

**A PROFILE OF CHARLES M. RUGGLES,
BUILDER OF HAND-CRAFTED MECHANICAL ACTION ORGANS**

by

Mark A. Herris

Submitted to the faculty of the
Jacobs School of Music in partial fulfillment
of the requirements for the degree,
Doctor of Music
Indiana University
May 2016

Accepted by the faculty of the
Indiana University Jacobs School of Music,
in partial fulfillment of the requirements for the degree
Doctor of Music

Doctoral Committee

Janette Fishell, Research Director

Christopher Young, Chair

Eric J. Isaacson

Elisabeth Wright

April 6, 2016

Copyright © 2016

Mark A. Herris

Dedicated to
Christy, Ryan, and Sam

Acknowledgements

I am thankful for all of the support I have received in completing this project. It has been an honor to work extensively with Charles M. Ruggles over the past several months, and this project would not have been possible without his substantial support and time.

I would like to thank my research director, Professor Janette Fishell, for her feedback and direction as this project came to fruition. I cannot thank her enough for challenging me to do my best. I am also indebted to Professors Christopher Young, Eric J. Isaacson, and Elizabeth Wright for graciously agreeing to serve on the committee for this paper.

I am grateful for my organ teachers who have helped me get to this point, including Christopher Young, Craig Cramer, Gail Walton, and Jack Vogelgesang. I would like to acknowledge David Kazimir and Bob Finley for their assistance in developing my understanding of organ building. Special thanks goes to Leslie Weaver for her expeditious editing of my paper. Thank you to Bob Thompson, Charles M. Ruggles, and others who provided the photographs for this project. I am also indebted to Rev. Todd Outcalt, Rev. Harold Leininger, Charles Goehring, and members of Calvary United Methodist Church of Brownsburg, Indiana, for their encouragement and prayers. Thank you as well to the numerous churches, including their pastors, music directors, and staff members, for allowing me access to their exquisite organs and facilities.

Most of all, I would like to thank my wife, children, and parents for their support and patience as I completed this project.

Table of Contents

Acknowledgements	v
Table of Contents	vi
List of Figures	vii
List of Tables	ix
List of Appendices	x
Chapter 1 : Introduction	1
Chapter 2 : The Organ Reform Movement	3
Chapter 3 : Charles M. Ruggles: Youth and Education	8
Chapter 4 : Charles M. Ruggles: Apprentice	15
Chapter 5 : Charles M. Ruggles: Organ Builder	24
Chapter 6 : Charles M. Ruggles: Berea, Ohio	33
Chapter 7 : Charles M. Ruggles: Conifer, Colorado	53
Chapter 8 : Charles M. Ruggles: Defining Characteristics	63
Chapter 9 : Charles M. Ruggles: Restorations	73
Chapter 10 : Conclusion	80
Appendix 1: Organ Specifications	82
Bibliography	123

List of Figures

- Figure 3.1. Ruggles family home Aeolian Organ on the landing between floors.
Photograph provided by Charles M. Ruggles..... 9
- Figure 4.1. Comparison of the Flentrop practice organ at the University of North Texas (left) with Ruggles Opus 1 (right). Flentrop photograph by Gary Gordon. Ruggles photograph by Mark A. Herris..... 17
- Figure 5.1. Charles Ruggles and his sister-in-law assembling St. John’s organ on the stairway landing at Dr. Ruggles’s home. The façade pipes of the home’s Aeolian organ can be seen in the background. Photograph provided by Charles M. Ruggles.
..... 28
- Figure 6.1. Ruggles Opus 18 organ at St. Hubert’s Episcopal Chapel. Photograph provided by Charles M. Ruggles. 41
- Figure 6.2. Green dinosaur peeking out of the Ruggles Opus 23 Organ at St. Timothy’s Episcopal Church, Cincinnati, Ohio. Photograph by Mark A. Herris. 46
- Figure 6.3. The Barbury Castle Triangle crop circle, discovered July 17, 1991 (left). Ruggles Opus 26, Cleveland State University, Cleveland, Ohio (right). The Barbury Castle Triangle is located in the center shade. Photographs provided by Charles M. Ruggles. 51
- Figure 7.1. Ruggles Home and Workshop in Conifer, Colorado. Photograph provided by Charles M. Ruggles..... 54
- Figure 7.2. The crop circle at Milk Hill below Adam’s Grave, Wiltshire, England, June 24, 2003 (left). Ruggles Opus 30, Memorial Chapel of Fairmount Presbyterian

Church, Cleveland Heights, Ohio (right). Photographs provided by Charles M.

Ruggles. 59

Figure 8.1. Components within the boot of a Pedal Trumpet 8' pipe at Calvary United

Methodist Church. All of Ruggles's trumpet stops use a similar design. Photograph

provided by Bob Thompson..... 70

List of Tables

Table 4.1. Stoplist for Brombaugh Opus 15 Organ, First United Methodist Church, Oberlin, Ohio.	19
Table 4.2. Stoplist for Brombaugh Opus 16 Organ, Grace Episcopal Church, Ellensburg, Washington.	20
Table 5.1. Stoplist for Ruggles Opus 2 Organ, Residence of Dr. Richard L. Ruggles, Cleveland Heights, Ohio.	26
Table 5.2. Stoplist for Ruggles Opus 6 Organ, St. John’s Lutheran Church, Highland Heights, Ohio.	29
Table 6.1. Stoplist for Ruggles Opus 9 Organ, Birmingham United Methodist Church, Birmingham, Ohio.	34
Table 6.2. Stoplist for Ruggles Opus 23 Organ, St. Timothy’s Episcopal Church, Cincinnati, Ohio.	45
Table 6.3. Stoplist for Ruggles Opus 24 Organ, Calvary United Methodist Church, Brownsburg, Indiana.	48
Table 9.1. Stoplist for 1898 Pilcher Organ, Saint Louis Roman Catholic Church, Louisville, Ohio, following the 1987 restoration by Charles M. Ruggles.	75
Table 9.2. Stoplist for 1884 Henry Kilgen Organ, St. Augustine’s Cultural Center, Austin, Nevada.	78

List of Appendices

Appendix 1: Organ Specifications.....82

Chapter 1: INTRODUCTION

Charles M. Ruggles is a craftsman of mechanical-action pipe organs inspired by North German and Dutch instruments of the 17th and 18th centuries. Over the course of his career he has built 31 instruments, assisted other builders in constructing components for their instruments, and restored 19th century American tracker organs. Ruggles is one of several contemporary builders in the United States and Canada who have studied European Baroque organs in depth and applied that knowledge into the design of their own instruments. His organs are hand-crafted, built to the highest standards using quality materials, and uniquely designed to each client's needs. He is worthy of being documented because his instruments leave an artistic legacy that will inspire organists, audiences, and congregations for decades to come.

The purpose of this study is to document Ruggles's organs, as well as his background, training, and influences. He has created an opus of fine instruments for universities, churches, and individuals throughout the United States. The first part of this document will cover his early life and musical influences, his youthful connection to Oberlin Conservatory of Music and Professor David Boe, and his apprenticeship with John Brombaugh. The study will further review the important developments that led to the construction of many of his instruments. Chapter 8 will examine characteristics and unifying traits that define his style and philosophy of organ building. Finally, this study will conclude with an examination of his approach to restoration of 19th century American tracker organs. The appendix contains stoplists, specifications, and photographs of each instrument built by Ruggles.

Primary sources include telephone interviews with Ruggles, numerous church publications connected to the dedication of his organs, features in regional and national trade journals and magazines, and various websites detailing the organs. I also visited and played twelve Ruggles organs while researching this project, and I have had the honor of serving two

churches with Ruggles organs, including my current position as Director of Music at Calvary United Methodist Church, Brownsburg, Indiana. Within these sources is a wealth of information showing the progression and substance of Ruggles's career.

Chapter 2: THE ORGAN REFORM MOVEMENT

The importance of the Organ Reform Movement in shaping the work of Ruggles, and those who mentored Ruggles, cannot be overstated. It began as an early 20th century European effort to return organ building to its Baroque roots as exemplified by the organs of builders such as Gottfried Silbermann and Arp Schnitger. Called the *Orgelbewegung* in Germany where it first took shape, the movement reacted against the large mass-produced orchestral organs prevalent at that time and sought to bring about the reemergence of tracker action instruments of an earlier age.¹ The key points from the European *Orgelbewegung* reform were that the organ, being a polyphonic instrument, should be built to emphasize clarity of texture and line in polyphonic literature; the performer should be placed close to the instrument and have feedback from the instrument through the manuals by way of mechanical action; the organ should speak freely into a space from an elevated position; the tonal design of the instrument should reflect the literature to be played in the venue; stop nomenclature should reflect the function, tone, or type of pipe construction; the “Werkprinzip,” as developed by the North German and Schnitger school of builders,² should be used as a guide and the acoustics of the room should enhance the blending of divisions within the organ.³ Leading organ builders of this movement included Dirk Andries Flentrop and Rudolf von Beckerath.

While the reform movement in Europe was linked to tracker action instruments, in the United States it began as a tonal movement by builders such as the Holtkamp Organ Company of

¹ *Orgelbewegung* is a common variant of the movement’s full name, *Orgelerneuerungsbewegung*. Tracker action refers to a direct mechanical connection between the keys and the pallets that allow air into an organ’s pipes.

² *Werkprinzip* is a term meaning that each division of an organ should have a different characteristic. In practice, it meant that each division would have a Principal chorus starting at a different octave. For example, an organ may have Principal 16’ in the pedal, Principal 8’ in the Hauptwerk, Principal 4’ in the Oberwerk, and Principal 2’ in the Rückpositiv.

³ Lawrence I. Phelps, *A Short History of the Organ Revival* (St. Louis: Concordia Pub. House, 1967), 5.

Cleveland, Ohio, and the Aeolian-Skinner Organ Company of Boston, Massachusetts. Influential organists including E. Power Biggs were stoking interest in the music of earlier composers for which romantic orchestral organs were ill suited, and these organ builders were creating instruments tonally capable of playing literature from many eras, including the Baroque. This ushered in the American Classic Organ, an instrument with versatility and clarity of tone that retains many of the characteristics of the romantic organ. These builders did not fully embrace other aspects of the European movement such as tracker action or pipes being contained in freestanding cases rather than chambers, though Holtkamp built organs with pipes placed on freestanding chests without cases.⁴

Along with the American Classic Organ, there was also growing interest in North America in the instruments of the European Orgelbewegung builders. In 1956, a 65-rank Rudolph von Beckerath organ, built in Hamburg, Germany, was installed at Trinity Lutheran Church in Cleveland, Ohio. This was the first large church organ built by a European builder for North America based on the Orgelbewegung principles listed above. In his study, *A Short History of the Organ Revival*, Lawrence Phelps wrote the following about the installation of this organ.

This instrument really marked the turning point in the American reform. Not only did it bring to America for the first time a modern, encased, mechanical-action instrument with traditional classical voicing reminiscent of the finest instruments of Arp Schnitger, but it also marked the very first time that sounds of this stature had ever been heard in North America. Even the best of our old instruments, even the imported ones, even those built in America by imported talent, fell far short of the musical excellence of this organ.⁵

This organ impacted a generation of organists and builders because they were able to experience, play, and hear this style first hand. As a child, Ruggles attended a recital with his father at Trinity Lutheran Church soon after the organ's installation, and it left an impression on him as well.⁶

⁴ Orpha Ochse, *The History of the Organ in the United States* (Bloomington: Indiana University Press, 1975), 189.

⁵ Phelps, *A Short History of the Organ Revival*, 17.

⁶ Charles M. Ruggles, interview by Mark A. Herris, March 13, 2014.

New organs by Beckerath, Flentrop, and other European builders were soon installed in churches and universities all over North America. Accessibility to these new instruments, along with the new convenience of affordable air travel to Europe, made it possible for North American organ builders, scholars, and students to study the organs first hand, with many receiving Fulbright grants in support of their study.⁷

In addition to the installation of the Beckerath in Cleveland, the movement was championed by organ faculty members David Boe and Fenner Douglass at the Oberlin Conservatory of Music, Oberlin, Ohio, passionate supporters of the Orgelbewegung's aims. Douglass taught at the Conservatory from 1949 through 1974, when he assumed the position of Professor and University Organist at Duke University. The following describes Douglass's impact on the Conservatory during his tenure.

At the outset of his career, Fenner [Douglass] became an active proponent of the "historical" organ. This coincided with an emerging interest in Europe and the U.S. in restoring organ-building to its classical roots. Fenner charted a course for the organ department and for himself as a performer and scholar that would leave an indelible mark on the profession and help lay the groundwork for Oberlin's Historical Performance Program. His plan to equip the new Conservatory complex with mechanical-action organs in six practice rooms and two teaching studios can only be considered bold and innovative at a time when nearly all American organs were built with electro-pneumatic action. It marked also the beginning of a close friendship and professional relationship with the eminent Dutch organ builder Dirk Flentrop, who was later to build the organ in Warner Concert Hall and subsequently the large gallery instrument in Duke Chapel.⁸

David Boe had an equally impactful career at the Conservatory. Prior to his appointment as professor in 1962, he received a Fulbright scholarship and studied in Leipzig, Germany, with organist Helmut Walcha. He later returned to Europe to study with Dutch harpsichordist and organist Gustav Leonhardt. In addition to teaching hundreds of students over his career and

⁷ Ibid.

⁸ David Boe, "Losses: Fenner Douglass '42." *Oberlin Alumni Magazine* 104, no. 1 (2008).

assuming the role of dean of the Conservatory in 1974, Boe also served as organist and music director at First Evangelical Lutheran Church, Lorain, Ohio, for over 40 years.

By the mid 1960s, the M.P. Möller organ at First Evangelical Lutheran Church was in need of replacement. At the time that the church was beginning to search for a builder to replace the Möller, Boe was introduced to Southern Ohio native John Brombaugh through his brother, Mark, one of Boe's organ students at Oberlin. John Brombaugh was completing an apprenticeship with organ builder Fritz Noack at the time, and Brombaugh had recently built an organ in his off hours for Trinity Lutheran Church, Ithaca, New York. Mark recommended that Boe play the dedication recital for this organ, which he agreed to do.⁹ The dedication occurred in 1966, and despite its small size of only six stops, the organ made a lasting impression on Boe. This led to the invitation from First Evangelical Lutheran Church to Brombaugh to build his first large organ for their sanctuary.

Brombaugh was working as a journeyman with Rudolf von Beckerath in Germany when the contract for the Lorain, Ohio, organ was signed in 1967. He returned to Ohio in 1968 and set up a workshop in Middletown, Ohio, with organ builder George Taylor. The Lorain organ, dedicated in 1970, contained a number of design elements that would become ubiquitous in Brombaugh's instruments, including mechanical action, the use of unequal temperament, hammered metal for pipework, and wedge bellows.¹⁰ Brombaugh would become one of the most influential organ builders of the 20th century. Homer Ashton Ferguson III wrote the following in the abstract to his dissertation on John Brombaugh.

[Brombaugh] directly worked with and trained many of the leading organ builders in America, including George Taylor, John Boody, and Michael Bigelow. Countless others have consulted his instruments and been inspired by his example to study the organs by the European master builders of the seventeenth and eighteenth centuries. In addition, the qualities of Brombaugh's organs have

⁹ Homer Ashton Ferguson, III, "John Brombaugh: The Development of America's Master Organ Builder." Thesis, Arizona State University (2008), 24.

¹⁰ Wedge bellows are a traditional kind of bellows, hinged at one end and rising from the opposite end as it fills with air.

influenced a new generation of performers, informing them about the pipe speech, winding, tuning, and touch appropriate to most of the organ repertoire.¹¹

As will be outlined in chapters 2 and 3, Charles Ruggles studied with David Boe at Oberlin and would later apprentice with John Brombaugh, both of whom would leave an indelible impression on Ruggles's building style and career. It was within this context and through the guidance of these individuals that the Orgelbewegung would have a great impact upon Ruggles, helping him to develop into the master craftsman he is today.

¹¹ Ibid., iii.

Chapter 3: CHARLES M. RUGGLES: YOUTH AND EDUCATION

Charles Ruggles was the second of five musically inclined children born to Dr. Richard and Maurine Ruggles on September 26, 1949.¹² Dr. Ruggles, by trade a leading ENT surgeon who specialized in treating deafness, was also an organist who began playing the organ for G.I. worship services while serving in the Army Medical Corps in Okinawa in World War II.¹³ He also played the oboe. Upon his return to Cleveland, he began studying organ with Walter Blodgett, organist and curator at the Cleveland Museum of Art. Dr. Ruggles was active in the local music scene playing occasional concerts at his home church, Fairmont Presbyterian Church in Cleveland Heights. Ruggles's mother was a pianist who frequently played concerts for a local Music and Drama club in Cleveland, and all of his siblings were equally involved in music through the playing of many different instruments.¹⁴

In 1954 as the Ruggles family grew, they began the search for a larger home. Dr. Ruggles told the realtor that he was looking for a home large enough to house his growing family and have a space for his Allen electric organ and speaker cases. The realtor returned and told him of a home on the market with a built-in 1927 Aeolian Duo-Art organ on the landing between floors. Dr. Ruggles knew immediately that this was the right home for his family, and the Allen organ was soon dispatched to a small room at Fairmont Presbyterian Church.

¹² Dr. Richard and Maurine Ruggles's children's names were Ann, Charles, Barbara, Maurine, and Richard, from oldest to youngest.

¹³ Grant Seagull, "Dr. Richard L. Ruggles Was a Leading Ear, Nose and Throat Specialist: News Obituary." January 25, 2013.

<http://www.cleveland.com/obituaries/index.ssf/2013/01/dr_richard_l_ruggles_was_a_lea.html> (November 12, 2015).

¹⁴ Charles M. Ruggles, interview by Mark A. Herris, March 13, 2014. Most of the material contained in this chapter originated from interviews conducted on March 13, 2014; March 24, 2014; and November 17, 2015.

When the family moved into the home, the Aeolian organ had a player mechanism but no console. To make the instrument functional as a practice and performance instrument, Dr. Ruggles commissioned local organ builder Kurt Ruhland to build a two-manual console. The in-house organ inspired the entire family to be active in music.¹⁵



Figure 3.1. Ruggles family home Aeolian Organ on the landing between floors. Photograph provided by Charles M. Ruggles.

In addition to the organ, the home housed a trumpet, mandolin, guitar, clarinet, cello, oboe, banjo, and two grand pianos. There would often be music coming from every direction in the home, and Dr. Ruggles enjoyed having the family gather together to play their instruments for dinner guests, friends, and colleagues.

Ruggles began playing the piano at age five, with his parents giving him his first lessons. His interest in the piano began to wane in junior high school, but he enjoyed listening to his father

¹⁵ Rusty Brown, "Musical Family Grew Up to the Sound of Music on Home Organ." *The Cleveland Press* (July 6, 1979).

play the home organ. His father suggested that he try playing the organ, and he began formal organ study in the eighth grade with Robert Fort, organist at Fairmont Presbyterian Church. His lessons were on the church's 1942 four-manual Holtkamp organ, one of the first Holtkamp organs to have a Rückpositiv and an important instrument in the Cleveland organ scene.¹⁶ Ruggles continued his studies with J. Heywood Alexander starting in tenth grade after a change in music leadership at the church.

Ruggles was a participant in several competitions in 1967, including the First Aeolian International Organ Playing Competition in London, Ontario, and the local Cleveland AGO competition where he earned second place. He played the Poulenc Organ Concerto with his high school orchestra using the school's Allen organ. At one point he replaced the school's small pep band, using the Allen organ to lead weekly assemblies and rallies in singing the national anthem. Some of the pep band songs weren't particularly appropriate for organ, so the school allowed him to play music written for the organ, though it was questionable whether the music was appropriate for the rallies. As a junior in high school, he gave a recital on the home Aeolian organ playing an eclectic program of works by J.S. Bach, Dieterich Buxtehude, François Couperin, Helmut Walcha, and Léon Boëllmann.

His interests as a youth went beyond the organ, as he was a good student and an active member of the Boy Scouts of America, earning the highest rank of Eagle Scout. He also played trumpet and cornet in his high school band and orchestra. He enjoyed taking trips with his uncle to collect minerals and fossils. In the summer months Ruggles would spend time at his family's lake house near Oberlin, Ohio. Charles's father, a classmate of Fenner Douglass, asked if Charles could study with Douglass during the summer months. Douglass wasn't available and he

¹⁶ A Rückpositiv is a division found on some organs located behind an organist, often mounted along the front of a balcony or gallery.

suggested that Charles study with David Boe instead. His lessons with David Boe occurred in the summers of 1965, 1966, and 1967.

When it came time to apply for college admission, Oberlin was Ruggles's first choice among the several colleges and universities he applied to. During one of his summer lessons in 1967, David Boe asked suddenly whether Ruggles was ready for his college audition. When Ruggles reluctantly agreed, David Boe was joined by Fenner Douglass and others from the organ department. Although the audition was a surprise, he was prepared and it went well. Ruggles entered Oberlin College in the fall of 1967. His primary organ teacher was David Boe, and he studied for one semester with Fenner Douglass while David Boe was on a sabbatical in Europe.

