although there are records of subcontrabassoons being exhibited during the second half of the 19th century, none have survived.<sup>2</sup> If I have this right, the instrument would go about an octave below a piano. Would that mean this would be the lowest instrument on the planet?*

**SN:** Yes, unless there are some other instruments I am not aware of. I have a colleague who is designing a subcontrabassoon. He is **Richard Bobo**, the contrabassoon player in the Tulsa Symphony. My only question would be what would be written for it, and where would it actually be used?

NP: *Good question. And there were so many other colorful experiments, too. There was a Georg Jacob Berthold & Sohne of Speyer-am-Rhein who made a papier-mâché contra!*<sup>3</sup> *There was the contrabassophone, there were metal contras—it's such a colorful history for an instrument with such minimal repertoire at the time. The history of contrabassoon design is certainly out there where the busses don't run—totally eclectic. But once Strauss heard the Heckel contra in 1879, things became more standardized and more composers (led by Strauss, of course) started to write for the instrument.*

### Contraforte and the Fast System

NP: *Let's talk about the contrabassoon of the 21st century. I wanted to ask you about Arlen Fast's system and also about the Wolf contraforte. Arlen Fast says the contraforte is basically a contrabassophone—a big bore with big tone holes.*

SN: Yes, I think he's got it exactly right. The contraforte is another instrument entirely. I have never played one—never even been in the same room with one. Let's imagine that conductors accept the instrument and someone can take a contrabassoon audition on it. My problem with it is that it is such a completely different instrument. It's not a bassoon. How will it blend with the bassoon section? You mentioned Strauss' *Till Eulenspiegel* when we were talking earlier. There's that bassoon quartet section. Will the contraforte really be able to be a member of the bassoon section in terms of timbre and playing along with the bassoons? I don't know. Not only is the contrabassoon a contrabassoon, but it's a member of the bassoon section, too, and it has to do what it has to do with the other three players.

NP: *Arlen also mentioned that the contraforte versus the contrabassoon is like the difference between a Heckelphone and a bass oboe. Since I've played both, I can tell you that no two instruments could be more different than a Heckelphone and a bass oboe. Yet, since they both have about the same range, some conductors consider them interchangeable. Have you played on the system developed by Arlen Fast?*

SN: Yes. Arlen Fast graciously invited me to try his instrument some years ago in New York. Because



Wolf Contraforte.  
Photo courtesy  
of Guntram Wolf  
Holzblasinstrumente  
GmbH, Kronach,  
Germany



there are so many differences in fingerings between his system of key work and the traditional one, I was having difficulties because I didn't know what the fingerings were. It would take time. What he has done is very worthwhile, and very masterful. For a player past the mid-point in their career (like me), I'm not sure it's worth making the switch. But for a young player just getting started, I think it would be great.

**NP:** *If I understand Arlen Fast's design for the contrabassoon, he replaces the keys that would be the "flicking" keys on the bassoon<sup>4</sup> with what we would call octave or register keys on another woodwind instrument. Is that correct?*

**SN:** Yes, I think so.

**NP:** *According to Arlen Fast, his Fast system contrabassoon has three octave keys with five vent holes.<sup>5</sup> The standard contrabassoon has two octave keys with three vent holes. While the standard bassoon has no octave keys at all, just the whisper key.*

**SN:** Correct. My contrabassoon has two octave keys. It's just the opposite of the bassoon, where the whisper key is used for the lower register. This is why people can get confused going from bassoon to contrabassoon. In some of the Mahler symphonies, for example, you have to go back and forth, and you've got to remember which instrument you have in your hands so you can remember what your left thumb is going to do! The contra is more like the saxophone or the oboe, because the octave keys are used only for the upper register whereas on the bassoon you use the whisper key to play from open F on down.

## Early Use of the Contrabassoon

**NP:** *Can you tell me a bit about the earliest uses of the contrabassoon?*

**SN:** The first piece I am aware of that used contrabassoon was Handel's *Music for the Royal Fireworks*. It calls for four contrabassoons, but of course it was an outdoor piece and was very loud. Mozart wrote for it only once in his *Masonic Funeral Music*. It was pretty much just a bunch of low Cs. Then there is the Mozart *Serenade for Thirteen Winds*. That piece is a big bone of contention between bass players and contrabassoon players. It's a continuing debate. We always contend that since it says it is for thirteen winds, obviously it should be played on the contrabassoon. But the string players argue that there is an indication for *pizzicato* and then *arco* in one of the minuets. We would argue that the composer wants the sound of a *pizzicato* or *arco*, but not



Photo by Todd Rosenberg

necessarily an actual string instrument. Conductors have solved the problem in different ways—some use the contra, some use the bass. Some use both. As you pointed out, it really started to be used during the time of Strauss. Mahler wrote wonderful contrabassoon parts. Shostakovich wrote some beautiful contrabassoon parts. And of course in contemporary orchestral literature, it is used most of the time.

And there are also some composers who never wrote a note for the contrabassoon, most famous among them being Tchaikovsky and Berlioz. Think about their music—think about the wonderful contrabassoon parts they could have written! That really gets under my skin, especially since Berlioz wrote the book on orchestration! What possessed him *not* to write for contrabassoon?

## Changing Instruments

**NP:** *Let's talk about logistics for a moment. What is it like to double on bassoon and contrabassoon? One of the things that fascinates me about the contrabassoon is how different playing it is from playing the bassoon. It is not like going from English horn to oboe, or from flute to piccolo. This is another animal altogether.*

**SN:** Right. For the contra player, one of the challenges is that so often you are doubling, playing bassoon as well. Most composers just don't give you enough time to change instruments. Typically you have something like two measures to do this. It's not enough time. Not only are you thinking about your reed and your embouchure, but you also have to physically set down the contra, pick up the bassoon, and put it in the strap. These are *big* instruments, and if you only have two bars to do this, you are already late! There are times where it is simply impossible to switch, and I play bassoon parts an octave higher on the contra or some contra notes an octave lower on the bassoon until I finally get to a spot where I can switch instruments. It's one thing to play the flute with a piccolo in your lap. It's another thing with bassoon and contra, where you have a lot of heavy artillery to shift around. The physical maneuvering is the problem. The *Rite of Spring* is a nightmare because there are so many fast changes, and of course it's all mixed meters, so you have to keep track of what is going on in the music while you are trying to switch instruments. There is a famous moment in the 2nd contrabassoon/4th bassoon part where Stravinsky has everything going at once: not enough time to turn the page, not enough time to change instruments, and mixed meters going the whole time. I wish composers gave us more time to switch instruments!

## Oddball Parts

**SN:** Sometimes the contra player gets parts for instruments other than the contrabassoon. The parts just wind up on your stand. Sometimes you get parts for the ophicleide, the sarrusophone or the serpent—all simply because no one knows who else to give these parts to.<sup>6</sup> Nine times out of ten it's OK. The sarrusophone and ophicleide are bass instruments, so you just play them the way they are written. The serpent is a strange instrument. I just played a concert last weekend with the Illinois



Serpent expert Douglas Yeo plays the contrabass serpent, also known as the Anaconda



The ophicleide



The sarrusophone and the contrabassoon

Philharmonic where I was given the serpent part to Wagner's *Rienzi Overture*. It didn't seem to fit well on the contra, so I decided to do a little research. Believe it or not, there is a serpent web page by Doug Yeo, the retired bass trombone player of the Boston Symphony. He plays the serpent, which is a wooden instrument with open finger holes like a recorder and a brass mouthpiece. It has the range of a baritone horn or a euphonium, so it's a baritone instrument—not a bass instrument. I talked to the conductor and we decided that this part would be too low on the contra, and so I played the part on bassoon. However, there is such a thing as a contrabass serpent, which has been nicknamed the *Anaconda*. It looks like a huge snake! So, something written for the contrabass serpent can be played on the contra, but a regular serpent part should ideally be played on euphonium or baritone horn, because the timbre and range of those instruments are more like the serpent. And the Mendelssohn *Reformation Symphony* has a serpent part. I've always played it on contra, but now I realize I should have been playing it on bassoon. Another serpent web site mentioned that when played well, the serpent adds an unusual resonance



to the sound of the ensemble, but when played poorly, it sounds like a large animal in distress.

### Contrabassoon Makers

**NP:** *There are at least seven makers who make contra bassoons. Of that group, I wanted to ask which ones are played in major North American orchestras. I would guess that would be Heckel, Fox and Mollenhauer.*

**SN:** Yes, but don't forget Püchner. The retired contra player of the Milwaukee Symphony—**Fred Snyder**—had a lovely Püchner contrabassoon with a big, beautiful sound.

### Making the Transition from Bassoon to Contrabassoon

**NP:** *What do you think are the most important attributes for a bassoonist who wants to start playing the contrabassoon?*

**SN:** My biggest consideration is attitude—someone who *wants* to play the instrument. There are too many “have to” contra players who have either been pushed into it or think it's the only way to get into an orchestra, or whatever. I always hope to find someone who really likes the instrument, wants to play it and is willing to put in the time to get really good at it.

**NP:** *What does a bassoon player have to do in order to become a good contrabassoon player?*

**SN:** Practice!! There are fly-by-night bassoon players who see there will be an audition for contrabassoon and they think: “Oh sure, I'll just pick up the contra.” But you really have to devote time and effort to it. It's just like English horn. No matter how good an oboe player might be, that doesn't mean they can just pick up an English horn and sound fantastic. It's not going to happen! With the contrabassoon, we have all those differences in fingerings—octave keys versus the whisper key, for example. All the upper octave notes on contra are fingered differently than on bassoon. In the lowest register of the contra, you add keys for resonance, which you don't do on the bassoon. You have to add the C# key for the low D, E and F. That makes everything project better, but you wouldn't do that on bassoon because it would change the timbre. In the middle register, you don't have to deal with the whisper key because you have octave keys. Then it's completely different fingerings when you get to the extreme upper registers. It doesn't go as high as the bassoon, either—at least not for the standard contrabassoon. But the Fast System has extra keys that enable it to play higher notes. The standard contra, however—which is what I play—goes to C# which is the third space in the treble clef, which is actually a sounding middle C#. That's usually the highest note on a contrabassoon without added key work, whereas a regular bassoon can go up to a high E or a high F. So the fingerings are one big difference, and so are the reeds. The other thing is the amount of air you have to put through it. The contrabassoon takes a *lot* more air than the bassoon. When you are

playing the contrabassoon, you are usually in the lower and middle registers. You have to listen so carefully to be sure everything is in tune.