In 1969, Ruggles won the National Organ Scholarship Competition. He received a \$600 prize and played a recital on the Holtkamp organ at Plymouth Congregational Church, Shaker Heights, Ohio. The judges included his father's teacher, Walter Blodgett, Dutch organist Piet Kee, and George Wilson, organ faculty at Indiana University School of Music.

Ruggles first met John Brombaugh as he was installing the new organ at First Evangelical Lutheran Church of Lorain, Ohio, in 1970. While Ruggles and other organ students spent time helping with and observing the installation at First Lutheran, Ruggles became fascinated by the installation and design of the organ. He began thinking that it would be exciting to build such an instrument. Following a tour of his workshop, John Brombaugh offered Ruggles the opportunity to work for him if he ever wanted to learn the art of organ building.

Ruggles received a Bachelor of Arts from Oberlin College with majors in music and geology in 1971. At the time, his father was pushing him to follow his footsteps as a physician. By completing a double major, Ruggles had completed the chemistry and biology credits necessary to enter medical school. Although none of Dr. Ruggles's children would become a physician, he would many years later call the younger Ruggles the "Organ Doctor."

After graduating, Ruggles moved back home a bit unsure of what he wanted to do next. His high school organ teacher J. Heywood Alexander was now the Director of Music at Trinity

Episcopal Cathedral in Cleveland and his assistant organist was resigning to attend graduate school. Alexander offered Ruggles the assistant position for one year to give him time to decide what to do next. Ruggles was responsible for all of the choral accompanying and for playing preludes and postludes. Alexander did all of the choral directing, which was fine with Ruggles. He had not had any choral conducting classes at Oberlin and showed little interest in learning how to lead a choir at the Cathedral. He also began to study organ with William Tinker, receiving lessons on a small Flentrop organ formerly owned by Fenner Douglass at First English Lutheran Church and on the Beckerath at Trinity Lutheran Church. Tinker was a strong supporter of tracker action instruments.

At this time Ruggles contacted Walter (Chick) Holtkamp, Jr. and asked if they had any part-time work available for him in their workshop. Holtkamp showed him the chassis of a three stop tracker practice organ and offered Ruggles the opportunity to use miscellaneous parts from the shop to build a practice organ for Cleveland State University. Ruggles spent a good part of a year trying different ranks and configurations to create a viable instrument. The final organ had three independent Gedackt 8' ranks spread across two manuals and pedal. He finished the organ by building a simple case using reclaimed lumber from old subbass pipes. The organ was donated to the university.

During the summer of 1972, Ruggles made his first trip to Europe, traveling with Tinker to spend three weeks attending the Haarlem Summer Academy in Haarlem, Netherlands. Ruggles attended masterclasses on J.S. Bach with Anton Heiller, and had private lessons and classes with Luigi Tagliavini, along with other prominent scholar/performers. Because of his study at Oberlin and work with Tinker, the performance practice taught at the academy was not entirely new for Ruggles. However, hearing and playing several historic organs expanded his experience beyond the more recently built, historically inspired instruments of Northern Ohio. Ruggles played a work by Frescobaldi in a student recital on the large Christian Müller organ in the Grote Kerk, an exciting moment for the young organist. Following the Academy, Tinker took Ruggles to meet

Gustav Leonhardt and play his organ in Amsterdam, followed by a visit to Flentrop's workshop. The trip helped solidify Ruggles's interest in the North German and Dutch style of organ in both performance practice and building.

As the year at the Cathedral progressed, William Tinker highly recommended that Ruggles audition to study with Donald Willing at the University of North Texas (UNT). Willing was an early supporter of the use of tracker action in organs and had spent a number of summers working at the Rieger Orgelbau in Schwarzach, Austria.¹⁷ Ruggles auditioned for Willing and they spoke at length about his interest in organ building. Willing made an informal promise that Ruggles could spend a semester abroad working with Josef von Glatter-Götz Jr. at Rieger Orgelbau. Ruggles was excited about this prospect despite receiving a letter from John Brombaugh expressing some reservation about the arrangement due to Rieger's inclination to build organs based on current trends rather than historical models.¹⁸

Ruggles began studying with Willing at UNT that fall, 1972. He quickly found that Willing's approach to Baroque music was significantly different than what he was used to from Oberlin and Tinker. As this quickly became a point of frustration, Ruggles asked if they could change from studying Baroque literature to works of the French Romantic tradition. Another point of frustration developed when administrators at the school told him that it would not be possible to spend a semester in Austria working at Rieger Orgelbau. Disappointed and upset about the situation, Ruggles called Brombaugh to ask if his offer to work with him was still available. Brombaugh accepted and invited Ruggles to begin working with him the following spring.

Ruggles's time at UNT was not without its merits as he sought out other means to gain experiences related to organ building. He transferred out of his general music courses and signed

¹⁷ Uwe Pape, *The Tracker Organ Revival in America = Die Orgelbewegung in Amerika* (Berlin: Pape Verlag 1977), 26.

¹⁸ John Brombaugh, Letter to Charles M. Ruggles, May 9, 1972.

up for a course on wood technology. He started assisting the curator of organs, Ross King, with the maintenance and tuning of the university's organs. One of the organs was a small two-manual Flentrop that he found to be very pleasing. Ruggles started taking measurements and photos of the Flentrop to use as a model for constructing his own instrument. He soon began building his own organ using the university wood shop to mill out mahogany for the case, which he completed by the end of the fall semester.

Ruggles dropped out of UNT at that point and moved back home with his parents for a short time before starting work with Brombaugh. He continued to build the organ in his parents' basement including the construction of the windchest and reconditioning of pipes that he had acquired from old organs. He also had an old organ keyboard from which he stripped the plastic covers, reconditioning them for his instrument. The organ as completed would contain a combination of mechanical design elements found in the original Flentrop model and the residence organs built by John Brombaugh.

Charles Ruggles's family, teachers, and early experiences with organ building each played a role in honing his interests, leading him to become an organ builder. Although most of the instruments he played while learning the organ were not trackers, all of his teachers in Cleveland and at Oberlin revered the North German, historically-inspired style of organ building and performance practice. It seems natural that, out of fondness and admiration for his teachers and mentors, Ruggles would begin to recognize his own interest in and appreciation of historic organ building. By the time he was a student at UNT, his appreciation had evolved into a passion for learning to build organs crafted in the same style as John Brombaugh.

Chapter 4: CHARLES M. RUGGLES: APPRENTICE

In the spring of 1973 Charles Ruggles started his apprenticeship with John Brombaugh during a very exciting period for the firm. The company now consisted of four partners: George Taylor, John Boody, Herman Greunke, and John Brombaugh. Ruggles joined three other employees: Anne Beattie, Roger Hornung, and John Goode.¹⁹ Brombaugh had recently completed an organ for Ashland Avenue Baptist Church in Toledo, Ohio, the organ considered by many to be Brombaugh's "turning point" and where he found his voice.²⁰ Quite a few new contracts were being signed for future organs, and Brombaugh was developing a worldwide reputation for his work due to the success of the Lorain and Ashland organs.

The firm was a fruitful environment for learning and study. The partners had all worked for and apprenticed with other historically-oriented organ builders such as Rudolf von Beckerath, Fritz Noack, and Charles Fisk. Ruggles was given the opportunity to build almost every component of the organs, including keyboards, windchests, pedalboards, casework, wood and metal pipes, and action parts. Brombaugh put considerable time and effort into the voicing of 8' ranks as he was a proponent of a "vocale" tone, meaning the rank should have the singing quality of the human voice. He intended for the Principal 8' of his organs to be the finest sounding stop on the instrument, rather than one of the worst, as was often the case at that time.²¹ This was achieved through a combination of voicing, scaling, the proper combination of trace elements in the metal, and hammering the metal.²² John Brombaugh wrote the following about hammering.

Unlike iron and brass, tin-lead alloys do not get harder when hammered; hammering stabilizes the metal's crystalline structure to improve the structural

¹⁹ Ferguson, "John Brombaugh," 58.

²⁰ *Ibid.*, 50.

²¹ *Ibid.*, 40.

²² Voicing is the act of adjusting the components of a pipe to achieve a desired tone quality. Pipe scaling is the relationship between a pipe's diameter and its length.

stability and the sound of the pipe. Pipes made from a hammered high lead alloy sing that special vocale sound so cherished in the ancient organs.²³

After Ruggles had developed some experience with pipe soldering, he would often work with Brombaugh on voicing principal pipes. The large, beautiful vocal sound in the principals was in part the result of a higher than normal cut-up compared to other neo-Baroque organs.²⁴ Brombaugh would often start with a quarter and occasionally be overzealous with his cuts, necessitating repairs. He would then ask Ruggles to cut off the body of the pipe and re-solder it back on to the foot a bit shorter so that Brombaugh could start over. Most pipes were made on the long side to allow for this possibility.²⁵

John Brombaugh and his partners were very amenable to employees using the workshop for their own after-hour projects. Ruggles, living in an apartment at the end of Brombaugh's house, just a short walk across the yard to his shop, spent many evenings working on Opus 1. In most respects, this instrument was a learning tool that underwent several transformations as it was constructed. Ruggles had completed most of the case, windchest, and the action of Manual I prior to working with Brombaugh.²⁶ The remainder of the organ was heavily influenced by Brombaugh's series of residence organs, several of which Ruggles assisted in building. The action of these organs utilized suspended action rather than center pivot, as the UNT Flentrop used.²⁷ Manual I of Ruggles's organ remained center pivot, but Manual II was built using suspended action, a simpler and more eloquent design than center pivot.

²³ Lynn Edwards, *The Historical Organ in America: A Documentary of Recent Organs Based on European & American Models* (Easthampton, Mass.: Westfield Center for Early Keyboard Studies, 1992), 27.

²⁴ Cut-up is the ratio between the height and width of a pipe's mouth. A higher cut-up results in more fundamental pitch in a pipe, while a lower cut-up results in more overtone.

²⁵ Charles M. Ruggles, interview by Mark A. Herris, March 13, 2014. Most of the material contained in this chapter originated from interviews on March 13, 2014; and March 24, 2014.

²⁶ A windchest is a wood box that contains the air, under pressure, from the bellows prior to entering the pipes. Most pipes rest on top of a windchest.

²⁷ Suspended action has a direct connection between a key and the pallet through the use of trackers. The key is hinged in the back and the tracker holds up the key from the middle. Center Pivot refers to a mechanical action that uses keys hinged in the middle as opposed to suspended action that has keys hinged at the end.

Along with the addition of suspended action, the manual coupler mechanism was changed to a shove coupler design rather than internal mechanism.²⁸ Ruggles was encouraged to use this method of coupling by Brombaugh and harpsichordist friends from the Cleveland area. Ruggles observed the use of shove couplers on harpsichords and discovered that these were also found on many historic instruments including those by Silbermann and Schnitger.



Figure 4.1. Comparison of the Flentrop practice organ at the University of North Texas (left) with Ruggles Opus 1 (right). Flentrop photograph by Gary Gordon. Ruggles photograph by Mark A. Herris.

In addition, Opus 1 was meant to have a radiating pedalboard, reflected in the height and depth of the kickboard.²⁹ Brombaugh showed how a flat pedalboard could be constructed more

²⁸ A coupler allows pipes from one keyboard or division to be connected to a different keyboard or pedalboard. A shove coupler works by moving, or sliding, one keyboard to physically link it to another. Shove couplers are used in harpsichords, and are found on historical organs such as those built by Gottfried Silbermann.

²⁹ A kickboard, or kneeboard, is a vertical wood panel located just above where the pedalboard connects to an organ.

simply than a radiating pedalboard while using less space within the case. It was a much simpler and smaller construction that was emulated in many subsequent instruments. Other Brombaugh partners also assisted Ruggles with this organ. Herman Greunke demonstrated how to make a wedge bellows and an organ bench, while George Taylor spent many hours working with him on the instrument's voicing. These changes to Opus 1 reflected Ruggles's growing awareness of historical models for organ building—from Silbermann in central Germany to Schnitger and other Dutch builders in the north—through John Brombaugh and his associates. They were using best building practices based on historical examples that they had visited, measured, and played.

During his tenure with Brombaugh, Ruggles assisted with the construction of several residence organs and two church organs. The residence and practice organs were built several at a time with similar components used between them. The differences between the smaller organs lay less in the mechanical aspects of the organs, but rather in the number of stops, materials and shape of the case, whether or not they had couplers, and the disposition of the ranks. The mechanical superiority of Brombaugh's historically-informed suspended action and mechanical stop action can be seen in many of Ruggles's instruments.

John Brombaugh's Opus 15 for First United Methodist Church, Oberlin, Ohio, was the first church organ Ruggles was involved in building. The program for the dedication of the organ included the following description written by John Brombaugh.

The musical resources of the organ are disposed over two manuals and pedal which control the slider windchests by means of tracker action. The Great Manual has a plenum, or chorus, of open Principal pipes which may be supported on a subfoundation of Quintadena pipes of 16' pitch. For additional support to the treble of hymns and for use as a solo registration, a Cornet, composed of five ranks of wider scaled pipes is mounted above the Great windchest in the upper part of the organ case together with the pipes of the Great. The lowest sounding of the Subbass are of ash and are located against the wall directly behind the lower part of the case. Beneath these divisions and above the manual keyboards, the windchests of the Echo division carry the pipes for the upper manual. These consist of several varieties of flute stops, a small mixture, and a set of short length reeds patterned after the Vox Humanas, built by the famous historic organ builder, Arp Schnitger. The Echo forms a contrast to the Great with its lighter sounds. Generally, the style of the scaling and voicing is similar to that used by Schnitger and his contemporaries. The metal pipes are made of an alloy rich in lead to achieve a

mild, vocal sound. Voicing was done on a wind pressure of 81 millimeters, measured on a water manometer. The organ has been tuned in an unequal temperament described by Johann Philipp Kirnberger that was probably the result of discussion with his teacher, J.S. Bach.³⁰

Many of these characteristics are found in Ruggles's later organs, including tracker action, slider windchests, and a chorus of principals on the Great for supporting congregational singing.³¹ Although Ruggles would never build a mounted Cornet in his organs, he would use half-draw stops on Cornet stops at St. Timothy's Episcopal Church in Cincinnati, Ohio, and Great mutations starting at C4 with the option to start at C #4 at Birmingham United Methodist Church in Birmingham, Ohio.³²

Table 4.1. Stoplist for Brombaugh Opus 15 Organ, First United Methodist Church, Oberlin, Ohio.

Great – 56 Notes	Echo – 56 Notes	Pedal – 30 Notes (Flat)
Quintadena 16'	Gedackt 8'	Subbaß 16'
Praestant 8'	Spitzgedackt 4'	Octave 8'
Holpyp 8'	Waldflöte 4'	Octave 4'
Octave 4'	Cimbel II	Trumpet 8' *
Quinte 3'	Vox Humana 8'	
Octave 2'		Couplers
Cornet V (from C4/C #4)	Tremulant to the entire organ	Echo to Great
Mixture IV		Echo to Pedal
Trumpet 8'		Great to Pedal
	Kirnberger III Temperament	* Transmitted from Great

The metal pipes for Brombaugh's Opus 15 were built by Jacques Stinkens Orgelpijpenmakers in Zeist, Holland, as Brombaugh did not begin making metal pipes until he moved to Oregon. They were built to his exacting specifications based on historic models with voicing and finishing completed at his shop and the church during installation. The wood pipes

³⁰ John Brombaugh, "The Story of the Brombaugh Opus 15 Organ." *Dedication Program* (October 13, 1974).

³¹ The Great, or Hauptwerk, refers to the primary manual division of an organ.

³² Scientific pitch notation where middle C is C4. In Helmholtz notation, c¹ is equivalent to C4.

were all made in-house and Ruggles was particularly fond of the Echo division Gedackt 8' and Waldflöte 4', wood ranks made in historic scale. He made detailed measurements of these ranks for use in later instruments. Ruggles and John Boody did the physical installation of the organ at the church, and John Brombaugh and Bruce Schull completed the voicing. The Brombaugh staff would often divide the work of an installation in this way.

As Opus 15 was being installed at First United Methodist Church, Brombaugh's firm was also working on the construction of Opus 16 for Grace Episcopal Church in Ellensburg, Washington. Brombaugh initially conceived Opus 16 to have only one manual with a full plenum plus Bourdon 16' and Holpyp 8'.³³ However, the church later protested and requested that a second manual be added. In response, Brombaugh added a second manual with only a Regal 8'. The case was very ornate with elaborate molding and fumed oak casework, which Ruggles assisted in constructing.

Table 4.2. Stolist for Brombaugh Opus 16 Organ, Grace Episcopal Church, Ellensburg, Washington.

Great – 56 Notes	Echo/Regalwerk – 56 Notes	Pedal – 30 Notes (Flat)
Bourdon 16'	Regal 8' *	Subbass 16'
Praestant I-II 8'		Trumpet 8'
Holpyp 8'		
Octave 4'		
Quinte 3'	Tremulant to the	Coupler
Octave 2'	entire organ	Great to Pedal
Tierce 1 3/5'		
Mixture II-IV	* Ventil to Regal	

Werckmeister Temperament

During the building of the Ellensburg organ, organist Gustav Leonhardt requested that the instrument be temporarily set up at Trinity Episcopal Cathedral in Cleveland for his June 17,

³³ Plenum registration refers to the Principal ranks 8', 4', 2' and Mixture, with the possible addition of the Bourdon 16', Quinte 3' and Tierce 1 3/5', though if the latter is of a wide (flute) scale it is generally accepted practice to avoid adding it to the Plenum.

1974, concert for the AGO National Convention. The E. M. Skinner organ at the Cathedral was in disrepair, and the two Flentrop organs that currently reside at the Cathedral were still two years from completion. Brombaugh agreed to this temporary installation, but everyone in the shop had to work overtime to meet the deadline for installing the organ at the Cathedral. The organ was tuned in quarter-comma meantone³⁴ for the concert, and retuned into Werckmeister³⁵ for Grace Episcopal Church. The organ was also used for the opening worship service of the AGO National Convention, where Charles Ruggles played the prelude and postlude on the organ for the service.

Brombaugh was very pleased and appreciative of the hard work expended to complete the Ellensburg organ. As a reward, he offered everyone either a 10 cent per hour raise for the following year or airfare and time off to travel to Europe for study. Ruggles chose to study historic organs of Europe rather than accept the raise and made the trip to Europe with his sister Barbara, Mike Bigelow, and Jim Drake.

Ruggles took prodigious notes and measurements of each instrument they visited. They studied organs in England, Germany, and Holland, with extra attention given to those built by Schnitger and his contemporaries. The group split part way through the trip, and Ruggles visited several important organ builders and workshops. His primary interest was in developing a better understanding of reed pipe-making, an area that he had not yet had experience in with Brombaugh. This study began with a stop at Jacques Stinkens Orgelpijpenmakers in Zeist, Holland, where Ruggles studied with reed voicer Cees Meering. They worked on techniques for

³⁴ Quarter-comma meantone temperament was the most common meantone temperament in the 16th and 17th centuries. This tuning method narrows each 5th starting with E \flat in series by a $\frac{1}{4}$ comma. It contains eight pure major thirds (C-E, D-F \sharp , E \flat -G, E-G \sharp , F-A, G-B, A-C \sharp , and B \flat -D).

³⁵ A tuning system developed by Andreas Werckmeister in his 1691 treatise, *Musicalische Temperatur*. Werckmeister III uses five fifths tempered by a $\frac{1}{4}$ comma (D-A, A-E, F \sharp -C \sharp , C \sharp -G \sharp , and F-C), the fifth G \sharp -D \sharp widened by a $\frac{1}{4}$ comma, with the remaining fifths remaining pure. This temperament is better suited to playing chromatic music than quarter-comma meantone.

building several types of reeds, learned to solder resonators to blocks, and visited an old organ to measure a trumpet for a reproduction for a Dutch builder.³⁶

During a visit to the workshop of organ builder Jürgen Ahrend, Ruggles was taken to see one of Ahrend's new instruments and a few restorations. At one point during their time together, Ahrend made some strong comments against the hammering of metal for pipes, a technique for hardening metal that John Brombaugh had used on the chorus pipes of his most recent organs. Ruggles made this note following the discussion.

Hammering pipe metal is nonsense! He said he had not seen much historical precedent for hammering; only a couple of North German organs mainly. When casting the metal, the metal achieves the proper state after six weeks anyhow, so hammering is not necessary.³⁷

He also spent time with A.H. de Graaf of Leusden, Netherlands, a restorer of historic organs. Graaf's approach to restoration was to do as little as possible to make the components of the organ work properly, especially with regard to the pipework. He taught that if pipe windways looked crooked, but the pipes sounded good, then the pipes should be left alone.³⁸ He felt that pipes should not be cleaned to the point where they shined, as this could affect the tone of the pipes. However, when it came to windchests and mechanical components of an organ, additional work was often necessary to make the parts function as new. These components would typically be completely disassembled, cleaned, and re-glued. This philosophy would guide Ruggles's thoughts as he was presented with the opportunity to restore 19th century American tracker organs later in his career.