The contrabassoon also has a different function in the orchestra than the bassoon does. One of the things I like so much about playing contrabassoon is that it's not always doing the same thing. Sometimes you are with the bassoons, sometimes you are with the lower brass, other times you are with the lower strings. Once in a while you get to do a nice solo like the one with the English horn in *Petroushka*. The contrabassoon wears a lot of different hats in the orchestra and it's very interesting playing it because of that. The bassoons are going to do what they have to do. But the contrabassoon skips around and does different jobs. You have to be flexible and you really have to listen. You have to be so careful in terms of blend, intonation and everything else. Be aware of who you are playing with, what your function is, and adjust accordingly.

## Intonation

**NP:** *Let's talk about intonation for a moment. Are the difficulties about the same as the bassoon?*

**SN:** You should play as well in tune on the contra as on the bassoon—there's no excuse for faulty intonation. But it does take time to learn all this. And if you are playing on borrowed instruments, you need to have time to familiarize yourself with the instruments and understand their quirks.

**NP:** *Do you find pitch is a challenge for you because the contra plays in such a low register, or is that just easy for you?*

**SN:** In the very beginning, it was hard because I just couldn't hear the low register that well. But after playing contrabassoon for so many years now, when I play something that's a little out, I usually know right away. But the conductors rarely notice because they aren't used to listening in such a low register. It's just what you are used to hearing, I suppose. And it takes time. Think about a piccolo player; to really be able to hear those pitches in the upper register, well, that takes time and training. With the contra, you just learn to listen and to get it in tune. Of course you can do a lot with reeds and bocals. And many contrabassoons are not of the best quality, so that adds another level of difficulty. When you take a student and give them a contra that has a lot of inherent problems, well, that just multiplies the challenges. For example, early on in my contrabassoon days, when I had to play Strauss' *Death and Transfiguration*, I had an old borrowed instrument that leaked like a sieve, and of course the beginning of that piece has to be so quiet. I had handkerchiefs stuffed up the bell trying to get it to play soft enough! Of course, that just added to the pitch problems...

**NP:** *You said the contrabassoon takes more air. Can you tell me about your approach to support and breathing on the contrabassoon as opposed to the bassoon? And the contrabassoon is, relatively speaking, a more unwieldy instrument. How do you deal with that, too?*

**SN:** About the air thing, while I was still in the Chicago Civic Orchestra, I studied for about two or three years on and off with Arnold Jacobs,<sup>7</sup> the renowned tuba player of the Chicago Symphony.

### **Arnold Jacobs**

**NP:** *Color me very impressed; he taught everybody who was a serious musician in Chicago! And that included Ray Still, not to mention most of the divas in Chicago Lyric Opera. It seems like everyone went to him.*

**SN:** You bet, and he taught me a *lot*! I worked with him in my twenties, after I was out of college. I was really too old to be a student, but he had students of all ages, so he didn't care. I went to him because I was running out of air too often on the contra. Our lessons went way beyond the breathing thing after a while, because he was such a wonderful musician. He had all these tubes and gauges and bags and machines you would be breathing in and out of—anesthesia bags and whatever. He had a studio in downtown Chicago in the Fine Arts Building, and it looked like a medical laboratory (except for the row of tubas sitting in the back). So I would arrive, he would measure my lung capacity, of course, and he helped me so much. You cannot increase your lung capacity. You've got what you've got, and it decreases as you get older. But you can make better use of what you've got. I am fortunate to have about a four-liter lung capacity, which is a lot for a woman. Most women have three or maybe three and a half. Arnold Jacobs helped me to use my lung capacity to the fullest; he was such a huge help to me. I remember coming in once and playing the *Mother Goose Suite* for him. It starts out in the middle register, then the lower register is nice, but as you continue on, it gets higher and higher. I got to a certain point where he said, "Whoa! Stop! What happened?" I hadn't made a mistake, but he said my tone had really thinned out. I replied by explaining that this was because the passage was in the upper register, and he said the audience doesn't care, and that I had to find a way to make the high register sound just as good as the very beginning. Of course, if you were studying with another bassoon player, they would just let it go because they would understand what the problems were, but he wasn't going to let me get away with that! So he helped me think about sound on the contrabassoon in an entirely different way. It had to be homogeneous from the upper register all the way down, instead of compartmentalizing the sound according to registers. He was very persistent; he stayed on my case. He also taught me how to double and triple tongue. Brass players do that all the time, but not as many woodwind players do. Double and triple tonguing are very handy on both bassoon and contrabassoon. I always list Arnold Jacobs among my teachers because he had such a big impact on my playing.





Chicago Symphony Orchestra tuba virtuoso Arnold Jacobs (1915-1998).  
*Photo courtesy of the Rosenthal Archives of the Chicago Symphony Orchestra*

## Opera

**NP:** *I wanted to ask you about something completely different—opera. The use of the contrabassoon in opera is different from its use in the orchestra—it's like you are almost always a soloist in the opera.*

**SN:** Yes, like Verdi's *Don Carlo*, for example.

**NP:** *Elektra, Salome, Wozzeck—the works. Those are big contra parts. Can you tell me what some of the differences are in how the instrument is used in the operatic repertoire versus the orchestral repertoire?*

**SN:** Well, there are simply more solos for contrabassoon in the opera than in the orchestra. If you are going to play contra in the opera, nine times out of ten, you are going to have exposed passages. That's not always true when you are playing in an orchestra. In a Mahler symphony, for example, much of the part is *tutti*. In the opera pit, though, solos are solos, and you really have to pay attention and be able to balance everything with whatever is happening on stage. You aren't your own entity—you've got to follow the conductor, who is also following what is happening on stage. You are a piece of the puzzle rather than doing your own thing.