Ruggles joined the Brombaugh firm at an exciting time when business was thriving and Brombaugh was developing a worldwide reputation for his work. As an apprentice, Ruggles

³⁶ A resonator is the large body of a reed pipe, attached to the block of the pipe, that determines its pitch. A block is the solid metal piece of a reed pipe that holds a shallot and reed in place with a wedge. The tuning wire passes through the block. See Figure 8.1.

³⁷ Charles M. Ruggles, Email to Mark A. Herris, October 25, 2015.

³⁸ A pipe windway is the opening just above the foot at the mouth of the pipe.

received an education from Brombaugh that he could not have been given in a university setting. Though he spent his days building for Brombaugh, he was given the tools, time, and space in the evenings to work on his own creation, Opus 1. The influences of Brombaugh and his associates on Opus 1 were innumerable, and the final result was well beyond what Ruggles had envisioned when he began working on it. In fact, John Brombaugh held deep-seated views on pipe organ design and voicing that would guide Ruggles in every instrument that he would eventually build. The breadth of knowledge and experience that Ruggles gained during this period gave him the confidence to start his own company.

Chapter 5: CHARLES M. RUGGLES: ORGAN BUILDER

Ruggles had become aware that John Brombaugh was planning to move his workshop to Oregon, and like many other partners and employees, Ruggles was not interested in moving west with the firm. Motivated to start a company under his own name, Ruggles moved back into his parents' Cleveland home just prior to leaving for Europe, setting up his new workshop in the basement. Upon returning from his trip, Ruggles received an inquiry from Oberlin classmate David Maulsby, who had recently come into an inheritance. Maulsby was looking for someone to build a small two-manual tracker house organ, and he knew that Ruggles had been training with John Brombaugh. Maulsby told Ruggles, "If you worked for Brombaugh, that's good enough for me! I want you to build my organ." About the same time, Ruggles was feeling that he needed a better representation of his work than what Opus 1 could convey. That organ, while certainly respectable, was of a very simple design and had mismatched mechanical components. Furthermore, the quality of the woodworking and cabinetmaking did not represent his current ability level. He chose to build a new house organ that would serve as a show and rental instrument, and he ultimately gave it to his father on a semi-permanent loan basis. This instrument would consist of two manuals and pedal with nine ranks, in a compact, transportable case.³⁹

The organs for Maulsby and Dr. Ruggles were built concurrently and shared the same fundamental design and case. Producing common parts for both instruments made financial sense and saved time. In fact, it was (still is) common practice for organ builders to build series of small instruments for sale. Ruggles's two instruments were patterned loosely after Brombaugh's

³⁹ Charles M. Ruggles, interview by Mark A. Herris, March 13, 2014. Most of the material contained in this chapter originated from interviews conducted on March 13, 2014; March 24, 2014; and September 24, 2015.

residence organs, though being a bit shorter and more compact. Both he and David Maulsby wanted an organ that was small and easily movable. A Dodge passenger van owned by Dr. Ruggles at the time served as the guide for the height of the organs, as Opus 2 had to be compact enough to fit through the back doors. The organ was built in two halves with each section able to be carried by four adults and placed into the van. To maximize space for pipes within the instrument, the blower and bellows were housed separately from the organ, and the subbass pipes lifted off of hooks from the back. Such dimensions meant that the organ could be used as a rental instrument. This rental capability ultimately led to additional contracts, such as the Opus 15 built for Baldwin-Wallace College in 1986 after the college had rented Opus 2 as a continuo instrument for the annual Baldwin-Wallace Bach Festival.

Most components of these two organs were built by Ruggles in his parents' basement, with the exception of the blower and metal pipes, which were made to Ruggles's specifications by Stinkens. Ruggles's sister, Ann, also assisted with construction of both instruments. The voicing of these organs was very gentle for home use. Maulsby's organ included panels located above the music rack to deflect sound from the pipes away from the performer's ears. The façade of Dr. Ruggles's organ contained pipes across, but they were voiced gently enough to not overwhelm the performer.⁴⁰ Ruggles made the pipe shades for both instruments, with Maulsby requesting a southwestern motif as opposed to the herringbone pattern on Dr. Ruggles's organ.⁴¹

At eight stops and nine ranks, pipes were tightly packed into Opus 2's case. The layout was very efficient, though the close proximity of pipes created voicing difficulties as they would tend to draw, and some ranks were difficult to reach for tuning.⁴² Later organs based on this model would be 4–6" deeper to prevent these issues. The bottom octave of the Praestant 4' started

⁴⁰ Façade refers to the pipes arranged across the front of an organ.

⁴¹ Herringbone refers to a pattern made up of rows of short, slanted, parallel lines.

⁴² Pipe draw is when adjacent pipes tend to pull each other into tune when played together, even when they play separate pitches while played alone.

out as a mitered rank, but was later Haskelled for more uniform voicing.⁴³ William Haskell of the Estey Organ Company developed the technique which involved placing a tube within the body of a pipe to achieve a lower pitch with a shorter pipe. This saved space while maintaining consistent voicing and tone across the lower octave of the rank.⁴⁴ The use of Dutch names for the stops on Opus 2 reflected Ruggles's recent travel and study in Holland, while the use of German and English names in future instruments did not represent a change in tone or voicing of those later instruments. Opus 2 contained all three traditional couplers, including a shove coupler for the manuals.

Table 5.1. Stoplist for Ruggles Opus 2 Organ, Residence of Dr. Richard L. Ruggles, Cleveland Heights, Ohio.

Manual I – 56 notes	Manual II – 56 notes	Pedal – 30 notes (Flat)
Roerfluit 8'	Gedackt 8'	Bourdon 16'
Praestant 4'	Roerfluit 4'	Bourdon 8'
Mixtuur II	Gemshoorn 2'	
		Couplers
		Manual II to Manual I
		Manual II to Pedal
		Manual I to Pedal

The specification of Mulsby's organ was much smaller, with only one rank per division and no couplers. Mulsby insisted that the Manual I rank be a Quintadena 8', a notoriously difficult rank to voice. This was a challenge for Ruggles as he was still a relatively inexperienced voicer, but he took on the challenge. After many hours of work, he created a lovely stop that delighted Mulsby.

Although Mulsby's organ was completed and delivered before Dr. Ruggles's, Mulsby had specifically requested that his organ be numbered Opus 4. Ruggles agreed, and his father's

⁴³ A mitered pipe's resonator has been cut and re-soldered at an angle. This maintains the original length of a pipe while allowing it to fit into a tight space.

⁴⁴ Patented in 1910 by William E. Haskell.

instrument became Opus 2. Other organs that share the same basic design include Opus 5, 10, and 12.

Ruggles had been in conversation with his former teacher, William Tinker, to build a ten-rank organ designated Opus 3, but construction of the organ never commenced. Ruggles didn't want to renumber his instruments or have a break in the numbering, so he designated a small three note tracker model he had built as Opus 3. He used (and still uses) the model to demonstrate the mechanics of tracker action to potential clients and guests.

Ruggles built his first church organ in 1979 for St. John's Lutheran Church of Highland Heights, Ohio. St. John's member Bob Schneider had been an organ student of Bill Tinker along with Ruggles, and Schneider, like most of Tinker's students, was highly interested in tracker organs. He was familiar with Ruggles's Opus 2 organ and convinced the church leaders to give Ruggles the contract to build their new organ. The instrument was designed to fit in the rear gallery of the sanctuary. It featured a traditional case with a tall center tower and two side towers, proportionally similar to the Brombaugh Opus 15 organ that Ruggles helped build for First United Methodist Church, Oberlin.

As Ruggles was the sole employee of his firm, he enlisted his older sister, Ann, and other family members to help construct and assemble the organs. Building a large organ in a basement created challenges for moving lumber, tools, and assembled parts. To get long boards and lumber into the basement, it was necessary to slide the materials in through a basement window facing a driveway. The height of the basement ceiling was not tall enough to accommodate assembling an organ, so the staircase landing where the Aeolian organ was located served as an assembly area for the upper half of the organ while the lower half was assembled in the basement. Moving parts from the basement to the landing was also challenging as it required carrying parts up a flight of stairs to a back door, outside, and back around through the front door for assembly.

Dr. Ruggles and his wife were happy to have all of this activity occurring in their home, with one exception. To create the manual key covers, Ruggles would acquire cow bones from a

local butcher and boil the bones in the basement in preparation for sanding and cutting. Maurine Ruggles was not pleased with the putrid smell and asked that it be done outside.



Figure 5.1. Charles Ruggles and his sister-in-law assembling St. John's organ on the stairway landing at Dr. Ruggles's home. The façade pipes of the home's Aeolian organ can be seen in the background. Photograph provided by Charles M. Ruggles.

By this time Ruggles had become an outstanding woodworker. All of the woodworking on the St. John's organ was done by Ruggles, including casework, herringbone pipe shades, lower Subbass 16' pipes, manuals, and mechanical parts. The organ's case and bottom six notes of the Subbass 16' were built of Honduras mahogany acquired from a local lumberyard. The pipes, with exception of the wood subbass pipes, were supplied by Stinkens. As Brombaugh had done, Ruggles sent Stinkens specific instructions on the construction of pipes, and as was the case with his first residence organs, the pipes were arranged in a compact manner within the instrument, leaving little wasted space. The façade pipes at St. John's were made from polished common metal, which is 30% tin. The tin content gave the pipes a beautiful, polished appearance while

maintaining the more fundamental-based high lead tone. The remainder of the pipes from Stinkens were made from a high lead content alloy.

Table 5.2. Stoplist for Ruggles Opus 6 Organ, St. John's Lutheran Church, Highland Heights, Ohio.

Great – 56 Notes	Brustwerk (Swell) – 56 Notes	Pedal – 30 Notes (Radiating)
Principal 8'	Gedackt 8'	Subbass 16'
Chimney Flute 8'	Flute 4'	Octave 8' *
Octave 4'	Nazard 2 2/3'	Trumpet 8' **
Octave 2'	Gemshorn 2'	
Mixture IV	Tierce 1 3/5'	Couplers
Trumpet 8'	Larigot 1 1/3'	Brustwerk to Great
	Sifflet 1'	Brustwerk to Pedal
Tremulant to the entire organ		Great to Pedal
	* C2–G2 common with Great Principal 8'	** Transmitted from Great Trumpet 8'

The stoplist was built upon Ruggles's conviction that the organ must have a strong principal chorus to support congregational singing. The Great Principal 8' stop was voiced with the "vocale" sound found on Brombaugh's organs, and each additional rank of the Great chorus would build the tone of the organ to the mixture without gaps. The organ did not embrace earlier organ reform movement ideals such as the Werkprinzip balancing of principals between divisions or the varying of principal scaling within a division. Instead, the Great principal ranks were each built to the same scale. Ruggles reflected on this.

St. John's, my first church organ, had Principals 8', 4', 2', and Mixture on the Great, and they are all essentially of the same scale. That is something I learned from Brombaugh, and I believe that we saw it often in Schnitger organs, more so than other builders. Having the principals of one division being of the same scale was contrary to what Orgelbewegung and neo-Baroque builders were doing, where they tried all kinds of fancy scales within a division. Some people might say that it would be boring to have the principals all of the same scale, but it isn't. There is a blending that just works. If you play middle C of the 8', the tenor C of the 4', and then the bottom octave of the 2', all separately but in succession, they don't all sound the same. Their location within the case, use of varying alloys between, for example, the façade pipes and interior pipes, and differences in voicing

contribute to this. I found that I liked what this achieved from hearing Brombaugh's organs, and ultimately did it myself.⁴⁵

The Great division also included a Chimney Flute 8' and a Schnitger-style German Trumpet 8'.⁴⁶ The trumpet was placed on the Great due to its voicing as a chorus reed, blending well with the plenum while also being a capable solo stop.

The pipes of the Great were laid out on the windchest in stoplist order with the Principal 8' in the façade and front of the windchest and the Trumpet 8' in the back.⁴⁷ The action is suspended and floating with pallets located directly below the trumpet rank.⁴⁸ The materials used in the windchest include marine-grade plywood and mahogany,⁴⁹ and the sliders are self-sealing.⁵⁰

As opposed to the principal-dominant Great, the Brustwerk was composed entirely of flute stops intended for color and contrast to the Great.⁵¹ The Cornet was created through individual stops, and the Larigot 1 1/3' and Sifflet 1' together gave the impression of a mixture but without breaks. The Brustwerk was enclosed and made into a Swell at the request of the client. Ruggles had no objection to the use of a Swell on this or any of his future organs. The placement of the Swell pedal was offset to the right side of the kickboard near pedal note C4 due to a rollerboard interfering with a more central placement.⁵² All future Ruggles organs with a Swell division have the pedal located in the center of the kickboard.

⁴⁵ Charles M. Ruggles, interview by Mark A. Herris, March 13, 2014.

⁴⁶ A Schnitger-style German trumpet rank uses a shallot shaped like those made by Schnitger, a more open channel into the resonator, and a resonator that flares to the top. The tone of the rank has more fundamental than French or Spanish reeds and can be used both as a solo and chorus reed.

⁴⁷ Reed ranks are typically located in the back of an organ near access doors for easy access during tuning.

⁴⁸ Floating action refers to a portion of the action that is suspended by springs, the purpose of which is to adjust for seasonal changes in tension on the action due to expansion and contraction of action parts.

⁴⁹ Marine-grade plywood and mahogany are exceptionally stable woods that will not change shape during the changing of seasons.

⁵⁰ The mechanical tolerances on the sliders are tight enough to prevent air from escaping the windchests. Graphite was often used by Ruggles to lubricate the sliders within a chest and assure that they would be able to move.

⁵¹ A Brustwerk is typically a relatively small division that is literally in the "breast" of the organ, located between the manual keyboards and the Hauptwerk (or Great) division.

⁵² A rollerboard transfers mechanical motion horizontally between a key and a pallet within a windchest.

The Pedal division was simple in comparison with the manual divisions with only three stops, two ranks. Ruggles felt that on smaller instruments an organist would be better served with larger manual divisions that could be coupled into the Pedal as needed; therefore, very few of his organs would have large Pedal divisions. The bottom six notes of the Subbass 16' were mounted on the back of the organ in two sets of three pipes with hinges so that they could swing out and away from the case for Brustwerk tuning. In order to achieve this, air from the organ to the pipes was fed through tubing and a leather seal at the bottom of each pipe. The remainder of the Subbass 16' was located within the side towers with the Great division. The Trumpet 8' stop was transmitted from the Great, as well as the bottom eight notes of the Principal 8' as a space saving, rather than a cost cutting, measure.

The same shove coupler design found in Ruggles's residence organs was used at St. John's, with knobs on the top of the keyboard cheeks for moving the keyboard.⁵³ Manual to Pedal coupling was a more traditional mechanism and achieved by pulling drawknobs. Winding for the organ was from a 1 horsepower fan and a single wedge bellows. The Schnitger-style tremulant affects the entire instrument.⁵⁴

The organ at St. John's Lutheran Church, Opus 6, was dedicated in 1979 and the success of the organ led to the construction of Opus 8, a nearly identical instrument for St. Andrew's United Presbyterian Church in Olmsted Falls, Ohio. Differences between the instruments included the change of the Brustwerk's Sifflet 1' to a Cymbal II and the addition of a Regal 8'. The mouths of the Great Principal 8' façade pipes were arranged differently, and the pipe shades were based on gothic quatrefoils with an alpha and omega and a cross with IHS in the center.⁵⁵

⁵³ Keyboard cheeks are the pieces of wood located on both sides of a keyboard.

⁵⁴ A Schnitger-style tremulant is made of a small wedge bellows with a stick extending from the top. The bellows oscillates allowing puffs of air to escape and causing the organ's air pressure to fluctuate. A weight on the end of the stick can be moved to change the speed of the tremulant.

⁵⁵ A quatrefoil is a symmetrical shape containing four partially overlapping circles of the same diameter. IHS is a Greek abbreviation of the name Jesus. The Greek IHΣΟΥΣ is IHSOUS in Latin letters.

The Manual to Pedal coupler drawknobs were relocated to the kickboard for operation by the organist's feet.

During the construction of the St. John's organ, Ruggles contracted to build a residence organ for David Mulbury of Cincinnati, Ohio. Referred to Ruggles by William Tinker, Mulbury was very fond of Gottfried Silbermann's organs and was seeking a tracker organ builder who could incorporate elements from the historic builder in a new instrument. The organ did not need to be portable like Opus 2 and 4, which allowed for a larger and deeper case with towers on the outer sides. The pipe shades of this organ were more ornate than any of Ruggles's prior organs, giving the organ a more Baroque appearance than prior instruments. On the top of the tower was placed a seashell, inspired by the shells found in a number of Silbermann cases. The bellows and blower were placed beneath the floor of the organ, suspended from the ceiling of the basement. Like David Maulsby, David Mulbury requested a quintadena stop on Manual II, named a Quintaden 8' after the spelling used by Silbermann on some of his instruments.

As John Brombaugh was preparing to move his company to Oregon, Ruggles decided that it was time to create his own company. Following his study trip to Europe, he began building organs under his own name in his parents' basement. Ruggles greatly appreciated the generosity of his parents for giving him the space in their home to set up his workshop, and they enjoyed watching him at his work and participated in the process of constructing the organs. Two church organs and four residence organs were built in that basement. As business was starting to pick up with new contracts, Ruggles began to feel the space constraints of working out of a basement. He and his fiancée began the search for a home and workshop on the west side of Cleveland.

Chapter 6: CHARLES M. RUGGLES: BEREА, OHIO

Charles Ruggles moved out of his parents' home in 1982 shortly after being married and during the construction of Opus 8 for St. Andrew's Episcopal Church. He and his wife had purchased acreage with a house and separate workshop in Berea, Ohio.⁵⁶ The workshop had originally housed a small printing business. At the time, Ruggles's brother, Richard, was building energy-efficient homes that utilized solar panels for producing heat and energy. He designed and built an energy-efficient three-story addition to the back of the workshop with enough space for erecting instruments and storing lumber. Ruggles also hired Greg Sparks, his first full-time employee, during the building of Opus 8. Sparks was a graduate of Oberlin College where he had studied organ performance with William Porter.⁵⁷

Soon after Ruggles's move to Berea, Birmingham United Methodist Church, a congregation with a long history of collaboration with organ and vocal students of the Oberlin Conservatory of Music, contacted Ruggles to replace their 40-year-old Hammond organ on the recommendation of David Boe and William Porter. For over a decade church member and former organist Otto Schoepfle Jr. had financially supported two internships at the church for Oberlin music students. His long-term vision was to have a pipe organ at the church. In 1980 he donated the funds toward the construction of an organ in memory of his parents and grandparents. Ruggles quickly became excited about the project due to the church's strong connection to Oberlin, as well as a family connection to the area; his great-great-great-grandfather had surveyed the area in the early 19th century.

⁵⁶ Ruggles's address at the time was 1073 Bagley Road, Berea, Ohio.

⁵⁷ Charles M. Ruggles, interview by Mark A. Herris, September 24, 2015. Most of the material contained in this chapter originated from interviews conducted on September 24, 2015; October 1, 2015; October 5, 2015; October 8, 2015; and October 13, 2015.

The church wished to maintain the look and symmetry of their historic sanctuary. A wall was removed along the left side of the chancel to create an alcove for the organ.⁵⁸ The arches and shape of the front of the sanctuary were maintained, and the organ fit to within inches of the walls and ceiling of the alcove. The sanctuary had excellent acoustics due to plaster walls and ceiling and a hardwood floor. The case, bench, pedalboard, and pipe shades were made from wild cherry wood cut years before from a lot owned by the Schoepfle family. The wood had been air dried for 20 years prior to use in the organ. Other wood used in the organ included South American ipe for the music rack, boxwood for the stop labels, and walnut for the key cheeks. The manual naturals were covered with bone and the sharps made of grenadilla.

Table 6.1. Stoplist for Ruggles Opus 9 Organ, Birmingham United Methodist Church, Birmingham, Ohio.

Great – 56 Notes	Brustwerk – 56 Notes	Pedal – 30 Notes (Flat)
Principal 8'	Gedackt 8'	Subbass 16'
Rohrflöte 8'	Blockflöte 4'	Octave 8' **
Octave 4'	Principal 2'	Trumpet 8' (Great)
Octave 2'		
Sesquialtera II *	Tremulant to the	Couplers
Mixture IV	entire organ	Brustwerk to Great
Trumpet 8'		Brustwerk to Pedal
	** C2–A2 common with	Great to Pedal
* From C4/C #4	Great Principal 8'	

The specification of the organ was similar to the instruments built for St. John's Lutheran and St. Andrew's Episcopal churches. The Great manual had at its core a principal chorus of 8', 4', 2', and mixture for effective leading of congregational singing. The Rohrflöte 8' was made of hammered metal, a first for a Ruggles organ. It was voiced to function either as a quiet solo stop or to accompany stops from the Brustwerk. The trumpet was duplexed with the pedal to save space and voiced to function as either part of the plenum or as a solo stop. In addition, the

⁵⁸ Charles M. Ruggles, "Birmingham United Methodist Church." *The American Organist* 18, No. 9 (September 1984), 36.