**NP:** *How about those pianissimo contrabassoon solo entrances in opera? Do you have the same demands in orchestral repertoire?*

**SN:** Not quite so much, because in a bigger orchestra, you don't have to play quite as softly as in an opera orchestra. By its very nature, an opera orchestra has to stay under the singers so it doesn't cover them up. By the way, I'm not one of those one-reed-works-for-everything people. If I have to play Strauss' *Also Sprach Zarathustra*, for example, I'll have a special reed that will play that first low C nice and soft. I would certainly make a different reed for an opera than for a Mahler symphony, for example.

**NP:** *Can we compare orchestral playing to solo performances? With orchestral repertoire, you have to play whatever comes up. But with your solo career, one of the great pleasures is that, for the most part, you can play whatever you want to play.*

**SN:** Right. If you don't like it, you don't have to play it! It's much easier for me to play a recital than it is to play a week with an orchestra. I've picked the pieces, they are pieces I've worked on and that I like, so of course I feel confident and I enjoy playing them. So I don't get nearly as nervous about playing a recital as playing a week with an orchestra where they are doing a really tough piece.



Photo by Todd Rosenberg

## The Untaught Instrument

**NP:** *How about the physical attributes of the player? You are anything but huge! How does size fit into all of this?*

**SN:** It's funny that you bring up that point. When I first started playing contra, I had trouble lugging it around because it is so heavy. At that point I started a program of exercises that I do to this day. I do the Royal Canadian Air Force exercises every morning. They help keep me strong enough to carry the instrument around (and often it's both the bassoon and contrabassoon at the same time), and also keep me in shape to play it. The contra requires a lot of strength because there's a lot of blowing, a lot of air in and out, and you are forever picking up the contra and the bassoon, carrying them onto the stage, into the pit, whatever. But as long as someone is willing to do what it takes to stay strong and in good shape, I don't think physical size is an issue.<sup>8</sup>

**NP:** *And what does the beast weigh?*

**SN:** The contrabassoon itself weighs about fifteen pounds. I like to carry it around locally in my gig bag, which only weighs about two pounds. The hard case weighs about fifteen pounds, so there you've got thirty pounds. If you are putting it in a shipping trunk, that can weigh anywhere up to 100 pounds plus, in which case you need to have wheels on it.

**NP:** *How about hand size?*

**SN:** I was blessed with large hands, so that's never been a problem. Fox has a short reach bassoon for people with smaller hands, so the third finger of the left hand has a key rather than a hole. But on a contrabassoon it's all keys rather than holes, so you don't have to cover them dead center like you would on the bassoon. If you just catch the edge of the key, that's enough to get it to close, so it's a bit more forgiving.

**NP:** *One of the people I spoke to in preparing for this interview was Chip Owen, the contrabassoon guru at Fox. He made a very insightful comment, saying that the contrabassoon is the most untaught instrument in the orchestra. Would you agree?*

**SN:** Yes.

**NP:** *Talking about the untaught, I was talking with Loren Glickman, and his first job was as contrabassoon in the Rochester Philharmonic while he was a student at Eastman. He said he never had a lesson on the instrument in his life. He played bassoon for the audition, and didn't even have to play the contra for the audition. The same thing happened to Toni Lipton, who played contrabassoon in the Met Opera for decades. She had an awful experience playing contra in the Eastman Wind Ensemble (terrible instrument, terrible reeds and no instruction), and swore she would never touch it again. Then the opening came up in the Rochester Philharmonic, and she figured that on balance, playing contra in the Rochester Philharmonic was better than washing dishes at the*



*Eastman dormitory, which was what she had been doing for extra money at the time. And she ended up loving the instrument, playing it so beautifully in the Metropolitan Opera for so many years.*

*Now I may have this all wrong, but it seems to me that a lot of the bassoonists in the major orchestras—and most importantly in the major teaching positions—don't play contrabassoon at all, which I suspect is the reason for Chip Owen's comment that the contra is the most untaught instrument in the orchestra.*

SN: That's true.

NP: *OK. Yet they've all probably got students who are going to have to play this instrument. Gulp. But let's change the channel and let's say an oboe player gets serious about the English horn. They can go to Juilliard and get a degree in English horn. Does any university offer a degree in contrabassoon?*

SN: I've never heard of any university offering a degree in contrabassoon. I've always told people that the contrabassoon is like Rodney Dangerfield—it just doesn't get any respect! That's just part of the bigger picture—people don't teach it, they figure you can play it well enough to get along.

NP: *There's something I would like to add in here. In going from oboe to English horn or oboe d'amour, for example, it's pretty straightforward other than a different reed. The fingerings are virtually identical and if you had never played an English horn, you would probably be able to at least get around the instrument within an hour. Ditto for the flute family, clarinets, and saxophones. What really struck me about the contrabassoon is that of all the woodwind instruments, it's the most difficult in terms of the transition from bassoon to contra. All of that at the same time people aren't really taught how to play the instrument—yet there is no woodwind instrument where it is more needed!*

SN: That's so true.