Sesquialtera II was a solo stop that would start at either C4 or C #4 as chosen by a performer, a decision based on the literature being performed. The starting pitch was selectable by a brass wire that could cut off the airflow to C4.

The Great Principal 8' had a warm, vocal tone that could be used as a stirring solo stop as well as be the foundation for the principal chorus and plenum. Ruggles was more daring with his use of higher cutups on the principals of this organ than he had been with prior instruments, a practice inspired by his mentor John Brombaugh.

Although there was some discussion of this being a one-manual organ due to its small size, church leaders and Ruggles decided that the organ would be more versatile with two manuals. The Brustwerk was built primarily for choral accompanying with doors that could be open or closed depending on musical needs. The Gedackt 8' and Blockflöte 4', based on two stops by seventeenth-century German organ builder Berendt Huss, were gently voiced. The Brustwerk Principal 2' was of a smaller scale than the Great Octave 2', providing good contrast between manuals. The pedal division was small with only a Subbass 16' and Octave 8', the bottom ten notes shared with the Great Principal 8' for space savings.

In building the organ, Charles Ruggles and Greg Sparks were joined by Kevin McClure, a graduate of Oberlin College and former student of Haskell Thomson. Otto Schoepfle invited Ruggles to play the dedication concert for the organ, and all three builders performed during the dedication recital on February 26, 1984. The dedication included works by Baroque composers J.S. Bach and Nicolaus Bruhns, as well as later composers Robert Schumann, César Franck, and Marcel Dupré. The wide range of literature demonstrated Ruggles's wish to build an organ influenced by early North German and Dutch builders, but capable of performing a broader spectrum of literature. Although inspiration for the voicing and design of the organ's stoplist was decidedly North German Baroque, it was not exclusively so.

Following the dedication of the organ for Birmingham United Methodist Church, Ruggles built two more organs in 1983. Christ Presbyterian Church of Canton, Ohio, needed a

small organ for their chapel as well as for continuo use in their sanctuary. A group from the church visited Dr. Ruggles's Opus 2 organ and found it to be ideal for their needs. Opus 10 was a near clone of Opus 2 with somewhat stronger voicing to fill the chapel. A Larigot 1 1/3' replaced the Gemshorn 2' on Manual II at the request of the church.

The second organ built in 1983 was a portative organ, the first of two that Ruggles built, commissioned by the Ganassi Early Music Ensemble, an ensemble founded by his wife.⁵⁹ While working for John Brombaugh, Ruggles had seen a portative organ built by George Taylor based on the portatives found in the paintings by Flemish painter Hans Memling (c.1430–1494). The painting Taylor chose had an organ with elaborate hand-inlaid designs in the wood and pipes that were arranged in two parallel rows of equal length. Taylor recreated the elaborate hand-inlaid designs in the wood, and he found the means to imitate the length of the pipes in the paintings. Pipes of different pitch require resonators of commensurately different lengths, so Taylor made the mouths of the pipes in the back row lower than in the front. This allowed the instrument to emulate the iconography, though it made tuning difficult and drawing prevalent. The number of pipes in the portatives in Memling's paintings varied from 28 to 32 pipes, while Taylor's portative and Ruggles's Opus 11 portative each contained 26.⁶⁰

While the works of Hans Memling also influenced his portative, Ruggles took a different approach to interpreting the paintings. He felt that there likely was some poetic license taken in the paintings, especially in regard to the layout of the pipes. Ruggles worried less about making the length of the pipes the same between two rows, avoiding the tuning and voicing difficulties of Taylor's organ. The pipes consisted of a narrow-scaled Principal to keep the weight down and were tuned in quarter-comma meantone. A performer could play the organ with the left arm

⁵⁹ A portative organ is a small instrument with one rank of pipes that is held, played, and pumped by a performer.

⁶⁰ Jeremy Montagu, "Musical Instruments in Hans Memling's Paintings." *Early Music* 35, no. 4 (2007), 516. Ferguson, "John Brombaugh," 110.

controlling the bellows and the right hand playing the keys, resting the organ on the performer's left leg. The bellows had the capacity to play for approximately 30 seconds before needing to be refreshed. To assist with tuning, the bellows could be bypassed by connecting an external air supply to a hole on the bottom of the organ. The instrument was built of cherry with keys of rosewood, and several quatrefoils decorate the case.

The Ganassi Early Music Ensemble used the portative in numerous recitals, and Ruggles used the organ to test the acoustics of prospective clients' sanctuaries and rooms. Richard Simons, founder of the Burgundian Consort, attended a concert given by the Ganassi Early Music Ensemble in Chicago, Illinois. It is not clear whether the portative was used during the program, but Ruggles showed the instrument to Simons during the visit. This led to Simons asking Ruggles to restore an old Ahrend portative that he owned. The Ahrend had a longer range than Ruggles's portative, starting at D4 compared to Ruggles's E4. The question arose whether Ruggles could build Simons a new portative that started at C4. While this was possible, the weight and size of the organ was a consideration, with the additional pipes. Ruggles agreed to build the portative, to be called Opus 13, and the organ included a combination of design elements from Opus 11 and the Ahrend portative. The lowest pipes were of a very narrow scale bordering on being a string, but the smaller size allowed for an extended range without the instrument becoming too bulky. The bellows on this organ had a larger capacity than Opus 11 and the Ahrend portative to accommodate the wider range of pipes.

Ruggles built several small organs for residences, colleges, and universities in Berea, Ohio, all of them based on his father's Opus 2 and David Mulbury's Opus 7 organs. The first of these organs was Opus 12, built for W. Thomas Smith, at that time Executive Director of the Hymn Society of America. Of note was that the case was made from leftover lumber from the Birmingham organ. Smith had the organ for only three years when he decided to sell it to raise

money for a new dining room set, a decision that he later regretted.⁶¹ Craig Cramer purchased the organ, and it currently resides at his residence in Granger, Indiana.

Baldwin-Wallace College had rented Dr. Ruggles's Opus 2 organ for two seasons for their annual Bach Festival, the oldest collegiate Bach festival in the nation. Margaret A. Limkemann, the continuo organist at the time, and other faculty members were so impressed at how well the organ worked as a continuo instrument that they asked Ruggles to build an organ for the College. Delivered one week before the 1986 festival, the organ, Opus 15, featured fuller voicing of the principals to allow for greater flexibility of dynamics and tone. The case was similar in design to Opus 7, but in place of the Silbermann shell on the top of the case Ruggles had a local wood carver create a copy of J.S. Bach's signet ring. Not a part of the contract with the college, this was the last component of the organ to be installed, a surprise and gift to the school. A unique feature of this instrument was inclusion of a hinged pedalboard that allowed it to be lifted up and latched beneath the manuals to facilitate ease of storage and moving of the organ. Aug. Laukhuff GmbH & Co. KG of Weikersheim, Germany, constructed the bellows with a built-in blower that could fit within the case.

The Cleveland Institute of Music commissioned a small academic practice organ in 1986, Opus 16. Organ Professor Karel Paukert requested that a Vox Humana 8' be included on the second manual. Although the organ was tuned to equal temperament, the Vox Humana could be quickly changed to a different temperament so that students could experiment with and experience early music with historic tuning methods. Students were able to tune the individual pipes themselves due to easy access to the rank. The organ built for Susquehanna University, Opus 27, also included a reed on Manual II for this purpose.

⁶¹ Craig Cramer, interview by Mark A. Herris, July 30, 2013.

One additional small organ of note was the Opus 21 residence organ built for Mary Gibbard of Ann Arbor, Michigan. A student of University of Michigan Professor James Kibbie, Gibbard was familiar with Ruggles's work through the installation of Opus 17 in Grosse Ile, Michigan. When she wanted an organ built for her home, Kibbie recommended that she consider Ruggles for the instrument. She examined the organ at Baldwin-Wallace College and contracted Ruggles to build a nearly identical instrument, including the same pipe shades and J.S. Bach crest. There were a few changes to the stoplist to fit her preferences, and more gentle, softer voicing was used for the home instrument. At some point during the construction of the organ, Gibbard informed Ruggles that she had been diagnosed with terminal cancer. She asked how quickly the organ could be completed, and Ruggles prioritized the organ's construction. In the interim, Ruggles offered to loan her Opus 1 until her organ was completed; she accepted. Opus 21 was dedicated on November 19, 1989, with a recital by James Kibbie, and Mary Gibbard passed away two months later.

During this time, Ruggles also built several church organs in addition to the smaller instruments. The additional work pressured Charles Ruggles and Greg Sparks to complete the projects in a timely manner. Rather than expand his shop with additional employees, Ruggles subcontracted other organ builders to build components for his instruments. He was confident in the quality of their work, and it was common for tracker organ builders to help each other with work during slow times. These builders included Halbert Gober, Dana Hull, and Martin Pasi. Increasingly, Ruggles also purchased pipes from builders other than Stinkens, including Organ Supply, A.R. Schopp's Sons, and Judy Fritts. The basic philosophy and tonal ideals Ruggles developed in the Birmingham organ continued through each of his subsequent instruments. While each client had specific needs and wishes, the Ruggles organs all shared the same high quality action, tone, and construction.

The first of these instruments was a chapel organ built for St. James' Episcopal Church in Grosse Ile, Michigan, Opus 17, the instrument that led to Mary Gibbard's house organ. A fairly

small organ of only 11 ranks, the Swell was built into the lower half of the organ with the windchests placed below the level of the manuals. This was similar to that of a trunk organ with stickers rather than trackers actuating the pallets.⁶² The division was enclosed and swell shades placed on the lower right side and back of the organ case. The Great and Pedal divisions were located in the upper case with a Trumpet 8' shared by both divisions. The Great plenum was based on a Principal 4', and the Octave 2' together with the Quinte 1 1/3' produced the effect of a two-rank mixture. The organ pipeshades, made by Canadian woodcarver Jean Dutin, drew from influences in the Tiffany stained-glass windows and woodworking of the 19th century chapel of St. James'. The church's organist, Dudley Oakes, and James Kibbie played the dedicatory recital.

The next organ to be built, Opus 18, was an instrument of similar size for St. Hubert's Episcopal Chapel, Kirtland Hills, Ohio, a beautiful small church set along the Chagrin River. Karel Paukert, contact person and consultant for the project, and Ruggles worked on the stoplist together, deciding that a trumpet would be too loud for the small chapel. Paukert specifically requested that the Great have a Nazard 2 2/3' rather than an Octave 2', creating the gap in registration between the Principal 4' and Mixture III. The Swell key action and placement was nearly identical to the St. James' organ, with swell shutters located on the back of the organ.

Placement of the organ in the back corner of the chapel created unique challenges. The roofline of the chapel led Ruggles to design an asymmetrical case with the smallest pipes on the right progressively increasing in height toward the left side of the case. Because the entranceway to the chapel was perpendicular to the organ, Ruggles wrapped the façade pipes around the side of the organ so that worshipers would see the pipes and pipe shades as they entered. Jean Dutin designed and created the pipe shades, with inspiration from wildlife embroidered into the chapel's

⁶² A trunk organ, also called a continuo or chest organ, is a small portable instrument that typically contains 1–4 ranks. A sticker is a wood rod that pushes action parts, as opposed to a tracker which pulls.

communion rail kneelers. The top of the tower included a stag with a crucifix between its antlers, recounting St. Hubert's vision while hunting.⁶³



Figure 6.1. Ruggles Opus 18 organ at St. Hubert's Episcopal Chapel. Photograph provided by Charles M. Ruggles.

Karel Paukert played the dedicatory program in the spring of 1988. One week later, the Chagrin River flooded the church and the organ sat for a short time in six inches of muddy water. Ruggles was quickly recalled, and the entire Swell, lower subbass pipes, pedalboard, bellows, and bench were removed and taken back to Ruggles's workshop. The parts were carefully cleaned

⁶³ While hunting on a Good Friday morning, Hubert of Liege had a vision of a crucifix between the horns of a stag and heard a voice warning him to turn to the Lord and lead a holy life. He is the patron saint of hunters, mathematicians, opticians, and metalworkers.

and dried over a period of several weeks. Since the organ was attended to quickly, all of the wood parts were salvageable; only parts made of leather and felt needed to be replaced.

In 2000, St. Hubert's Episcopal Chapel changed its worship music from traditional to a more contemporary style and contacted Ruggles for assistance with selling the instrument. Due to its unique shape, this could have proved difficult. Ruggles and his father chose to buy back the organ, and it now resides in Ruggles's workshop in Colorado.

Ruggles's next three organs were increasingly larger than his previous instruments. The first was a 24-rank organ built for Hillsborough Reformed Church of Millstone, New Jersey. The organist at the time was Greg Sparks's Oberlin classmate Sara Burden-McClure who recommended Ruggles to build a replacement for an aging E. M. Skinner Organ. The visual and tonal elements of Ruggles's Opus 22 organ were derived from organs found in many Reformed churches in Holland, from which this church drew its heritage. The case was approximately the same height as the organ built for St. John's Lutheran Church, Opus 6, but it was deeper and devoid of spandrels, allowing for more space and ranks inside.⁶⁴ The organ had the same Great specification as St. John's Lutheran, but the Swell increased in size to include a Principal 4', Scharff II-IV, and a Dulcian 8'. The Swell was located in the bottom half of the case, similar to the organs at St. James' Episcopal Church and St. Hubert's Episcopal Church, but with the Swell shutters facing forward, the sound projecting through three carved wood panels. Martin Pasi designed and made the panels and pipe shades, with inspiration from a Dogwood tree located in the church cemetery near the building. The Pedal chests were placed on either side of the Swell, and this instrument was the first to include a Pedal Trombone 16'.

Larger than any Ruggles had built before, the bellows for this organ was located in the floor, along with the blower, to the left of the organ. Ruggles turned the bellows into a time

⁶⁴ Some pipe organs are designed so that the upper section of the structure is wider than the lower; in these instances, a triangular expansion or support called a spandrel is employed.

capsule of sorts by gluing his business card and a page from a current newspaper inside. It was common practice for builders as far back as Schnitger to use recycled newspaper, manuscript paper, and other materials glued inside bellows as a wind seal in the event of a crack in the leather. It was not their intention to create a time capsule, but organ builders would find these materials, sometimes hundreds of years later, as they re-leathered and restored instruments.

As Sara Burden-McClure moved to Texas prior to the dedication of the organ, Gavin Black oversaw the final stages of construction. Black and Charles Ruggles played the dedication recital on April 4, 1991. At about this time, John Brombaugh was installing his Opus 32 organ at Christ Church Christiana Hundred in Wilmington, Delaware, and he made time to visit Ruggles and see Opus 22. Brombaugh thoroughly complimented the instrument, and Ruggles felt validated, excited that his former mentor was pleased with his work.

Next Ruggles turned his attention to building a 26-stop, 31-rank organ for St. Timothy's Episcopal Church, Cincinnati, Ohio, Opus 23. St. Timothy's asked that the organ's case complement the modern architecture of the sanctuary. The organ case was asymmetrical, similar to the case at St. Hubert's Chapel but much taller. The top ascending line of the case had steps to break it up, and the impost panels and pipe's mouths complimented the steps. The organ did not have pipe shades, contributing to a more modern look. At just over 24 feet tall, the organ was a few inches taller than the erecting room in Ruggles's shop, necessitating a hole being cut in the ceiling's drywall to allow the organ to fit during assembly.

The Great and Pedal divisions were located in the upper half of the case with the Pedal windchest on the taller left side and the Great filling the right. The Pedal pipes were placed in rows from front to back rather than across the organ, as were the pipes for the manuals. The bottom octave of the Trombone 16' was placed against the wall on the upper level behind the organ. For this to work, Ruggles built a tubular pneumatic chest just for these pipes. The individual notes were actuated by way of small tubes fed from the Pedal windchest. The pedal division, including the pneumatic chest, was fed from a wind reservoir separate from the manuals

and at a higher wind pressure of 100 mm. The manuals were fed from a traditional wedge bellows at a wind pressure of 75 mm. The higher pressure for the Pedal division had the advantage of giving the largest pipes an ample supply of wind while isolating the manual divisions from drops and surges of wind pressure caused by the large Pedal pipes. The bellows and reservoir were located inside the case behind the keydesk.

The Swell division was placed between the keydesk and the upper case. The Swell shutters were exposed, but blended into the case when closed, due to the wood being of the same finish. Ruggles would have preferred to obscure the shutters with a facade, but the exposed design better fit the contemporary aesthetic of the space.

Prior to the installation of Opus 23, acoustician Dennis Fleisher of Kirkegaard & Associates was hired to make recommendations on the acoustics of the sanctuary. Fleisher found the room to be generally good but dry, and he recommended a number of changes including the sealing of ceiling cracks and removal of the carpeting. The report also made note of some unexplainable low frequency energy loss in the room that might or might not be corrected through the aforementioned recommendations. The over absorption of low frequency sound became a problem during voicing of the organ when it was recognized that the Subbass 16', initially located within the case of the organ, was not projecting properly. The solution was to build a second pneumatic chest for the bottom octave of the Subbass 16' and to place it, plus the bottom octave of the Pedal Octave 8', against the wall underneath the Trombone 16' windchest. The Pedal Octave 8' became an independent stop as it had shared the bottom octave with the Great Principal 8' prior to the correction. This placement greatly improved the bass response, resonance, and balance of the Pedal division within the sanctuary.

A Principal 8' chorus was included on both the Great and Swell, each of different scaling, leading to many registration options for congregational singing and choral accompanying. The size of the organ allowed for a number of additional ranks in the manuals that Ruggles had not used in prior instruments, including two 16' stops and a Gamba 8'. Five stops in

the Great were made half-draw stops with the break selectable at either C4 or C #4 for flexibility in playing early music. These included the upper range of the Cornet (Quinte 2 2/3', Octave 2', and Tierce 1 3/5') and the Trumpet 8'. The Bourdon 16' was a half draw so that it could be used in the lower half of the Great manual for accompaniment while not being part of the cornet. A small knob on the lower right stop jamb allowed the organist to select C4 or C #4 as the starting point.

Table 6.2. Stoplist for Ruggles Opus 23 Organ, St. Timothy's Episcopal Church, Cincinnati, Ohio.

Great – 56 Notes	Swell – 56 Notes	Pedal – 30 Notes (Flat)
Bourdon 16' *	Principal 8' **	Subbass 16'
Principal 8'	Gedackt 8'	Octave 8'
Rohrflöte 8'	Gamba 8' **	Bourdon 8' ***
Octave 4'	Octave 4'	Choralbass 4'
Flute 4'	Spitzflöte 4'	Trombone 16'
Quinte 2 2/3' *	Gemshorn 2'	Trumpet 8' ****
Octave 2' *	Larigot 1 1/3'	
Tierce 1 3/5' *	Plein Jeu IV	
Mixture V	Dulcian 8'	
Trumpet 8' *	Vox Humana 16'	
		Couplers
		Swell to Great
		Swell to Pedal
		Great to Pedal
* Half draw, starts at C4/C #4	*** C2–B2 common with Subbass 16'	
** C2–G#2 common with Gedackt 8'	**** Extension of Trombone 16'	Tremulant

The Swell included two colorful reeds, a Dulcian 8' with full-length cylindrical resonators and a Vox Humana 16'. Martha Foltz had requested that the Swell include a 16' reed, so a Vox Humana 16' was chosen, a stop similar to the Vox Humana 8' in the Opus 16 organ at the Cleveland Institute of Music. The Pedal division was comparatively small, with the Bourdon 8' being an extension of the Subbass 16' and the Trumpet 8' being an extension of the Trombone 16'. Utilizing extensions rather than building independent ranks was done primarily to save space.

With the organ at Hillsborough Reformed Church, Ruggles had fashioned a time capsule in the bellows; he elaborated on this idea with the organ at St. Timothy's Church being the first to house a stuffed green Rhamphorhynchus, a pterodactyl-like dinosaur. Ruggles was interested in minerals and fossils from an early age, and the dinosaur reflected this side interest. Its nose can be seen poking out of the left side of the organ, providing a favorite activity for children visiting the organ: to look for and find the dinosaur. A similar dinosaur can also be found in the organs at Calvary United Methodist Church, Opus 24, and The Randolph Church, Opus 28.



Figure 6.2. Green dinosaur peeking out of the Ruggles Opus 23 Organ at St. Timothy's Episcopal Church, Cincinnati, Ohio. Photograph by Mark A. Herris.

At this point, there was a four-year wait from the signing of a contract to delivery of an organ. The contract for St. Timothy's Episcopal Church of Cincinnati, Ohio, was signed at the end of 1988, and organist and consultant Martha Foltz played at the organ dedication on February 20, 1993. The following organ, built for Calvary United Methodist Church of Brownsburg, Indiana, was signed for in January 1989 with delivery in 1994.

At the time of contract, Calvary United Methodist Church was in the early stages of planning a move to a new location of 36 acres that would better serve the long-term goals of the church. The room used by the church as their sanctuary, built in 1959, had been intended to be the church's eventual fellowship hall, with a sanctuary to be added to the building later. By the late 1980s Calvary had come to the conclusion that its current property was too small and expanding the 1950s building was not in the church's best interest. With that in mind, the organ was built as tall as possible to fit into the current space, including removing a portion of the chancel so that the organ would sit on the floor level. It was assumed that the new sanctuary would be significantly larger and the organ would need to be proportional to the new space rather than the old. Early architectural drawings of the new sanctuary had the organ located on the side of and speaking across the chancel, similar to the organ at Birmingham United Methodist Church.

The organ was designed to be a two-manual instrument of 25 stops and 35 ranks with preparations for a future Rückpositiv and additional Pedal rank. The upper casework and façade of the organ was inspired by the 1479 Peter Gerritsz organ at the Koorkerk in Middelburg, Netherlands. Unlike the Gerritsz case, which had spandrels and narrowed at the base, the case for Calvary's organ came straight down, similar to the smaller organ at Hillsborough Reformed Church. The base of Calvary's organ housed the Pedal division with exception of the bottom octave of the Subbass 16' and Trombone 16', which were located on a pneumatic chest behind the organ. The Great was placed just above the impost, and the Swell was placed near the top of the case above the Great. This was the only Ruggles organ to have the Swell located in the Oberwerk position rather than in the Brustwerk position or base of the case.

To assist with the workload, Ruggles hired an additional full-time employee, David Betts. As he had done before, Ruggles subcontracted other organ builders and suppliers to assist in building Calvary United Methodist Church's organ. He designed the instrument and constructed all of the casework, stop action, and wind system. Given the complexity of the action and limited time for construction, Ruggles asked organ supplier Aug. Laukhuff GmbH & Co. to build the

keyboard and coupler mechanism, which had the most complex design of any of his instruments. Adding a third manual meant that a more traditional coupling mechanism was needed rather than the shove coupler found on most of his prior organs.⁶⁵ The reed pipes were made by Martin Pasi, the façade pipes by A. R. Schopp's Sons, and the remaining metal pipes and carvings by Judy Fritts. The façade pipes in the center and side towers were made of zinc with the remainder made of 75% polished tin. The pipes made by Fritts were a 96% lead alloy and hammered. The Subbass 16' and lowest resonators of the Trombone 16' were made of poplar. Dana Hull and Halbert Gober completed most of the final voicing in consultation with Ruggles.

Table 6.3. Stoplist for Ruggles Opus 24 Organ, Calvary United Methodist Church, Brownsburg, Indiana

Great – 58 Notes	Swell – 58 Notes	Pedal – 30 Notes (Flat)
Bourdon 16' *	Principal 8' **	Subbass 16'
Principal 8'	Gedackt 8'	Octave 8'
Rohrflöte 8'	Gamba 8' ***	Choralbass 4'
Octave 4'	Octave 4'	Mixture IV
Quinte 2 2/3'	Rohrflöte 4'	Trombone 16'
Octave 2'	Nazard 2 2/3'	Trumpet 8'
Tierce 1 3/5'	Waldflöte 2'	
Mixture V	Tierce 1 3/5'	
Trumpet 8'	Plein Jeu IV	
	Dulcian 8'	
Tremulant to the Manuals	** C2–G2 common with	Couplers
Zimbelstern	Gedackt 8'	Swell to Great
		Swell to Pedal
		Great to Pedal
		Swell to Rückpositiv
		Rückpositiv to Great
		Rückpositiv to Pedal
* C2–B2 common with	*** C2–B2 common with	
Subbass 16'	Gedackt 8'	

Both manuals contain an 8' Principal chorus of 8', 4', 2', and Mixture with the Great being of a larger scale. The façade contained most of the Great Principal 8', which was a two-rank stop from A3 on up. However, only one pipe of each pair sounded; the other was closed off

⁶⁵ Laukhuff made the keyboards, mechanisms, and couplers. Ruggles made the stop jambs, music rack, and all of the case parts surrounding the Laukhuff mechanism.

at the mouth to silence the pipe. A single rank of Principal 8' was large enough for the initial installation, though it was thought that in a larger space doubling the Principal would help the organ project into the larger sanctuary without sounding forced.

Calvary's organ included a number of color and solo options, including a principal sesquialtera on the Great and a flute cornet on the Swell. The Great Trumpet 8' was of the same design as Ruggles's earlier instruments, and the Swell Dulcian 8' was the same rank as is found at St. Timothy's Episcopal Church. However, unlike the organ at St. Timothy's Episcopal Church, Calvary's organ contained no half-draw stops and there was less sharing of pipes between stops. The Great Bourdon 16' shared the bottom octave with the Pedal Subbass 16', and the three Swell 8' flue ranks all utilized the lowest pipes of the Gedackt 8'.⁶⁶

Opus 24 was dedicated on April 17, 1994, in a worship service led by Rev. Harold Leininger and Organist Cleveland Johnson. An inaugural recital followed on April 19 played by Joan Lippincott. The organ remained at this location until the sale of the church in December 2005, at which time the organ was dismantled and stored during construction of the new church.

In the decade between the dedication of Opus 24 and the move, a new architect had been hired who placed the organ as a focal point in the front and center of the sanctuary. Acoustician Scott R. Riedel, a consultant on the project, assisted with several aspects of the sanctuary's design prior to construction, including the inclusion of asymmetrical elements in the ceiling and walls, and recommendations on the materials used in the flooring and seating. Ruggles reinstalled the organ along with Michael Rathke and Dana Hull during January–February 2007. Very little voicing work was needed due to the improved acoustics of the sanctuary compared to those of the prior site, and the Great two-rank Principal 8' was left as a single-rank stop. The only alteration to the organ was a new wedge bellows built for the Pedal division in place of an undersized

⁶⁶ Called "common bass" because multiple ranks share the same pipes in the lowest octave.

reservoir used at the former location. The new bellows fixed some unstable winding issues caused by the reservoir and gave the Pedal division additional capacity for a future 16' or 32' rank.

A smaller instrument built for Gloria Dei Lutheran Church, South Bend, Indiana, Opus 25 followed the organ at Calvary United Methodist Church. The case was made of cherry wood, and the pipe shades were designed and made by Judy Fritts. The design of the upper case was similar to the organ at Birmingham United Methodist Church, while the lower case was similar to the organ at Calvary. Both manual divisions were placed on the same windchest and enclosed. The façade of the organ consisted of pipes from the Pedal Octave 8' and Choralbass 4'. The remainder of Pedal division pipes were located in the lower half of the case, and the bottom octave of the Subbass 16' was behind the organ. This instrument did not have a pneumatic chest, with the lower subbass pipes fed through wind lines running from the Pedal windchest.

Prior to the organ being installed in the balcony of the sanctuary at Gloria Dei, a number of alterations were made to open up the balcony railing and improve structural support for the organ. However, lack of support in the mid-section of the balcony resulted in the organ being placed further back than Ruggles had anticipated. This resulted in the organ not having as great of a presence in the sanctuary as he had hoped. Ruggles considered increasing the wind pressure to increase the volume of the organ, but decided against it for fear that good tone would be sacrificed for the additional volume.

About this time, as Ruggles was supervising his move to Colorado, Opus 26 for Cleveland State University was completed. He installed the organ and flew back from Colorado a few weeks later to complete the regulation and voicing of the organ. Cleveland State University had recently built a new state-of-the-art Music and Communication Building, with Holtkamp installing a 37-rank organ in Waetjen Auditorium and Ruggles building a smaller organ for teaching, practice, and ensemble use. The Ruggles organ consisted of twelve stops between two manuals and pedal, and was built on casters so that it could be easily moved from a smaller room to the performance halls. The Principal 8' was full length across the entire rank with E2 and up

located in the façade. The largest pipes nearly touched the floor and reached to the top of the case. The organ was an enlarged version of Opus 4 with the Principal 8' towers on either side of the case and no dip in the center. University faculty left the design of the pipe shades to Ruggles. At the time he had become intrigued with the geometric patterns within crop circles that were frequently being shown on television news. As a result, he utilized some of the basic patterns of crop circles into the decoration of the panels, including a famous example discovered at Barbury Castle, Wiltshire, England on July 17, 1991.



Figure 6.3. The Barbury Castle Triangle crop circle, discovered July 17, 1991 (left). Ruggles Opus 26, Cleveland State University, Cleveland, Ohio (right). The Barbury Castle Triangle is located in the center shade. Photographs provided by Charles M. Ruggles.

This instrument signaled the end of Ruggles's 14-year creative period centered in Berea, Ohio, the most productive time of his career. During this period Ruggles built nineteen organs, including two portatives, ten organs for churches, and seven small organs for homes and academic institutions. This output was accomplished with a relatively small staff of one or two full-time employees and the outsourcing of some components to highly competent organ builders

and friends. The organs were all built with high quality components and workmanship, and when problems arose Ruggles worked hard to correct issues, sometimes with the redesign of entire components of an organ. This attention to detail resulted in a collection of fine instruments that have served their owners well for many years.

Chapter 7: CHARLES M. RUGGLES: CONIFER, COLORADO

Through his adult years, Ruggles took an annual vacation to Denver, Colorado, to visit extended family, see the mountains, and attend the Denver Gem & Mineral Show. He enjoyed the geology of the mountains, an interest going back to his time as a music and geology double major at Oberlin College. Each year as he returned to Ohio he would yearn to remain in Colorado.⁶⁷

In the early 1990s Ruggles began to seriously consider moving to Colorado, as he didn't want to wait until old age to enjoy living in the mountains. He started working with a realtor, and after a few years of intermittently searching for an appropriate property, one became available while he was on his annual vacation in Denver. The property, located in Conifer, a small town in the western foothills of Denver, included a cabin with an attached workshop that had been built by an industrial arts teacher and cabinetmaker. The size and layout of the workshop made it ideal for Ruggles's tools and equipment; the only thing lacking was a tall space for erecting instruments. He felt it was an ideal location and fit, but unfortunately it was already under contract by the time he had a chance to see it. One month later, he received a call that it was back on the market, and he immediately placed an offer. The sellers were building a new home and requested that they be permitted to continue living in the property for one year after the sale, which gave Ruggles time to sell the Berea property and finish building Opus 26 for Cleveland State University. Greg Sparks, who had spent 14 years working full-time with Ruggles, chose not to move to Colorado and continued his career building organs with Holtkamp Organ Company following Ruggles's move in 1996.⁶⁸

⁶⁷ Charles M. Ruggles, interview by Mark A. Herris, October 13, 2015. Most of the material contained in this chapter originated from interviews conducted on October 13, 2015, and October 21, 2015.

⁶⁸ Ruggles's address is 13641 West Cedar Drive, Conifer, Colorado 80433.

Ruggles had begun building Opus 27 for Susquehanna University in Berea, Ohio, but completed construction after the move to Colorado. The organ replaced an old Wicks organ that had been removed from a recital hall during a renovation in 1991. The organ was built for teaching and practice, and it including a stoplist reminiscent of Opus 16 with a reed on Manual II for experimentation with temperaments. The Regal 8' on Manual II could also be coupled to the pedal for cantus firmus use.⁶⁹ The panels above the music rack had four geometric designs loosely inspired by crop circles. These carvings also functioned to allow some sound from the pipes behind them to filter through to the organist.



Figure 7.1. Ruggles Home and Workshop in Conifer, Colorado. Photograph provided by Charles M. Ruggles.

The first organ built in Colorado was for The Randolph Church of Randolph, New Hampshire. J. Heywood Alexander, for whom Ruggles had built Opus 5, had a home in Randolph

⁶⁹ A cantus firmus is a pre-existing melody on which a polyphonic composition is based. In practice, it is a slow moving melodic line played by the feet while the hands play more complex, contrapuntal lines.

and recommended that Ruggles build the organ for the 1884 church. The building, owned by the town of Randolph, served as a site for both religious services and community events.⁷⁰ Located in a very rustic location, the building at the time had no heat, air conditioning, or running water. The church asked for a simple, almost stark, Shaker-inspired case for the organ with cherry as the primary wood. This was contrasted with panels of walnut and redwood. The panels on each side of the façade, along with the pipes shades, contained geometric patterns inspired by crop circles.

Space in the sanctuary was limited, so the organ was placed flat against the wall with access for tuning from the front and side. The pipes in the façade above the music rack were set in hinged doors that could swing open for access to most of the manual division pipes. Also to save space but increase the versatility of the organ, the Rohrflöte 8' and Octave 2' could be selected for use on either manual.⁷¹

Building organs at a high altitude created some complications for Ruggles in regards to wind pressure and voicing. Ruggles's workshop was now at an elevation of over 8200 feet, making him the organ builder working at the highest elevation in the United States. While reeds are not as susceptible to changes in elevation, the flues of an organ tend to underblow when moved to a lower elevation, necessitating an increase of pressure on site. In 1975, Ruggles had discovered the opposite when he had moved Opus 4 from his parents' home in Cleveland to David Maulsby's home in Fort Collins, Colorado. The Quintadena 8' wasn't working properly following the move, so Ruggles determined that he needed to lower the wind pressure until it played as it had in Ohio. While this adjustment was by trial and error, after moving to Colorado Ruggles found a mathematical way to calculate the necessary wind pressure adjustment depending on the altitude where an organ would be installed.

⁷⁰ "Randolph Church, Randolph." NH State Register of Historic Places, New Hampshire Historical Resources. <https://www.nh.gov/nhdhr/programs/state_reg_list_details.htm> (November 13, 2015).

⁷¹ Each stop can be used on one manual at a time, but not both manuals simultaneously.

Ruggles refrained from hiring a new assistant after his move to Colorado, and in fact he built the following organ, Opus 29 for Lakewood Presbyterian Church, Lakewood, Ohio, without subcontracting any of the major components or using assistants. He made the case, interior pipework, and most of the mechanical parts. The frame of the case was stained in a light oak color to match the pews in the chapel, with side panels, music desk, and pipe shades made of walnut. The triangular panel in the center of the façade was computer designed and cut out using a laser engraver. The pipe shades were carved using shapes and patterns found within the chapel, and the leaded-glass insert in the center top of the case was inspired by three stained glass windows discovered in the front of the chapel during a renovation leading up to the installation of the organ.

As this small organ was made for the church's chapel, the stoplist was designed for maximum versatility for worship leading, congregational singing, and the occasional wedding. The Manual I Principal 8' was open through the entire rank despite the small size of the organ. For space savings, the bottom eight pipes were of a Haskell design.⁷² The organ's façade was composed of the Octave 4', and Ruggles made the three embossed pipes of differing patterns. The Sesquialtera started at C4, for use as a solo stop and to bring out the melody of hymns. Manual II consisted of a Rohrflöte 8' shared with Manual I, a Flute 4', and a Trumpet 8' starting at C3 for wedding and solo use. The pedal division was very simple with only a Subbass 16' and a foot lever to allow the organist to cut the wind to the subbass. None of the subbass pipes rested on the pedal windchest. The bottom octave of the subbass was on the back of the organ in two hinged sets, similar to placement of the subbass pipes at St. John's Lutheran Church, Opus 6. The remaining pipes were stacked horizontally within the case, with all of the pipes fed through tubing from the windchest.

⁷² See page 26.

The organ was dedicated on September 17, 1999, with a recital played by organists Margaret A. Limkemann and Donald R. Shultzaberger, along with trumpet player Brian J. Hottel. Since the dedication, the church has undergone a major building project that included the chapel being repurposed as a multipurpose space with the pews, pulpit, and altar removed, and the linoleum flooring replaced with hardwood. The orientation of the room was reversed, and the organ was moved a few feet further away from the wall. This all combined to make the room more versatile while also improving the acoustics of the space.

Nine years passed between the dedication of the organ for Lakewood Presbyterian Church and the dedication of Ruggles's next organ. He spent time enjoying the mountains and pursuing his hobbies including hiking and geology. He did tuning and maintenance work around the Denver area, including a few minor restorations, and since there were very few tracker organs in the Denver area, he began to advocate for tracker organ building within the local AGO. He also did subcontractor work for other organ builders including M. P. Rathke, Inc., and Bigelow & Co. He also reacquired the organ from St. Hubert's Episcopal Chapel, and moved the organ for Calvary United Methodist Church. In 2002 Ruggles received the Artist Fellowship Award in Folk Arts from the Colorado Council on the Arts.⁷³ The council considered organ building a Folk Art because the craft was passed down through apprenticeship. The award included a \$5,000 grant that Ruggles used to present lectures and seminars around Colorado, promoting the art of tracker organ building.

Ruggles had the honor of building his next organ, Opus 30, for the Cleveland Heights church that he attended while growing up. By the early 2000s, the Holtkamp organ in the Chapel at Fairmont Presbyterian Church was in disrepair and need of replacement. Water damage and age had caused entire ranks to stop functioning, and ciphers were prevalent.⁷⁴ The chapel, built in

⁷³ The Colorado Arts Council's name was changed in 2010 to "Colorado Creative Industries."

⁷⁴ A cipher is a pipe that plays continuously due to an air leak.

1956, was used primarily as a youth worship space until the early 1980s, and Ruggles had spent many hours practicing on the Holtkamp organ as a youth. The acoustics of the chapel were excellent until a renovation in 1988 when the church fully carpeted the room and added plush seating to expand use of the space to other activities. The organ pipes, located in a chamber to the side of the chancel, had difficulty projecting into the room after the renovation due to sound absorption of the materials used.

Dr. Richard and Maurine Ruggles were aware of the problems with the Holtkamp organ and presented the church with a significant seed gift toward building a new Ruggles organ for the chapel. The organ would be in a freestanding case that would allow the sound to project well into the room, while blending in with the architecture, including two terracotta sculptures on the front wall.⁷⁵ Acoustician Dana Kirkegaard was hired to improve the acoustics of the space; this led to the chancel carpet being replaced with an oak hardwood floor and several walls being reinforced.

Ruggles removed the Holtkamp organ and found that, despite some water damage, several ranks could be reused in the new instrument. The Holtkamp organ had, in fact, used a number of ranks from an Aeolian organ that had preceded it at the church. The initial stoplist included a new string stop on Manual II. Ruggles found the Dulciane 8' from the Holtkamp organ to be a lovely stop and used it in place of a new rank. Although the stop would normally be called a Dulciana, he kept the Holtkamp spelling as a nod to the origins of the rank. The subbass pipes, dating back to the late 1800s, were in excellent condition and were reused, as were most of the pipes in the Pedal Octave 8'. Some of these pipes were Haskelled to save space.

Both manual divisions shared a single windchest, similar to Opus 25 at Gloria Dei Lutheran Church, but it was decided that a swell enclosure was not necessary. Manual I included the principal chorus of 8', 4', 2', and Mixture for congregational singing, along with a Quinte

⁷⁵ A terracotta sculpture is made of earthenware, such as clay.

2 2/3' and Tierce 1 3/5' for solo use. The only flute on Manual I was a Rohrflöte 8'. Manual II contained no principal stops, consisting of the Dulciane 8', flutes 8', 4', 2', and a Trumpet 8'. The flutes in the higher register were voiced fairly bright to provide balance with Manual I. The Trumpet 8' was placed on Manual II at the request of the church for use as a solo stop at weddings. It could also be coupled into the Pedal to undergird the Manual I plenum, or added to the plenum through coupling to Manual I. The Pedal was small, only consisting of a Subbass 16' and Octave 8'. The organ was winded with a wedge bellows for the manuals and a separate reservoir for the pedal.