NP: *Let's talk about the deterrents to playing the contrabassoon! In typical oboe player fashion, I actually came up with a list, and you already mentioned one of them, which is schlepping the thing around. Then there is cost.*

SN: And the cost of travel! If it goes with you on a plane, it needs its own ticket, so it's two airfares instead of one.

NP: *And from I can understand there is a big difference between instruments of the different manufacturers, so I am guessing that you are making up a pile of fingerings for each specific instrument.*

SN: Absolutely. And even within the same manufacturer, design changes are made even on the same model, and you have to learn to adjust for all of that.

NP: *We were talking about acceptance of the contrabassoon earlier, and I wanted to mention something Loren Glickman mentioned to me. In the history of the Glickman Popkin Bassoon Camp—nearly forty years—they have never*

*invited a contrabassoon specialist. I can only assume that there would not be enough interest to justify inviting someone. Yet Tom Stacy and Carolyn Hove have produced wonderfully successful English horn camps for decades. What a huge difference....*

SN: I'd go if they asked me! In my own career, I've had issues trying to schedule recitals, recordings, etc. When people find out you play contrabassoon, they can be a bit less cooperative. I first started playing solo recitals twenty-five years ago in 1990. At the time, it was groundbreaking. And there is much less of a concerto repertoire for contrabassoon, so you have fewer pieces to offer. Not only that, but the orchestras are concerned that a composition for contrabassoon and orchestra won't have audience appeal. That goes for recordings, too. God bless **Peter Christ** with Crystal Records. He was the first one who gave me a break. My first CD was with him twenty years ago in 1995.<sup>9</sup> Fortunately it was successful, and now we have done six more. Then there was one with Gunther Schuller's recording company, so I have eight CDs out now.

## Contrabassoon Commissions

NP: *Do you have any idea how many pieces you have commissioned over the years?*

SN: Forty-one.

NP: *With all those pieces, how did you handle the finances? I'm guessing that little or no money changed hands in these projects.*

SN: Well, if you look at the list of commissions on my web site, none of the composers are truly famous. I did pay them all *something*, just to be sure that it was legitimately a commission. But it was more important to the composers that I premiered the piece, and that they got a recording of it. Many of those pieces have also been published now. Most of the commissions were maybe a few hundred dollars. What often happens is that a composer comes across my web site, wants to write something for me and contacts me. It's not just about the money—there are other things than can make it worthwhile for the composer.

The contrabassoon needs more repertoire. So this is a somewhat altruistic project on my part, simply because we need more pieces written for the instrument. We need to get the younger composers and conductors—who are the future of music—interested in the instrument.

## Scott Joplin

NP: *One of your recordings that really fascinated me was the Joplin ragtime recording. His life was so completely tragic. He was born right after the Civil War, his father had been a slave, there were no records of where or when he was born, and it all went downhill from there. He died of syphilitic dementia in Harlem, a destitute failure. He was buried in an unmarked pauper's grave in Elmhurst, Queens, here in New York.*

SN: Right. I went to visit his grave last summer, when I was in New York for the IDRS. The name of the cemetery is St. Michaels in Astoria, Queens. I had the afternoon off, so I took the subway to Queens, and went to the cemetery office. I asked the woman if she could tell me where Scott Joplin was buried, She told me to come over to where she was and look out the window. She asked me if I could see two huge trees about a quarter of a mile away. And could I see the enormous pile of flowers about half way between them? That was where he was buried. I sat by his grave for a long time.

NP: *You certainly know this, but the marker on his grave wasn't put there until 1974. Joplin died depressed, miserable and broke in 1917. He received a posthumous Pulitzer Prize in 1976, almost sixty years after he died. How did you get interested in his music? And how did you wind up playing at the Joplin Festival in Sedalia, Missouri?*

SN: I played at the Joplin festival last June. I had a ball. Not just playing, but hearing all those wonderful ragtime performers. That opened up a whole new world for me—those ragtime players are wonderful!

Remember that I grew up on the South side of Chicago. I was always hearing jazz, and Gospel music, we had African Americans living side by side with everyone else, and that was my background. Both my parents were amateur musicians. My family was originally from Salerno, Italy, and my father played the trumpet. It's amazing I didn't end up as a brass player.



Scott Joplin's grave in Elmhurst, New York

But anyway, when I was playing recitals, I would often play an encore. I managed to find two Joplin pieces arranged for bassoon and piano. One was *Bethena* and one was *The Entertainer*.<sup>10</sup> So we did one recital where we got polite applause for everything. Then we played *The Entertainer* as an encore, and the audience liked that better than anything on the program! We started playing more Joplin music, I was developing an affinity for his music, and I found arrangements for bassoon or cello. So I decided to do a recital of Scott Joplin music. I have worked with my accompanist **Mark Lindeblad** for twenty-five years now. He is also a bassoonist, so he really gets it, although I have to say Joplin is not usually easy for the pianist! The first Joplin recital was in 2013. We specified that we wanted an upright piano. Of course that was the timbre Scott Joplin knew. But the music school we were playing at was really upset because they had just bought a beautiful grand piano. We showed up for the concert and there was the grand piano on the stage. I looked around, and there was an old, beat up upright piano at the back of the auditorium against a wall. It turns out it was used for the music theory classes, and was tuned regularly. So we got the upright onto the stage and that was what we used. All the Joplin recitals I have done have been with an upright piano except for one, where an upright simply wasn't available. But for me, the whole thing is in the feel. An upright has a different timbre than a grand piano, probably because there is less fundamental and more overtones. It's almost out of tune, but not quite!