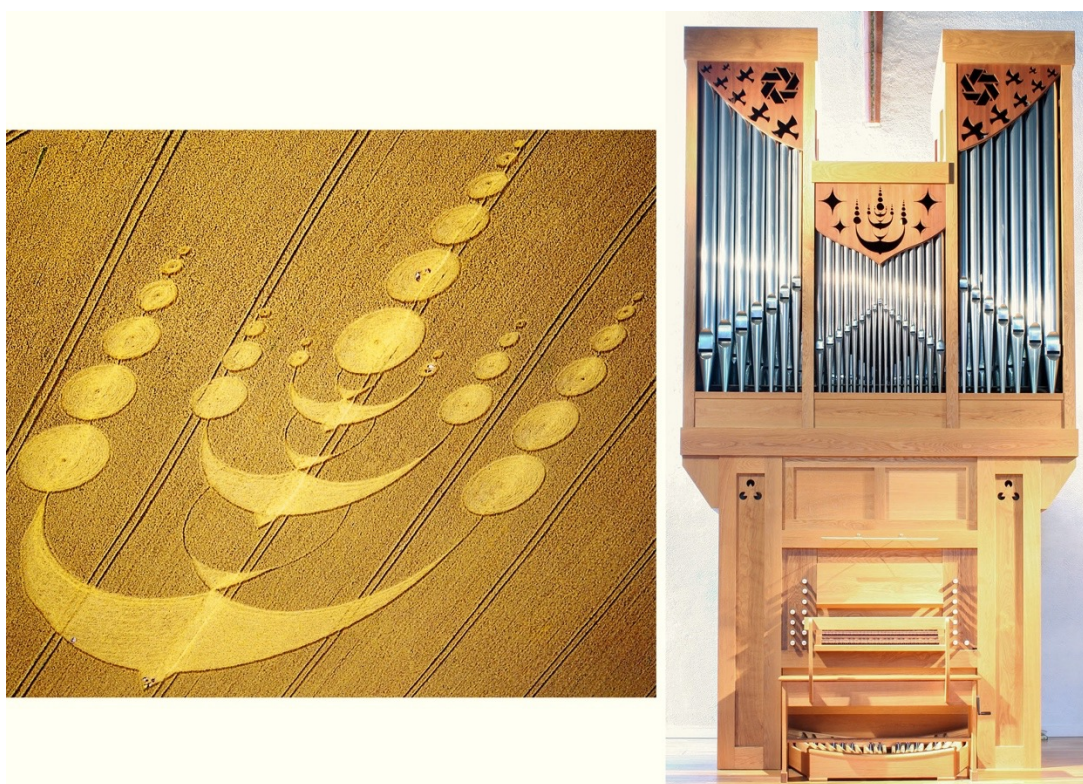


Figure 7.2. The crop circle at Milk Hill below Adam's Grave, Wiltshire, England, June 24, 2003 (left). Ruggles Opus 30, Memorial Chapel of Fairmount Presbyterian Church, Cleveland Heights, Ohio (right). Photographs provided by Charles M. Ruggles.

The organ case was made of white oak stained to complement the sculptures on the wall, with redwood panels on the side of the organ. While determining a design for the pipe shades,

Ruggles was in his workshop listening to Felix Mendelssohn's *O for the Wings of a Dove*. This music, along with the doves found in the stained glass throughout the chapel, became the inspiration for the pipe shades. The doves with circles flowing from the wings in the center panel originated from a photograph of a crop circle discovered on June 24, 2003 at Milk Hill below Adam's Grave, Wiltshire, England. Additional doves and two Celtic knots are found on the tower shades.

The organ was dedicated in worship on October 5, 2008, followed with a recital by Minister of Music Robert Moncrief. The organ is used weekly in worship, and Moncrief spoke about his experience with the organ.

We have the 8:30 a.m. worship service each weekend in the chapel with communion. I used to dislike coming to that service, but now I look forward to it! I can't always play the same literature as at the late service on the church's 100-rank Schantz organ, but I've been amazed by some of the things I've been able to do. The literature sounds gorgeous on this!⁷⁶

Ruggles's most recent new organ was built in 2015 for Denver resident, Denise Lanning. Lanning had studied with David Mulbury at the University of Cincinnati where she received both a Bachelor of Arts and Master's degree in music. She was interested in having a small tracker organ built for her home, and organ historian Michael Friesen, who also resided in Denver, recommended that she meet with Ruggles at his workshop in Conifer. She had the specific request of a gemshorn on Manual I. It so happened that Ruggles had kept the Swell Gemshorn 8' from the Holtkamp organ he removed from the chapel at Fairmount Presbyterian Church. He placed the rank on the voicing machine, tuned it, and invited Denise Lanning to a follow-up visit to hear the rank. She was pleased with the tone of the pipes; it became the starting point for Opus 31.

⁷⁶ Robert Moncrief, interview by Mark A. Herris. June 11, 2013.

The Lanning organ was similar in size to Opus 2 and Opus 4. However, the Lanning instrument required a new windchest design to hold the open Gemshorn 8', Ruggles's first use of an open 8' principal-scale rank on a home organ. Although the Gemshorn 8' came from a much larger organ, it had been underscaled for the chapel as part of the underwhelming Holtkamp Swell. The upper range required some work to make it a little softer; otherwise, it was a wonderful choice for the home organ. The Gemshorn 8' was not complete because Ruggles had used the lowest five pipes in the new Opus 30 organ for the Chapel. He built five new Haskell pipes to complete the rank, sized and scaled to fit within the sides of the organ case. The new pipes worked perfectly on the voicing machine, but when they were set into the case they would hardly speak. The pipes rested near the floor of the case, and something was creating interference with the pipes. At this same time, Ruggles acquired a set of Estey Haskell pipes from Rick Morel, a pipe organ builder in Denver, that were two feet shorter than the pipes that he had made. Ruggles mounted these pipes higher within the case, which gave them the space to speak properly.

The case was made of cherry with walnut accents using wood from a lumberyard owned by John Lanning's uncle. Walnut was used in several panels, the key cheeks, and the pedal sharps. Denver woodcarver Don Woodard created two relief panels for the organ. Woodard used a needlepoint with a bird motif made by Denise Lanning for inspiration, and the Lannings met with him periodically to assist with the design. The completed panels were placed in two doors above the music rack, and the organ could be played with the doors open or closed depending on how directly the organist wanted to hear the sound of the organ.

Ruggles built most of the organ himself with help from John Lanning. Lanning, a retired chemistry professor, was fascinated with the process of building the organ. He travelled to Ruggles's workshop one day each week to assist with the construction of his wife's organ. Just prior to the expected delivery of the organ, Ruggles took a fall from a ladder in his workshop. Although he recovered fully from the fall, delivery of the organ was delayed by over a month.

The move to Conifer, Colorado, heralded a distinctly different period in Ruggles's career. Although his output was at a slower pace, his instruments were increasingly more refined and inclusive of his own personal interests as evidenced by the inclusion of elements such as crop circle designs in the façades. He also undertook building more of the individual components by himself for the organs as opposed to subcontracting. In many respects, Ruggles's career came full circle since moving to Colorado through the privilege of building a new organ for the chapel of his family's church in Cleveland Heights, and his most recent organ is a manifestation of a refined design that harkens back to Opus 2. Each of Ruggles's 31 instruments were built to the needs of the clients. However, there are many elements that are found throughout his work. The following chapter will review stylistic characteristics common throughout Ruggles's organs.

Chapter 8: CHARLES M. RUGGLES:

DEFINING CHARACTERISTICS

Each Ruggles organ is a unique handcrafted instrument built to fit a client's needs and situation, but still containing similar design elements such as suspended tracker action and mechanical slider stop action. Ruggles conceives each instrument on paper in collaboration with his clients with the understanding that he builds organs inspired by historic examples from central and northern Europe, as taught to him through his apprenticeship with John Brombaugh. Ruggles summarizes his approach to organ building in the following quote from his website.

Charles M. Ruggles Pipe Organs is a skilled group of craftsmen dedicated to the design and construction of fine organs. With the exception of some of the metal pipes, blowers and some small metal action linkages, all instruments are constructed entirely in our workshop. We utilize tracker or mechanical action in our organs because of its responsiveness to the performer and its ability to function virtually maintenance-free for many years. The tonal and mechanical concepts of our instruments derive largely from the organ-building practices of the 16th-19th centuries of central and northern Europe. However, our organs should not be characterized by such terms as Baroque or Romantic, because, with each instrument, we are responding to the specific needs and situations of the client. At the same time, we are striving for a tasteful mix of the old and new while subscribing to a set of limitations that we see crucial to an artistic result. In designing casework we strive for elegance in a variety of styles, with the intent to harmonize with and be an outgrowth of the room in which the organ stands.⁷⁷

The majority of parts within a Ruggles organ are produced using cabinet making and woodworking techniques, a large part of which he learned from Brombaugh. A lot of time is put into selecting the best lumber for the case and other critical components. Ruggles purchases most of his lumber from local suppliers, pre-dried and seasoned. Regardless of the size of the instrument, the wood used in the case and the windchests, as the most critical pieces within the

⁷⁷ "About Charles M. Ruggles Pipe Organs." Charles M. Ruggles Pipe Organs. <<http://rugglesorgans.com/about.html>> (October 25, 2015).

organ, is selected first. Most of the cases are made of solid walnut, oak, or cherry boards and panels. The kind of wood and stain is typically chosen by the client, and none of Ruggles's organs have a painted finish. In situations where Ruggles wasn't pleased with the choice of stain, such as Opus 29, he used contrasting, complementary wood and stain in various panels to lessen the impact of the primary color.⁷⁸

As he enjoys the woodworking side of organ building more than any other, Ruggles personally builds all of the cases, subcontracting other portions of the instruments as needed to meet deadlines. Woodworking tools used in his workshop include a joiner and planer for running rough lumber through to thickness; a table saw to cut pieces to width; a radial arm saw to cut boards to length; a drill press for creating precise holes in cabinet work and windchests; a scroll saw, band saw, and jigsaw for pipe shades and carvings; and various hand tools such as routers, sanders, drills, and various wood chisels and files.

With the exception of the lower manual of Opus 1 and the two portable organs, all of Ruggles's organs utilize suspended tracker action. Ruggles prefers this kind of action due to its mechanical simplicity and, as a performer, he appreciates the tactile feedback that suspended action provides him. Ruggles makes every effort to minimize the number of changes in direction within his actions. His typical suspended action includes a tracker connected to a key that travels a short distance to a rollerboard.⁷⁹ A second tracker on the opposite end of the roller is then connected to a pallet through a small hole on the bottom of the windchest. On some larger organs it is necessary to use squares, either made of wood or metal.⁸⁰ Shorter trackers are almost always made of metal, while long runs are wood. Stickers are used in some organs, such as Opus 17 and

⁷⁸ Charles M. Ruggles, interview by Mark A. Herris, October 13, 2015. Most of the material contained in this chapter originated from interviews conducted on October 13, 2015; October 21, 2015; and November 17, 2015.

⁷⁹ A rollerboard transfers mechanical motion horizontally between a key and a pallet within a windchest.

⁸⁰ A square transfers mechanical motion 90-degrees, often from a horizontal tracker to a vertical one.

Opus 18 where the Swell division is placed at a lower level than the manuals.⁸¹ Ruggles makes his own rollerboards out of steel shafts, using a lathe to drill the ends for the fitting of bearings. The shafts are then fitted as needed to a long board and held in place using small pins.

Seasonal changes in humidity and temperature can cause the action to shorten and lengthen by minute amounts. On smaller organs this is compensated for by using a keyboard frame connected either through metal, longitudinal grain wood, or Baltic birch plywood. If there is still some change in length of the action, the up-stop board that runs across the top of the keys floats so that the keys as a whole can move up and down a bit rather than cause ciphers due to excessive pressure on the pallet springs. On organs with long tracker runs, Ruggles includes a floating action element to relieve stress on the manuals and pallets. As an example, the Swell action at Calvary United Methodist Church, Opus 24, has a set of squares that ride on a beam that is floating with springs. As tension builds during some seasons of the year, the springs relieve stress from the shortened action. Ruggles learned these techniques from Brombaugh.

On organs with couplers, Ruggles always uses a shove coupler or variant of the shove coupler (with the exception of Calvary United Methodist Church, Opus 24). It is a very simple and reliable mechanism proven through hundreds of years of use in a number of Northern European organs and harpsichords. Early versions of the shove coupler require the organist to physically move the upper manual to couple, which is difficult while playing and requires two hands. Newer versions use a rod placed through the key cheeks, making one-handed coupling much easier. A relatively insignificant disadvantage of the shove coupler is that when the manuals are coupled, the Manual I to Pedal coupler will also cause the Pedal to pull down Manual II. There is no way to have the manuals coupled and the pedal only couple to Manual I.

⁸¹ A sticker is a wood rod that pushes action parts, as opposed to a tracker, which pulls.

Windchests in Ruggles organs are built using classic materials and design. The toe-boards and sliders are made of cedar, side bearers of quarter-sawn mahogany, and the rack-boards and bottoms of windchests of marine-grade plywood.⁸² All of these woods are chosen due to their stability and small shrinkage rate. Therefore, in the summer months when wood tends to swell, the sliders don't bind, and in the winter when wood tends to shrink, they don't leak. The sliders are covered with graphite to reduce friction, and small channels are cut into the windchest between ranks to allow air a place to bleed in the slight chance of an air leak.

All Ruggles organs utilize mechanical stop action, which can contain both metal and wood components depending on the distance and direction of the linkages needed. Painted steel parts are used in small- to mid-sized organs, while the largest organs contain wood rockers.⁸³ Ruggles painted the steel stop action parts in blue paint on several instruments, the same color used on the Brombaugh organ at First United Methodist Church, Oberlin, Ohio. Stop handles vary from organ to organ depending on the preference of the client.

On most Ruggles organs with trumpets, the pallets are located in the back of the windchest just below the reed pipes. This allows the reed pipes to receive an ample supply of wind so that they can speak quickly. The Great division at Birmingham United Methodist Church organ, Opus 9, exemplifies this. The Great trackers ascend at an angle within the case to create a connection as direct as possible between the keys in the front of the organ and the pallets in the back. This arrangement eliminates the need for squares, reducing the amount of friction in the action and helping to maintain a light touch. In Ruggles's three largest organs, at Hillsborough Reformed Church, St. Timothy's Episcopal Church, and Calvary United Methodist Church, he

⁸² Quarter-sawn wood is cut along the axis of the log so that the annual rings are perpendicular to the face of the board. The advantage is that the wood is more resistant to warping and shrinkage due to humidity changes. Marine-grade plywood is made using moisture resistant glue and high quality lumber.

⁸³ A rocker is a wooden component of the stop action that transfers motion over long distances. A rocker is hinged at a point near its center, similar to that of a vertical seesaw, with one end connected to a draw knob and the other connected to a slider.

did the opposite by placing the pallets at the front of the windchest opposite the location of the Great trumpets. Ruggles learned from organ builder Karl Wilhelm that on a mid-sized organ with only one reed per division, placing the pallet in this arrangement does not create any speech problems for the reed, with the advantage of a more direct connection from the keyboard to the windchest. The Great trackers go straight up, through a rollerboard with no change in direction. This makes for a simpler and lighter Great action. With multiple reeds, this arrangement would be problematic due to insufficient air pressure.

Most often the wind system on Ruggles organs consists of a single wedge bellows for the entire instrument, with only his largest organs having a second separate bellows or reservoir for the pedal division. All but one Ruggles organ are fed by an appropriately sized blower built by Aug. Laukhuff GmbH & Co. Ruggles tried a blower from a competing company in one of his early organs, but found it to be much larger and noisier than those made by Laukhuff. The blower used in Opus 31 is essentially the same as the blower used in Opus 2, with few changes in the design during those years other than that newer blowers are sealed and do not need to be occasionally oiled as in the older models. Some of the small residence organs use a blower built into the bellows, an arrangement both to save space and reduce noise. The wind pressure is set at 50 mm for residence organs, 60 mm for larger chamber organs, and 75 mm for church and chapel organs. Separate pedal divisions are winded at 100 mm. The winding on Ruggles organs is flexible, though they almost all have small winkers located on the windchests to control excessive shake.⁸⁴ Calvary United Methodist Church also contains concussion bellows on the windlines to both manual divisions. None of his organs have a selectable wind stabilizer.

Ruggles ordered metal pipes from several sources and builders, but they were always built under specific design specifications. The pipes within a single instrument are almost entirely

⁸⁴ A winker, or concussion bellows, is a small wind regulator that helps to prevent unwanted surges and drops of air pressure within a windchest.

made from the same metal, the majority of outsourced pipes being of high lead alloy and, on occasion, hammered. High lead pipes tend to be darker in tone, and Ruggles uses spotted metal with a 50%/50% lead-to-tin content for pipes requiring a brighter tone. He increasingly made his own pipes for later instruments, purchasing sheets of antimonial lead from A.R. Schopp's Sons and Schantz Organ Company, among others, rather than casting his own. He uses antimonial lead in the pipes he builds due to its higher lead content, and because its strength is similar to hammered metal, but without the time and labor of hammering. He enjoys making the Principal 8', 4', 2 2/3', and 2' ranks, but isn't as keen on building Mixtures. Most façade pipes have a higher tin content so that they have a clear, beautiful sheen, with some of the largest façade pipes made of zinc. Façade pipes are always speaking pipes, though on a rare occasion Ruggles adds a small number of dummy pipes in a façade for symmetry.

Due to its stability, Ruggles uses cone tuning almost exclusively on metal pipes.⁸⁵ He scrapes and thins the metal at the top of the resonators to make them more malleable and to prevent metal fatigue and trauma during tuning. Pipe suppliers don't typically want to taper the metal, so Ruggles does this himself after cutting the pipes to length. It is also essential for the metal around the mouths and toes to be thicker than the resonator so that they can handle the stress of cone tuning. To prevent collapse on smaller pipes, including those used in 2' ranks and mixtures, Ruggles reinforces the mouths with vertical lines of solder to add strength. Larger pipes in the lower 8' range, along with façade pipes, are scroll-tuned with the openings made as large as possible.

Ruggles prefers using unequal temperaments on his instruments. He feels strongly that early literature, including the works of J.S. Bach, is played more musically and authentically using these temperaments. Earlier instruments are tuned in Kellner 1978 and Werckmeister III,

⁸⁵ Cone tuned pipes flare in or out at the top of the resonator to raise or lower the pitch. This is considered the most stable method of tuning metal pipes.

with more recent organs using Young temperament.⁸⁶ Some organs are tuned in equal temperament at the request of the client.

Wood ranks are fairly rare in Ruggles church organs, but are used in several residence organs. Most of the wood pipes used in Ruggles organs were built by him or his associates. A wood Subbass 16' rank is used in all of his instruments that contain a Pedal 16' flue. Ruggles is fond of the Gedackt 8' and Waldflöte 4' ranks from Brombaugh's Opus 15 organ at First United Methodist Church, Oberlin, and recreated these for the organs at Birmingham United Methodist Church, St. James' Episcopal Church, and St. Hubert's Episcopal Chapel.

A Trumpet 8' is the most common reed found in Ruggles organs, all being of the same basic design. Most were purchased from Stinkens with Ruggles making the trumpets for Opus 29 and Opus 30. In all but the organ at Fairmount Presbyterian Church, the rank utilizes reed pipes through the entire range without use of a flue at the top end of the rank.⁸⁷ The trumpets are designed after Schnitger, meaning they have shallots and reeds with a slight flair at the bottom, and the resonators are full-length and more open at the base than other styles of trumpet. The resulting tone is full of fundamental and not overpowering, making it useful both as an ensemble reed with plenum or as a solo balanced with the second manual of the organ. Larger organs have a Trombone 16' in the Pedal division, built in the same style as the Trumpet 8' stops, but with the bottom octaves having wood boots and resonators.

⁸⁶ Young Temperament refers to a pair of temperaments by Thomas Young in a letter dated July 9, 1799, to the Royal Society of London. This is a well-tempered, mild temperament.

⁸⁷ Some organ builders use principal flue pipes in the high range of a trumpet rank for ease in tuning and for additional sound. Reeds tend to get softer as they get into the high range of the rank.

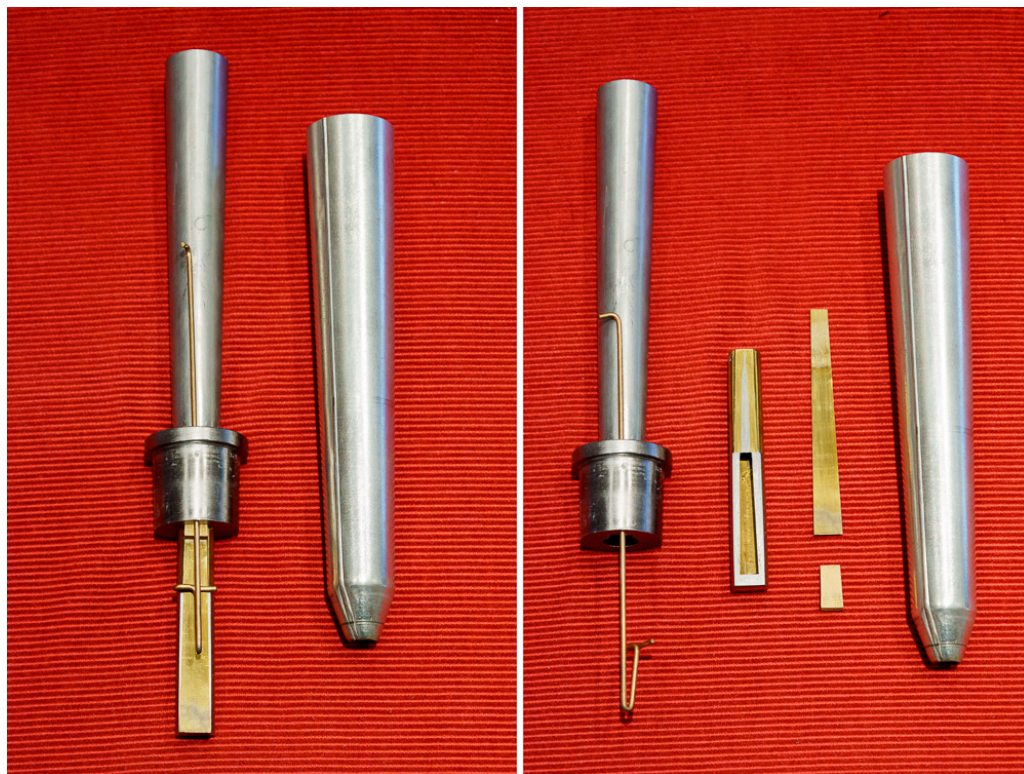


Figure 8.1. Components within the boot of a Pedal Trumpet 8' pipe at Calvary United Methodist Church. All of Ruggles's trumpet stops use a similar design. Photograph provided by Bob Thompson.