Of course, when we played at the Scott Joplin Festival, there must have been over a hundred upright pianos! I did three thirty minute sets over three days at three different locations. I understand now that the ragtime world is really its own entity. It's 99.9% pianists, and these people can really play! Not just technically but stylistically, as well. They are really good, and it's amazing. Of over a hundred artists who performed, there were only four of us who were not pianists. Of course, no one had ever heard Joplin's music on a contrabassoon, and everyone was talking about it. I want to arrange more Joplin music for contrabassoon, and I would like to do a second recording. In the meantime, Scott Joplin has become my favorite composer—he's replaced all the others I always revered so much. So, Joplin is at the top!

You know, after Joplin received his posthumous Pulitzer Prize, it was ASCAP that finally put the marker on his grave. When the marker was installed, ASCAP hired a marching jazz band to play a graveside cemetery tribute. So while ASCAP was putting the stone down, that band was playing a concert of Joplin's music.

People ask me why I am doing this, and the answer is simply because it's such good music. Just after I had released the recording, I found the website for the Scott Joplin Festival. I contacted them and sent a letter and a CD. It turns out it's run by a veterinarian who is a wonderful ragtime pianist, and he invited me to play at the festival. My accompanist Mark Lindeblad came with me, and we dressed in period clothes for the event. Mark's favorite page-turner happens to be a seamstress, so she made us shirts just like Joplin wore. We had garters on both arms, and Mark had a top hat and suspenders. Joplin always wore dark brown pants, so that's what we wore. A lot of people at the festival were in period clothes; they looked like they were out of the 1890s.



**NP:** *Before we leave the subject of Joplin, there's one piece on your recording where you stomp your feet on the floor in a couple of places. It's absolutely charming! What piece is that?*

**SN:** It's *Rag-Time Dance*, and the foot stomps show up as arrows above the staff of notes.

**NP:** *Beautiful. What other projects to you have up your sleeve?*

**SN:** In addition to freelance work, recitals, solo appearances and recordings, I want to commission more pieces, working with more young composers. It's important for me to help composers understand what is possible and what is not on the contra. I think a lot of composers underestimate what the instrument can do. Some don't write such interesting parts for the contra because they don't understand the capabilities. I'm trying to work with the next generation of composers so that we will have more repertoire. My goals are that music will be programmed for the contrabassoon and that more people will be interested in playing it. I frequently give master classes when I travel to play, and I hope that helps.

**NP:** *Aren't you also a member of the Chicago Bassoon Quartet?*

**SN:** Yes. It's actually the reincarnation of a group I had in the 1980s that dissolved as all the other members left town for various reasons. So, a couple of years ago I decided to revive the group. It's all women, we started up again in 2014, and we have given about six concerts now. We just booked a job for the Chicago Botanical Gardens next summer. I double as fourth bassoon and contrabassoon. There is so much repertoire for bassoon quartet—we have over 100 pieces in our library. We had two pieces written for us last year, so we are starting to commission pieces for the quartet. The Chicago Double Reed Festival was started in Chicago a year ago, and that happens at Ravinia.<sup>11</sup> The Mid-West Young Artist Guild sponsors it. So, for the first two years of our new reincarnation, we have been the resident ensemble for that double reed festival. The entire bassoon section of the Chicago Symphony also plays and gives master classes, so everyone gets to hear from the very best.

**NP:** *It seems to me that you are a very, very busy lady....*

**SN:** Well, I do what I can. It's really so simple. I want people to listen to the contrabassoon, to like it, and to give it more acceptance. That's really all there is to it. I would like to see the contrabassoon have the same stature as the English horn, the bass clarinet or the piccolo.

## **Temperament of Bassoon Players**

**NP:** *Before we finish up, can you describe for me the temperament of bassoon players? Are there any generalizations you have found?*

**SN:** Yes. Bassoon players tend to be a very fraternal group. They are more laid back than oboe players (no offense!), particularly contrabassoon players. We are such a clique. We have a ContraBand that plays at every IDRS. There were twenty-two

of us at the 2014 IDRS in New York. **Harry Searing** was in charge, and he's a nice, laid-back, fun-loving guy. Look at Lenny Hindell—a friendly sweet guy with a great disposition. It's pretty much that way across the board.

**NP:** *That reminds me of a comment Loren Glickman made. He said he never met a bassoon player he didn't like. And he has certainly is one person who has met armies of bassoon players because of his bassoon camp over the decades!*

**SN:** There you go!

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## Endnotes

- 1 I inquired with the Heckel bassoon factory about Susan Nigro's bassoon, and received the following response from **Edith Reiter**, the author of *Wilhelm Heckel, Six Generations Dedicated to Music*: "Susan Nigro has a Heckel bassoon that was made just at the time we changed the bore diameter from small bore to middle bore and later to wide bore. That was done to reach a fuller sound. I could not find notices for each special instrument, but maybe her Heckel bassoon is already today's wide bore." Edith Reiter of Wilhelm Heckel GmbH, Wiesbaden, Germany, excerpt from an email to the author, January 4, 2016.

Chip Owen of Fox Products shared some fascinating comments about the different bore designs of Heckel instruments. "Long bore bassoons were made by Heckel primarily in the 1920s while short bore bassoons were made primarily in the 1930s. Long bore instruments tend to have a darker voice and are better in tune, while short bore bassoons have a slightly brighter voice—which provides the illusion of projecting better—with a sharp low register. The bottom line is that Wilbur Simpson's instrument would probably have been made at modern pitch A:440 pitch with the performance qualities of a long bore bassoon. That being said, attempting to explain the differences between long and short bore bassoons is not easy. Doing it briefly is impossible, at least for me. The adjectives oversimplify the differences. They also ignore all of the other variables that contribute to the differences between those two types, as well as ignoring other styles of bassoons.

Both styles were made by Heckel prior to World War II. The change from small (A:435) to middle bore (A:440) happened about 1920. The long bore style is the older of the two with dates of manufacture in the 1920s being typical, while the short bore emerged in the 30s. The challenge is determining exactly when the styles changed, and I doubt that a date certain is possible for that. Both use "standard wall" designs, as opposed to the "thick wall" designs that came into existence in the 1950s. Standard wall designs have more clarity in their voices as opposed to the thicker and huskier voices of the more modern thick wall instruments that dominate the professional bassoon market today. The long bore began at a time when orchestral pitch was usually at or below A:440. The short bore was needed later for orchestras that were using higher pitch levels. There

is an actual physical difference in the bore lengths of the two types. The wing joints changed only slightly. More change results from shortening the boot joint, where the change is effectively doubled by the folded bore. The bass joint was also changed significantly. One of the effects of these shortened joints was that the low notes on the short bore instruments tended to be noticeably sharp, while on the long bore instruments the low notes are usually well in tune.

Edith Reiter's short bore is the A:442 instrument in the wide bore and thick wall design that her father (Franz Groffy) created. This occurred in the early 1950s. That's different from long bore and short bore style bassoons as defined by **Alan Fox**, which were the middle bore and standard wall instruments being made in the 1920s and 1930s. Edith Reiter is using definitions based on the manufacture of these instruments. Alan Fox's definitions are based on the sounds of instruments made during specific decades. Edith Reiter began her apprenticeship at Heckel in 1953 and would be more aware of the technical differences. Alan Fox's definitions are based on hearing his father **Hugo Fox**, during his tenure as principal bassoonist of the Chicago Symphony from 1922 to 1949, playing the long bore style instrument throughout Alan's youth." Chip Owen, email messages to the author, January 4, 2016.

- 2 Contrabassoonist Richard Bobo writes: "To the best of my knowledge, both references you mention trace back to a metal *contrabasse-a-anche* type instrument in B $\flat$ , with a range down to AO, and built by the Czech instrument maker Cérvány. My understanding is that the instrument was first exhibited in 1867, listed in Cérvány's catalogue in 1873, and exhibited again in Paris in 1889." Richard Bobo, email message to the author, December 27, 2015.
- 3 Located in the Historical Music Museum of Wilhelm Heckel, Wiesbaden, Germany.
- 4 For non-bassoonist readers, Chip Owen of Fox Products graciously offers an explanation:

"Flicking (also "snipping") is a technique that uses brief openings of the register vents (octave keys). The technique of flicking is unique to bassoons. Other woodwinds rely on sustained opening of register vents, where the register vent hole is kept open for as long as the note(s) are played. Flicking opens the vent very briefly only to initiate the note rather than to maintain the note."

Chip Owen, email message to the author, January 4, 2016.

- 5 Telephone conversation with the author, January 18, 2016.
- 6 Here is a very brief summary of the instruments Nigro mentions:

The conical bore serpent family of instruments (claimed to have been invented in France in 1590) has its origins with the cornett family and is, in fact, a type of basso cornetto. It is usually made of walnut, and is covered with leather on the exterior. It is truly a hybrid instrument; it has finger holes like a woodwind, but because it has a brass mouthpiece, it is classified as a brass instrument. It was largely replaced during the 19th century by the ophicleide, and then replaced once again by the valved bass brass instruments such as the tuba and the euphonium. It is considered a distant relative of the modern tuba. The instrument has experienced

a revival in recent years. Simon Proctor's *Serpent Concerto*, for example, has been played by Douglas Yeo (retired bass trombonist of the Boston Symphony, currently Professor of Trombone at Arizona State University) with the Boston Pops under the direction of John Williams. Douglas Yeo's serpent website is a treasure trove of information about the instrument: [www.yeodoug.com](http://www.yeodoug.com)

The members of the sarrusophone family are conical bore, metal instruments. The sarrusophone (invented in France in 1856) was originally designed to be played with a double reed. It was intended to replace the oboe and bassoon for outdoor wind music, since it was much louder than either instrument. Later, single reed mouthpieces were developed for the sarrusophone that resemble saxophone mouthpieces.

The ophicleide family of instruments (invented in France in 1817) are conical bore keyed brass instruments belonging to the bugle family. The ophicleide is played with a cupped mouthpiece that is most similar to a trombone or euphonium mouthpiece; it often replaced the serpent. The bass ophicleide is the most common instrument of the ophicleide family, being scored for in a number of 19th century works. There is also a contrabass ophicleide, although only a few of them are extant.