Pipes, whether purchased from an outside source or built by Ruggles, are prepared in his workshop on a voicing machine custom built by Halbert Gober. Principal 8' ranks are voiced using Brombaugh's "vocale" philosophy, whereby principal ranks are voiced for use both as a beautiful, singing solo stop and as the foundation of the principal chorus. All of the principal ranks within a division of a Ruggles organ are of the same scale, with subtle voicing differences and placement within the case creating contrast between the ranks. During hymn leading, the sound of the organ can build to the final verse by adding individual principal stops in succession without there being gaps or a sudden surge of sound, especially with the addition of the mixture. Organs containing Principals 8', 4', and 2' often also have a Quinte $2 \frac{2}{3}'$ and Tierce $1 \frac{3}{5}'$ to create a principal-based Cornet. Flutes and reeds, other than trumpets, are based on both historic models and current instruments that Ruggles is familiar with. His mixtures are based on those by

John Brombaugh and historic models. Mixtures in Ruggles's larger, later instruments are also influenced by Hellmuth Wolff, who shared his mixture pipe scalings with Ruggles. The mixtures in Ruggles's organs are not as high-pitched as those found in earlier organ reform instruments, but they do have brilliance in their tone.

Ruggles organs are never extreme in their dynamics or experimental in nature. Larger organs are more creative in the voicing of flute and reed stops, but small instruments don't have that luxury due to their limited size. Ultimately, his goal is to create organs of historically modeled tone with the versatility to play many styles of music well. Ruggles is not concerned with any kind of stylistic purity, a visible indication being his use of stop nomenclature of English, French and German names. Ruggles said the following regarding various instruments and voicing.

A lot of things are an overreaction. During the early 20th century, organs were somewhat tubby and thick sounding. I have some old pipes that have leathered upper lips, and the lead is so thick that it is amazing how dark their tone is. The reform movement came along and they started making Principals with low cutups and spotted metal with a 50/50 tin-to-lead ratio. Brombaugh came along and objected to the low cut-up, low pressure, no nicking, thin, scratchy, frying pan sound. I remember hearing someone practicing on a reform movement organ near Fort Collins, Colorado. I asked, "That's a lovely stop. Is that the Swell Salicional?" No, it was in fact the Great Principal. On the other hand, I visited the Brombaugh organ at First United Methodist Church in Oberlin with an organist acquaintance. We were looking at the instrument together and upon hearing the Principal 8', he said in a derogatory manner, "Well, this sounds like an E.M. Skinner Diapason." I remember saying, "Is that bad? It may not be what you prefer, but it doesn't make it bad."⁸⁸

Whether a stop is a principal, gedackt, rohrlöte, or other, Ruggles has a certain sound in mind that remains consistent across his opera.

While each Ruggles organ is designed to meet the individual needs of the client, they are based on both historic and recent examples of outstanding craftsmanship and artistry. His church

⁸⁸ Charles M. Ruggles, interview by Mark A. Herris, March 13, 2014.

organs start with a foundation of suspended action and mechanical stop action, a principal chorus for hymn leading, and additional stops added according to the scope of the project. Residence organs are built with a sensitive suspended action and gently-voiced ranks for small, intimate settings. Through John Brombaugh and his study in Europe, Ruggles found time-honored traditions in building and voicing that stood the test of time. He found the best combination of these early on, which led to consistency in the action design, materials, voicing, and stop choices between his instruments.

Chapter 9: CHARLES M. RUGGLES: RESTORATIONS

Ruggles undertook two complete organ restorations during his career, along with numerous less consequential renovations, organ removals, and collaborations. In each of these projects, he strove to maintain the integrity of the original instrument and not unnecessarily alter its character. He also appreciated the recyclability of organ pipes and other components; for example, he used older pipes in his Opus 1 and later organs. He would also reclaim poplar wood from old, unsalvageable bourdon pipes, swell shades, and swell boxes, and plane it down for use as new components in his instruments. In fact, Ruggles called organ building one of the earliest green industries as builders have recycled pipes in their organs for hundreds of years. With a good cleaning and re-voicing, many pipes can be reconditioned for use in a new instrument.⁸⁹ Several examples of Ruggles restorations and salvages will be outlined in this chapter.

One of Ruggles's earliest jobs after starting his company in the mid 1970s was to clean and restore an old Jardine organ at the Western Reserve Historical Society in Cleveland, located near the Cleveland Institute of Music. It was a small one-manual, two-stop organ with swell shades and a foot-operated bellows. The organ was in fairly good condition, and the project primarily included cleaning and re-leathering the bellows. No alterations were made to the organ.

Soon after moving to Berea, Ohio, in 1982 Ruggles received a call from St. John's Episcopal Church in Cleveland.⁹⁰ The church had a two-manual Johnson organ that needed to be removed or the parts would be discarded. Curiously, the church leaders only wanted the inner mechanisms and pipes removed, planning to keep the case and façade of the organ so that the sanctuary wouldn't look any different. Ruggles and Greg Sparks removed the organ, which they

⁸⁹ Charles M. Ruggles, interview by Mark A. Herris, October 15, 2015. Most of the material contained in this chapter originated from the interview conducted on October 15, 2015.

⁹⁰ St. John's Episcopal Church, Cleveland, closed in 2007. The building remains the property of the diocese.

found to be in excellent condition, and stored it at the Berea workshop. The Johnson organ came into play when Dana Hull, an organ restorer from Ann Arbor, Michigan, told Ruggles of an old tracker organ at St. Anne's Catholic Parish in Detroit, Michigan. The organ, built by Granville Wood, had been electrified and altered. The church wanted to restore the tracker action and expand the organ in keeping with its original construction. Ruggles prepared a proposal to restore the organ using action parts and pipes from the Johnson organ. Before Ruggles was able to begin the project, he learned that the treasurer of the church had stolen all of the money raised for the project, and the money was not recovered. The Johnson organ was sold two years later to a buyer through Alan Laufman and the Organ Clearing House.

Also in the mid 1980s, Ruggles received a call from a homeowner in Loudonville, Ohio, who had an old organ in her attic that she wanted removed. He and Greg Sparks moved the one-manual organ to his workshop and determined that it was a nearly complete instrument by organ builder David Allmendinger of Ann Arbor, Michigan. Ruggles learned from Hull, the Ann Arbor organ restorer, that this was the only known extant example of Allmendinger's work. Ruggles still owns this instrument and intends to restore it at a future date.

The first of Ruggles's two major restorations was the 1898 Pilcher organ, Opus 350, at St. Louis Roman Catholic Church, Louisville, Ohio. The organ had been damaged in the 1950s due to a leak in the roof, and a church member replaced damaged pipes and electrified the Pedal division in 1962. These alterations were problematic for over a decade before the church contracted Ruggles to restore and, in subtle ways, update the organ. Ruggles replaced the pedal windchests, built a new tracker action to the chests, and replaced the pedalboard. In 1962, the electrified Pedal division expanded from 27 notes to 32, but the Swell to Pedal and Great to Pedal couplers continued to only work with 27 notes. Ruggles expanded the couplers to cover the entire range without altering the original mechanism. Parts for the Swell to Great Octaves coupler had been removed at some point, stored within the organ. He repaired and returned the coupler to its

original location. The bellows leather was replaced, and electric lights were added to the casework to imitate the original oil lamps that had been installed when the organ was new.

The organ specification was altered slightly at the request of the church. An Oboe Gamba 8' on the Swell was replaced with a Trumpet 8' rank from an 1878 Johnson organ, and the Great windchest was prepared for the addition of a mixture at a future date. The Pedal division was expanded to include a Trombone 16', along with a transplanted 1878 Johnson Violin 8' and the original Bourdon 16'. The dedication of the organ occurred on October 18, 1987.

Table 9.1. Stoplist for 1898 Pilcher Organ, Saint Louis Roman Catholic Church, Louisville, Ohio, following the 1987 restoration by Charles M. Ruggles.

Great – 61 Notes	Swell – 61 Notes	Pedal – 32 Notes (Flat)
Open Diapason 8'	Gedackt Bass 8'	Bourdon 16'
Bourdon 8'	Gedackt 8' [t.c.]	Violon 8'
Dulciana 8'	Viola 8'	Trombone 16'
Octave 4'	Viola Celeste 8' [t.c.]	
Twelfth 2 2/3'	Flute Harmonic 4'	Couplers
Fifteenth 2'	Trumpet 8'	Swell to Great
		Swell to Great Octaves
Piano Combination Pedal	Swell Tremolo	Swell to Pedal
Forte Combination Pedal		Great to Pedal

Ruggles's most significant restoration was the 1884 Henry Kilgen organ in the remote town of Austin, Nevada. St. Augustine's Parish opened in 1866, soon after silver was discovered in the area and the town of Austin was established. The Kilgen organ was one of three pipe organs installed in churches around Austin, a testament to the wealth generated by mining in the area, considering that there were very few pipe organs in Nevada at the time. Henry Kilgen, son of the prominent organ builder George Kilgen, parted ways with his father to start his own company in 1882. Not much is known about the organs by Henry Kilgen, with the organ in Austin being the only unaltered extant example of his work.⁹¹

⁹¹ Michael D. Friesen, "Henry Kilgen, St. Louis Organbuilder." *The Tracker* 58, no. 4 (2014), 18.

The organ, built in St. Louis, Missouri, was transported to Austin by train with installation and inauguration occurring in August through September 1884. In time, the silver mines stopped producing wealth and the population of Austin dropped from its high of over 10,000 residents to approximately 350 today. The organ fell into disrepair in the 1960s, with the church closing in 1990 due to a lack of pastoral leadership and degradation of the church building. For many years following its closing, there were rumors of the presence of an organ within the church, but visitors to the site—members of the Organ Historical Society, including Alan Laufman—were unable to gain access into the building.

Austin resident Jan Morrison purchased the building in the early 2000s, and with the help of other local residents she created a non-profit organization to support local fine arts at the church. The building's name was changed to St. Augustine's Cultural Center, and the non-profit organization received a series of matching grants from the state of Nevada and the National Parks Service for restoration of the building. Organ historian Michael Friesen learned of these developments, and he, along with Howard Bennett, an OHS member from Reno, contacted Morrison to gain access to the organ. They were delighted to find that the organ was by Henry Kilgen and in an unaltered, though unplayable, state. Friesen and others worked with Morrison to secure additional grant money from the State of Nevada Historic Preservation Office and the United States Department of the Interior—National Park Services *Saving America's Treasures* program to commence restoration of the organ in 2012.⁹²

Ruggles was chosen to complete the restoration based on the Organ Historical Society's (OHS) *Guidelines for Conservation*. Michael Friesen wrote of this in an essay for *The Tracker* published in January 2016.

⁹² Michael D. Friesen, H. D. Bennett, and C. M. Ruggles. "The Henry Kilgen Organ in Austin, Nevada: A Description of the Instrument and Its Restoration." *The Tracker* 60, no. 1 (2016), 14.

Owing to Austin's isolated location in the center of the state (about 150 miles east of Reno on U.S. Highway 50, known as the "Loneliest Road in America"), the goal of the restoration was to make the organ as maintenance-free as possible, as well as friendly-to-play, knowing that opportunities to bring in organ service personnel would be infrequent, as well as relatively expensive. It should now be mechanically stable and also stay in tune well. The building is intended to be used for summer occupancy only, with no furnace installed, which means that the risk of drying the instrument out through use of forced-air heating in the winter, thus creating new damage, is obviated.

The organ was restored consistent with the Organ Historical Society's *Guidelines for Conservation*, which means that the original fabric was retained to the greatest extent possible, with repairs, cleaning, and other tasks done to preserve the original engineering and construction techniques, as well as materials. Replacement of material was confined to perishable organics such as leather and felt and repairs or new parts are clearly identifiable so that anyone could discern the nature of the work. Surface alterations, such as sanding and planing, were kept to a minimum and done to ensure functionality or eliminate visual blight caused by damage, although ideally of course one would want to preserve or conserve original surfaces to the greatest extent possible for the "construction technique" evidence that is apparent thereby. But the organ had to be made to work properly again, so such intervention had a higher necessity than aesthetic considerations.⁹³

Work began with Ruggles, Friesen, and Bennett assessing the condition of the organ and removing it to Ruggles's workshop in Conifer, Colorado. The back of the organ had been exposed to the elements due to a structural issue with the building that was never resolved. When installed, the organ was to have been placed against the back wall of the sanctuary, which was open to the bell tower. Placing the organ against the hole in the wall would have caused the pedal division pipes to project into the bell tower rather than into the sanctuary. Therefore, the organ was positioned further forward than originally intended. The hole to the tower behind the organ was never sealed off, and the organ's case remained open in the back and at the last few feet of each side. The tower being open to the elements allowed humidity and dirt from outside to filter directly into the organ. When Ruggles removed the organ from the church, it was filthy from decades of exposure to Nevada sand, there was evidence of water damage, and bat guano and bird

⁹³ Ibid., 20–21.

dung were present throughout the case. In addition, a number of pipes were severely damaged by what appeared to be an animal, perhaps a cat, that had gained access to the organ.

Ruggles stripped down the organ to its smallest component and refurbished every part of the instrument. The organ originally was hand-pumped with feeder bellows and a double rise reservoir. The three original feeders were amateurishly replaced in the 1950s with a swamp cooler functioning as a blower. It was impossible to determine from this remaining equipment the original wind pressure, so Ruggles spent considerable time experimenting with the pipes to determine what pressure they required. He determined that the pressure was a relatively common 3-inches (76 mm), though this resulted in the organ being tuned a bit high at A4=451Hz. It was decided not to recreate the original hand-pumping mechanism due to the cost and unlikelihood that it would be regularly used. The double rise reservoir was re-leathered, and a new blower by Laukhuff was installed.

With the wind pressure known, Ruggles used undamaged pipes to guide in repairing damaged ones within each rank. Where pipes couldn't be bent back to their original shape, new metal was used to strengthen them. The façade pipes were stenciled and were all in excellent condition. They were gently cleaned with water and replaced as-is. The pipes were regulated but not re-voiced in an effort to preserve the original tone of the instrument. Cracks in the windchests were repaired, leather on the pallets replaced, and all water damage dealt with.

Table 9.2. Stoplist for 1884 Henry Kilgen Organ, St. Augustine's Cultural Center, Austin, Nevada.

Manual – 61 Notes (Enclosed)	Pedal – 27 Notes (Flat)
Open Diapason 8'	Bourdon 16'
Unison Bass 8'	
Stop Diapason 8' [t.c.]	Coupler
Melodia 8' [t.c.]	Manual to Pedal
Dulciana 8' [t.c.]	
Principal 4'	Pedal Check
Flute Harmonic 4'	Piano Combination Pedal
Twelfth 2 2/3'	Forte Combination Pedal
Fifteenth 2'	Expression Pedal

The casework was cleaned with a light wipe with a lacquer thinner to remove dirt, but it wasn't completely refinished. Ruggles built new sides and back to fully encase the instrument. The interior of the organ had been painted with red milk paint, which, being water soluble, began coming off as the organ was cleaned. Ruggles located a company that still made milk paint and found a color called Salem Red that was a very close match. Michael Friesen and Howard Bennett assisted with many aspects of the restoration. All of the work on the organ was completed in a year and half, and it was re-installed in October 2013. St. Augustine's Cultural Center, along with the organ, were re-dedicated on September 27, 2014. Today the building is listed on the National Register of Historic Places.

Ruggles's approach to restorations reflected what he learned during his early training from A.H. De Graaf of Leusden, Netherlands. The origins of each organ and its builder were to be respected through minimal changes, except where justified for practical reasons. The organ at St. Louis Catholic Church had undergone several changes prior to Ruggles's work on it. The pedal action was restored, and the organ was expanded with a trumpet from the same time period as the organ. The changes were in deference to how the organ would have been conceived at the time it was built. Likewise was the treatment of the organ at the St. Augustine's Cultural Center. This was a unique opportunity: to restore the only extant example by an organ builder to its original condition. Every effort was taken to honor the workmanship and skill of the original artists in these projects. This was Ruggles's approach on both significant restorations and smaller projects.

Chapter 10: CONCLUSION

Charles M. Ruggles was fascinated with the pipe organ from an early age, first as a performer and later as a builder. He was fortunate to have studied with exceptional teachers through his high school and college years, all of whom were passionate about the organ reform movement occurring in the United States and Canada during those years. His appreciation for the authentic performance of Baroque-era music, as well as an affinity for understanding how things work, led him to build instruments of his own within this tradition.

Ruggles took what he learned from John Brombaugh and other leading American builders, combined with direct observations and study of historic organs during trips to Europe, and created a series of instruments that were uniquely his own. Despite incredible advancements in computer technology, which many organ builders were utilizing in their organs, Ruggles has consistently stayed true to his philosophy that hand-crafted mechanical action organs were the most reliable, most responsive, and longest lasting option available.

There is the distinct possibility that Ruggles could build additional organs after the completion of this study. If so, it is to be expected that any such instruments will be built with the same care and standards as his prior organs.

The 31 organs that comprise Charles M. Ruggles's opus list to date have made a lasting contribution to the craft of organ building in the United States. Although the number of organs built by Ruggles is small compared to other organ builders and firms, his instruments were each hand-built by a small, talented group of craftsmen. This technique was to the benefit of the clients he served and the greater community who enjoy the music produced by the instruments. His instruments are a delight to play, having an elegance of tone that compels organists to play for extended periods using even simple combinations of stops. All of his organs are still in use today without significant alteration, including a few that have changed hands due to the passing of the

owner or changes in circumstances. It is likely that most, if not all of his organs will still be in use a century or more from now. Surely there can be no greater reward for a craftsman than to have such a legacy.

Appendix 1: ORGAN SPECIFICATIONS



Opus 1

1974

**Charles M. Ruggles Residence
Conifer, Colorado**

**Currently resides at
St. Lawrence Episcopal Church
Conifer, Colorado**

Manual I – 56 notes

Gedackt 8'

Manual II – 56 notes

Rohrflöte 4'

Pedal – 30 notes (Flat)

Holzgedackt 8'

Coupler

Manual II to I

- Temperament: Originally Werckmeister. Currently tuned in Young.
- Windpressure: 50 mm
- Casework is of Honduras mahogany. Keys are made of wood naturals and sharps.
- Modeled after a Flentrop practice organ located at the University of North Texas, Denton, Texas. The pipes were built in the 19th century and pulled from both a Johnson organ and a Holtkamp organ.

Sources:

Personal visit on July 16, 2011

<http://rugglesorgans.com/Opus1.html>

Photograph by Mark A. Herris



Opus 2

1976

**Dr. Richard L. Ruggles Residence
Cleveland Heights, Ohio**

**Currently resides at
Charles M. Ruggles's residence
Conifer, Colorado**

Manual I – 56 notes

Roerfluit 8'
Praestant 4'
Mixtuur II

Manual II – 56 notes

Gedackt 8'
Roerfluit 4'
Gemshoorn 2'

Pedal – 30 notes (Flat)

Bourdon 16'
Bourdon 8'

Couplers

Manual II to I
Manual II to Pedal
Manual I to Pedal

- Temperament: Originally Werckmeister. Currently tuned in Young
- Wind pressure: 50 mm
- The case is of black walnut. The keys are made of bone naturals.
- The Manual II to Manual I coupler is a slide coupler.
- The organ can be separated into two sections for transport. The blower and bellows are in a separate case.

Sources

Interview with Charles M. Ruggles, March 13, 2014

<http://rugglesorgans.com/opus2.html>

Photograph provided by Charles M. Ruggles



Opus 3

1976

**Tracker Action Model
Olmsted Falls, Ohio**

**Currently resides at
Charles M. Ruggles's workshop
Conifer, Colorado**

Manual – 3 Notes

- Three keys, three pallets, and a visible wind chest for observing how tracker action works.