- 7 Arnold Jacobs (1915-1998) was the renowned tuba player for the Chicago Symphony from 1944 through 1988. He was one of the most sought after teachers in the world when it came to breathing for woodwind and brass players, as well as singers. He taught at Northwestern University, as well as internationally. The recipient of more distinguished awards than can be listed here (including two honorary doctorates), Arnold Jacobs was truly in a class by himself. In celebration of the 100th anniversary of his birth, the Fall 2015 issue of the *International Tuba Euphonium Journal* published an article written by Frank Byrne and Michael Grose: *Two former students reflect on the legacy of Arnold Jacobs*. The Chicago Symphony Orchestra web site posted a reprint of the article on December 5, 2015. It can be found at <http://csosoundsandstories.org/arnoldjacobs/>
- 8 Striking me as more than sheer coincidence, retired contrabassoonist of the Metropolitan Opera Toni Lipton gave a recent interview in which she described her current weightlifting activities. Her women's team in Santa Fe, New Mexico just won the National Masters Weightlifting Competition. For details, see *Humans of the MET: Toni Lipton*. Interview with Katherine Anderson, June 18, 2015. [www.Metorchestramusicians.org](http://www.Metorchestramusicians.org)
- 9 For more information on Sue Nigro's recordings, go to [www.crystalrecords.com](http://www.crystalrecords.com). Click on Bassoon or go to [www.crystalrecords.com/susannigro.html](http://www.crystalrecords.com/susannigro.html). The most prominent place where Nigro's CDs are available on the web is amazon.com. All of her recordings are available for download on iTunes.
- 10 Scott Joplin, *Bethena* and *Entertainer*, arranged by Pat Goddard (Spartan Press Music Publishers, 1998). There is also a collection of eight Joplin pieces for cello and piano: Scott Joplin, *Ragtime Favourites*, arranged by Colin Cowles (Fentone Music, 2004).



- 11 Ravinia, located in Highland Park, Illinois, is North America's oldest music festival, dating back to 1904. It is the summer home of the Chicago Symphony Orchestra.

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### Susan Nigro Discography

*The Big Bassoon.* With Mark Lindeblad, piano. Crystal CD346

*Little Tunes for the Big Bassoon.* With Mark Lindeblad, piano. Crystal CD348

*Bellissima.* With Mark Lindeblad, piano. Crystal CD845

*Joplin Tunes for the Big Bassoon.* With Mark Lindeblad, piano. Crystal CD848

*The 2 Contras.* Burl Lane and Susan Nigro, Chicago Symphony contrabassoonists.  
Crystal CD349

*New Tunes for the Big Bassoon.* With Mark Lindeblad, piano. Crystal CD843

*Original Tunes for the Big Bassoon.* With Mark Lindeblad, piano. Crystal CD847

*The Bass Nightingale.* With Russell Hodgkinson. GM Recordings. GM2069.



Photo by Todd Rosenberg

# Contrabassoon Fingering Chart by Susan Nigro

## CONTRABASSOON

Susan L. Nigro

### FINGERING CHART



→ Names of Keys in (Parenthesis) are Optional—to be added to achieve better timbre & resonance.

Key Signature	Left Hand	Right Hand
C	1 2 3 4 5	1 2 3 4 5
G	1 2 3 4 5	1 2 3 4 5
D	1 2 3 4 5	1 2 3 4 5
A	1 2 3 4 5	1 2 3 4 5
E	1 2 3 4 5	1 2 3 4 5
B	1 2 3 4 5	1 2 3 4 5
F	1 2 3 4 5	1 2 3 4 5
C#	1 2 3 4 5	1 2 3 4 5
G#	1 2 3 4 5	1 2 3 4 5
D#	1 2 3 4 5	1 2 3 4 5
A#	1 2 3 4 5	1 2 3 4 5
E#	1 2 3 4 5	1 2 3 4 5
B#	1 2 3 4 5	1 2 3 4 5
F#	1 2 3 4 5	1 2 3 4 5
C	1 2 3 4 5	1 2 3 4 5
G	1 2 3 4 5	1 2 3 4 5
D	1 2 3 4 5	1 2 3 4 5
A	1 2 3 4 5	1 2 3 4 5
E	1 2 3 4 5	1 2 3 4 5
B	1 2 3 4 5	1 2 3 4 5
F	1 2 3 4 5	1 2 3 4 5
C#	1 2 3 4 5	1 2 3 4 5
G#	1 2 3 4 5	1 2 3 4 5
D#	1 2 3 4 5	1 2 3 4 5
A#	1 2 3 4 5	1 2 3 4 5
E#	1 2 3 4 5	1 2 3 4 5
B#	1 2 3 4 5	1 2 3 4 5
F#	1 2 3 4 5	1 2 3 4 5
C	1 2 3 4 5	1 2 3 4 5
G	1 2 3 4 5	1 2 3 4 5
D	1 2 3 4 5	1 2 3 4 5
A	1 2 3 4 5	1 2 3 4 5
E	1 2 3 4 5	1 2 3 4 5
B	1 2 3 4 5	1 2 3 4 5
F	1 2 3 4 5	1 2 3 4 5
C#	1 2 3 4 5	1 2 3 4 5
G#	1 2 3 4 5	1 2 3 4 5
D#	1 2 3 4 5	1 2 3 4 5
A#	1 2 3 4 5	1 2 3 4 5
E#	1 2 3 4 5	1 2 3 4 5
B#	1 2 3 4 5	1 2 3 4 5
F#	1 2 3 4 5	1 2 3 4 5