Sources:

Interview with Charles M. Ruggles, March 13, 2014

Photograph provided by Charles M. Ruggles



Opus 4

1975

**David Lee Maulsby Residence
San Francisco, California**

**Currently resides at
Dr. Robert Bozeman's residence
Louisville, Kentucky**

Manual I – 56 notes

Quintadena 8'

Manual II – 56 notes

Rohrflöte 8'

Pedal – 30 notes (Flat)

Gedackt 8'

- Temperament: Werckmeister
- Wind pressure: 50 mm
- This was the first organ built for a client by Ruggles. Maulsby requested that the Opus number be 4. The organ was purchased by the University of North Alabama (UNA) in July 1989 following the death of David Maulsby. Professor Janette Fishell was responsible for acquiring the organ for UNA. The instrument is currently owned by Dr. Robert Bozeman of Louisville, Kentucky.
- The blower and bellows are located inside the case.

Sources:

Interview with Charles M. Ruggles, March 13, 2014

<http://rugglesorgans.com/opus4.html>

Photograph provided by Robert Bozeman



Opus 5

1978

**Dr. J. Heywood Alexander Residence
Chagrin Falls, Ohio**

**Currently resides at
Dr. Alexander's residence
Randolph, New Hampshire**

Manual I – 56 Notes

Rohrflöte 8'
Principal 4'

Manual II – 56 Notes

Gedackt 8'
Rohrflöte 4'
Gemshorn 2'

Pedal – 30 Notes (Flat)

Prepared

Couplers

Manual II to I
Manual II to Pedal
Manual I to Pedal

- Temperament: Werckmeister
- Windpressure: 50 mm
- This organ is a clone of Opus 2, but without the Manual I mixture and Pedal stops. The pipe shades are the same herringbone pattern as found on Opus 2.
- The case is made of walnut.
- Manuals are made of cherry naturals and ebony sharps.
- The organ is prepared for the addition of a mixture on Manual I and two stops in the Pedal.
- The blower and bellows are in a separate case.

Sources:

Interview with Charles M. Ruggles, March 13, 2014

Photograph provided by Charles M. Ruggles



Opus 6

1979

**St. John's Lutheran Church
Highland Heights, Ohio**

Great – 56 Notes	Brustwerk (Swell) – 56 Notes	Pedal – 30 Notes (Radiating)
-------------------------	-------------------------------------	-------------------------------------

Principal 8'	Gedackt 8'	Subbass 16'
Chimney Flute 8'	Flute 4'	Octave 8' *
Octave 4'	Nazard 2 2/3'	Trumpet 8' **
Octave 2'	Gemshorn 2'	
Mixture IV	Tierce 1 3/5'	
Trumpet 8'	Larigot 1 1/3'	
	Sifflet 1'	

Tremulant to the entire organ

* C2–G2 common with Great Principal 8'

Couplers

Brustwerk to Great
Brustwerk to Pedal
Great to Pedal

** Transmitted from Great Trumpet 8'

- Temperament: Werckmeister
- Wind pressure: 75 mm
- The case is constructed of oiled Honduras mahogany. All metal pipes are of tin/lead alloy. Stopped flue pipes have soldered caps, and open flue pipes are cone tuned.

Sources

Interview with Charles M. Ruggles, March 24, 2014

Personal visit, June 10, 2013

<http://rugglesorgans.com/opus6.html>

Photograph provided by Charles M. Ruggles



Opus 7

1980

David Mulbury Residence
Cincinnati, Ohio

Manual I – 56 Notes

Gedackt 8'
Gemshorn 2'

Manual II – 56 Notes

Quintaden 8'
Rohrflöte 4'

Pedal – 30 Notes (Radiating)

Subbass 16'

Couplers

Manual II to I
Manual II to Pedal
Manual I to Pedal

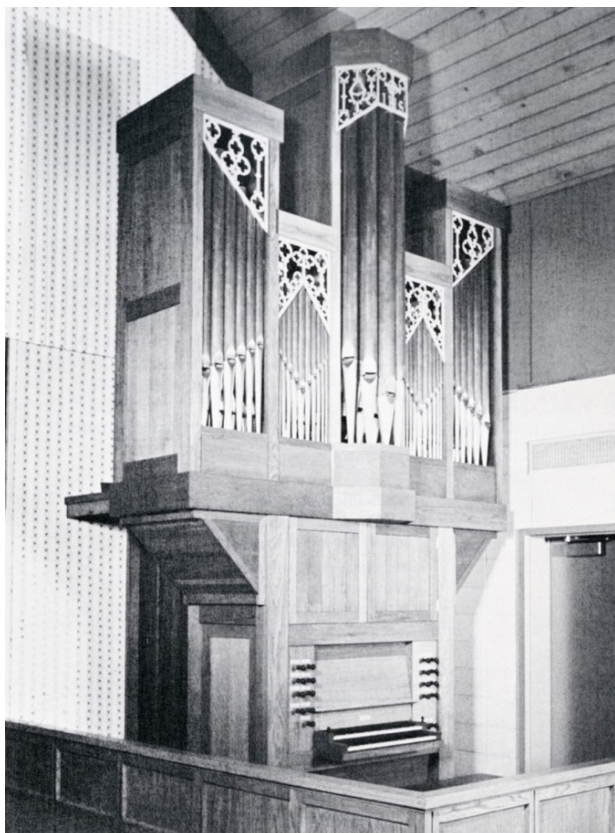
- Temperament: Werckmeister
- Wind pressure: 50 mm
- Case is made of black walnut. The manual naturals are covered with bone and the sharps are ebony.
- The center pipe of the façade is embossed.

Sources:

Interview with Charles M. Ruggles, March 24, 2014

<http://rugglesorgans.com/opus7.html>

Photograph provided by Charles M. Ruggles was taken in Dr. Richard Ruggles's living room.



Opus 8

1982

**St. Andrew's
United Presbyterian Church
Olmstead Falls, Ohio**

Great – 56 Notes	Brustwerk (Swell) – 56 Notes	Pedal – 30 Notes (Radiating)
Principal 8'	Gedackt 8'	Subbass 16'
Rohrflöte 8'	Flute 4'	Octave 8'
Octave 4'	Nazard 2 2/3'	
Octave 2'	Gemshorn 2'	
Mixture II-IV	Tierce 1 3/5'	
Trumpet 8'	Larigot 1 1/3'	
	Cymbal II	
Tremulant to the entire organ	Regal 8'	
		Couplers
		Brustwerk to Great
		Brustwerk to Pedal
		Great to Pedal

- Temperament: Werckmeister
- Windpressure: 75 mm
- This organ is a clone of the Opus 6 organ at St. John's Lutheran Church. Differences between the instruments include a change in the façade layout and pipe shades design, as well as a few stop changes in the Brustwerk.

Sources:

Interview with Charles M. Ruggles, March 24, 2014

<http://rugglesorgans.com/opus8.html>

Photograph provided by Charles M. Ruggles



Opus 9

1983

**Birmingham United Methodist Church
Birmingham, Ohio**

Great – 56 Notes	Brustwerk – 56 Notes	Pedal – 30 Notes (Flat)
Principal 8'	Gedackt 8'	Subbass 16'
Rohrflöte 8'	Blockflöte 4'	Octave 8' **
Octave 4'	Principal 2'	Trumpet 8' (Great)
Octave 2'		
Sesquialtera II *	Tremulant to the	Couplers
Mixture IV	entire organ	Brustwerk to Great
Trumpet 8'		Brustwerk to Pedal
	** C2–A2 common with	Great to Pedal
* From C4/C #4	Great Principal 8'	

- Temperament: Kirnberger III
- Wind pressure: 75 mm
- The case, bench, pedalboard, and carved pipe shades were made of cherry wood from a tree from Otto Schoepfle's property.
- The Brustwerk Gedackt 8' and Blockflöte 4' were based on two stops by north German organ builder Berendt Huss. Also used by John Brombaugh at First United Methodist Church, Oberlin, Ohio.

Sources:

Personal visit on June 7, 2013

Interview with Charles M. Ruggles, September 24, 2015

<http://rugglesorgans.com/opus9.html>

Photograph provided by Charles M. Ruggles



Opus 10

1983

Christ United Presbyterian
Church Chapel
Canton, Ohio

<u>Manual I – 56 Notes</u>	<u>Manual II – 56 Notes</u>	<u>Pedal – 30 Notes (Radiating)</u>
Rohrflöte 8'	Gedackt 8'	Subbass 16'
Principal 4'	Koppelflöte 4'	Bourdon 8'
Mixture II	Larigot 1 1/3'	

- Temperament: Equal
- Wind pressure: 60 mm
- Case is made of walnut and Subbass 16' of ash.
- Manual naturals are made of Ebony, and the sharps are covered with bone.
- This organ is a clone of Opus 2, but with a Koppelflöte 4' rather than a Rohrflöte 4', and a Larigot 1 1/3' rather than Gemshorn 2' on Manual II. It is also voiced fuller and louder for use in the chapel.
- The organ sits on a dolly so that it can be moved to the main sanctuary for use as a continuo organ.
- The pipe shades were designed and built by Greg Sparks.
- This organ was the first to have knobs going through the cheeks for coupling manuals. The knobs worked by moving a set of backfalls into place. The change allowed the lower keyboard to pull down the upper without having to move the entire keydesk to engage.
- The blower and bellows are in a separate case.

Sources:

Personal visit on June 6, 2013

Interview with Charles M. Ruggles, September 24, 2015

Photograph by Mark A. Herris



Opus 11

1983

Portative Organ for the
Ganassi Early Music Ensemble
Cleveland, Ohio

Manual – 26 Notes

E4 – F6

- Temperament: Quarter-comma meantone
- Single manual with 26 notes, E4 – F6
- Modelled after portative organs found in the works of Flemish painter Hans Memling

Sources:

Interview with Charles M. Ruggles, September 24, 2015

<http://rugglesorgans.com/opus11.html>

Photograph provided by Charles M. Ruggles



Opus 12

1984

**W. Thomas Smith Residence
Fort Worth, Texas**

**Currently located at
Dr. Craig Cramer's residence
Granger, Indiana**

Manual I – 56 Notes

Holtz Gedackt 8'

Manual II – 56 Notes

Rohrflöte 8'

Pedal – 30 Notes (Flat)

Manual I Pulldown
(Permanent)

- Temperament: Created by Metzler Orgelbau, Switzerland
- Wind Pressure: 50 mm
- A clone of Opus 2, though with much fewer stops. The case was built using leftover lumber from Opus 9, Birmingham United Methodist Church.
- The Holtz Gedackt is made of ash.
- The top half of the organ separates from the bottom for easy transport.

Sources:

Personal visit on July 30, 2013

Interview with Charles M. Ruggles, September 24, 2015

Photograph by Mark A. Herris



Opus 13

1985

**Portative Organ for
Richard Simons,
Burgundian Consort
Chicago, Illinois**

Manual – 30 Notes

C4 – F6

- Temperament: Quarter-comma meantone
- Modeled after an Ahrend portative and Opus 11, this instrument had a wider range of C4 – F6.

Sources:

Interview with Charles M. Ruggles, September 24, 2015

Photograph provided by Charles M. Ruggles

**Opus 14****1986**

**Carol Meyer Residence
Ripon, Wisconsin**

**Currently resides at
Lawrence University
Appleton, Wisconsin**

Great – 56 Notes

Rohrflöte 8'
Principal 4'
Mixture II

Swell – 56 Notes

Gedackt 8'
Koppelflöte 4'
Gemshorn 2'

Pedal – 30 Notes (Flat)

Subbass 16'
Bourdon 8' *

* Extension of Subbass 16'

Couplers

Manual II to I
Manual II to Pedal
Manual I to Pedal

- Temperament: Unknown
- Windpressure: 50 mm
- Case was built of walnut. Manuals made of bone naturals and ebony sharps.
- The stoplist is the same as Opus 2 built into a case similar to Opus 7. The pipe shades are the same as Opus 7, but without the Silbermann shell.
- Metal pipes were made by Rogers in England, except for Mixture II made by Laukhuff.

Sources:

Interview with Charles M. Ruggles, 9-24-2015

Photograph provided by Steve Riendl



Opus 15

1986

Baldwin-Wallace College
Berea, Ohio

Manual I – 56 Notes

Rohrflöte 8'
Principal 4'
Octave 2'

Manual II – 56 Notes

Holzgedackt 8'
Koppelflöte 4'
Larigot 1 1/3'

Pedal – 30 Notes (Flat)

Subbass 16'

Couplers

Manual II to I
Manual II to Pedal
Manual I to Pedal

- Temperament: Equal
- Wind Pressure: 60 mm
- The casework and wooden pipes are made of oiled white oak. Manual naturals are of cherry, and sharps of grenadilla.
- This organ is a clone of Opus 7 but with fuller voicing of the principals. The center crest is J.S. Bach's signet ring.
- The pedalboard is hinged to the case, folds up and latches beneath the manuals for easy storage and transport.

Sources:

Interview with Charles M. Ruggles, September 24, 2015

<http://rugglesorgans.com/opus15.html>

Photograph provided by Charles M. Ruggles



Opus 16

1986

Cleveland Institute of Music
Cleveland, Ohio

Manual I – 56 Notes

Rohrflöte 8'

Manual II – 56 Notes

Vox Humana 8'
Blockflöte 4'

Pedal – 30 Notes (Flat)

Gedackt 8'

- Temperament: Equal
- Wind pressure: 50 mm
- Organ is a clone of Opus 2 but with angled towers on each side of the case.
- Casework is of oiled ash. Manual naturals are cherry and sharps are grenadilla. The Great Rohrflöte and Pedal Gedackt are made of oak, and the Manual II Blockflöte is of oak and walnut.
- Karel Paukert requested a Vox Humana 8' on Manual II because it could be quickly tuned to a different temperament. This gave students the opportunity to experiment with various temperaments on early music.

Sources:

Interview with Charles M. Ruggles, September 24, 2015

<http://rugglesorgans.com/opus16.html>

Photograph provided by Charles M. Ruggles



Opus 17

1987

St. James' Episcopal Church
Grosse Ile, Michigan

Great – 56 Notes

Rohrflöte 8'
Principal 4'
Octave 2'
Quinte 1 1/3'
Trumpet 8'

Tremulant to the
entire organ

Swell – 56 Notes

Gedackt 8'
Blockflöte 4'
Gemshorn 2'
Clarionet 8'

* Extension of the
Subbass 16'

Pedal – 30 Notes (Radiating)

Subbass 16'
Bourdon 8' *
Octave 4'
Trumpet 8' (Great)

Couplers

Swell to Great
Swell to Pedal
Great to Pedal

- Temperament: Kellner 1978
- Wind pressure: 75 mm
- The casework is of oiled black walnut. The manual naturals are covered with bone and sharps are made of grenadilla. Stop handles are rosewood with an ivory plate on the knob.
- The pipe shades and St. James' Shield are carved of butternut. Made by Jean Dutin, the inspiration for the pipe shade design came from the stained glass, arches, and woodworking in the sanctuary. The St. James' shield had the three scalloped shell representing St. James, the fisherman.

- The Clarionet 8' stop is from an 1878 Johnson organ.
- The Swell division is located in the lower half of the case, below the manuals, with swell shades located on the right side and back of the case. It was designed like an enclosed trunk organ. The Great and Pedal divisions are located in the upper case.
- The Pedal Bourdon 8' is an extension of the Subbass 16'
- The voicing of the organ is bold without being too loud, similar to Opus 9, Birmingham United Methodist Church.
- The dedication recital was played by Charles Ruggles, James Kibbie, and Dudley Oakes, organist at St. James'.

Sources:

Interview with Charles M. Ruggles, October 1, 2015

<http://rugglesorgans.com/opus17.html>

Photograph provided by Charles M. Ruggles



Opus 18

1988

**St. Hubert's Chapel
Kirtland Hills, Ohio**

Great – 56 Notes

Rohrflöte 8'
Principal 4'
Nazard 2 2/3'
Mixture III

Tremulant to the
entire organ

Swell – 56 Notes

Gedackt 8'
Blockflöte 4'
Principal 2'
Cromorne 8'

Pedal – 30 Notes (Flat)

Subbass 16'
Bourdon 8'
Choralbass 4'

Couplers

Swell to Great
Swell to Pedal
Great to Pedal

- Temperament: Young
- Wind pressure: 75 mm
- This organ is similar in design to Opus 17. The Swell is located in the lower case with stickers in the action and fully enclosed. The swell shade slats are located in the back of the organ. The Great and Pedal are located in the upper case.
- The pipe shades were designed and made by Jean Dutin with inspiration from wildlife embroidered into the chapel's communion rail kneelers. The top of the tower includes a stag with a crucifix between its antlers, recounting St. Hubert's vision while hunting.
- Inclusion of a Nazard 2 2/3' was upon insistence of Karel Paukert.

Sources:

Interview with Charles M. Ruggles, October 1, 2015

Personal visit on July 16, 2011

<http://rugglesorgans.com/opus18.html>

Photograph provided by Charles M. Ruggles



Opus 19

1989

Gladys Christensen Residence
Wheaton, Illinois

Currently resides at
Wheaton College
Wheaton, Illinois

Manual I – 56 Notes

Rohrflöte 8'

Manual II – 56 Notes

Vox Humana 8'
Blockflöte 4'

Pedal – 30 Notes (Radiating)

Gedackt 8'

Couplers

Manual II to I
Manual II to Pedal

- Temperament: Originally Kellner 1978. Current temperament unknown.
- Wind pressure: 50 mm
- This organ was a near replica of Opus 16 at the Cleveland Institute of Music, the only change being that the case was made of walnut.

Sources:

Interview with Charles M. Ruggles, October 1, 2015

Photograph provided by Charles M. Ruggles



Opus 20

1989

**Emmanuel Chapel of
Corpus Christi Cathedral
Corpus Christi, Texas**

Manual – 56 Notes

Rohrflöte 8'
Principal 4'
Flute 4'
Octave 2'
Mixture III

Pedal – 30 notes (Flat)

Subbass 16'

Coupler

Manual to Pedal

- Temperament: Unknown
- Wind pressure: 50 mm
- This was Ruggles's first one-manual organ. It was mechanically similar to Manual I of Opus 2.
- Ruggles created the center embossed pipe.
- The rounded shape of the case along with the doors mimics the reredos of the crypt chapel where the organ resides. The stain on the case was chosen to match the chapel's pews.
- The upper case can be removed for easy transport of the organ to the main Cathedral sanctuary for use as a continuo instrument. Ruggles designed a new coupler mechanism that could be quickly disconnected when moving the organ.
- The blower and bellows reside inside of the case.

Sources:

Interview with Charles M. Ruggles, October 1, 2015

<http://rugglesorgans.com/opus20.html>

Photograph provided by Charles M. Ruggles



Opus 21

1989

Mary Gibbard Residence
Ann Arbor, Michigan

Currently owned by
Hildred and Ed Tornberg
Novelty, Ohio

Manual I – 56 Notes	Manual II – 56 Notes	Pedal – 30 Notes (Flat)
Rohrflöte 8'	Gedackt 8'	Bourdon 8'
Principal 4'	Koppelflöte 4'	Octave 4'
Octave 2'	Nazard 2 2/3'	
	Gemshorn 2'	
	Tierce 1 3/5'	

- Temperament: Unknown
- Wind Pressure: 50 mm
- A near clone of the organ for Baldwin-Wallace College, Opus 15.
- The bellows and blower are located inside of the case.
- As the organ was being built, Mary Gibbard was diagnosed with terminal form of cancer. Upon hearing the news, Ruggles loaned her Opus 1 until Opus 21 was completed. The dedication was played by James Kibbie on November 19, 1989, and Mary Gibbard passed away two months later.

Sources:

Interview with Charles M. Ruggles, October 1, 2015

Photograph provided by Ed Tornberg



Opus 22

1991

**Hillsborough Reformed Church
Millstone, New Jersey**

Great – 56 Notes

Principal 8'
Rohrflöte 8'
Octave 4'
Octave 2'
Mixture III-V
Trumpet 8'

Tremulant to the
entire organ

Swell – 56 Notes

Gedackt 8'
Principal 4'
Rohrflöte 4'
Nazard 2 2/3'
Blockflöte 2'
Tierce 1 3/5'
Scharf III-IV
Dulcian 8'

* C2–B2 common with the
Great Principal 8'

Pedal – 30 Notes (Flat)

Subbass 16'
Octave 8' *
Trombone 16'
Trumpet 8' **

Couplers

Swell to Great
Swell to Pedal
Great to Pedal

** Extension of
Trombone 16'

- Temperament: Kellner 1978
- Wind Pressure: 75 mm
- The majority of metal pipes are made of a high lead alloy, except for the Principal 8' façade which is 75% tin. The Gedackt 8' is made of walnut and maple. The Subbass 16'

and bottom octave of the Trombone 16' are made of poplar. The Trumpet 8' and Dulcian 8' were made by Stinkens.

- The case is made of hand-planed oiled white oak. The pipe shades are also made of oiled white oak. Keyboard naturals are covered in bone and the sharps are of grenadilla. Stopknobs are Brazilian rosewood.
- The following individuals were involved in the construction of the instrument:
 - Charles M. Ruggles: Design, voicing, pipemaking, stop action, wind system, casework
 - Greg Sparks: Wind chests, key action, wood pipes, casework
 - David Betts: Pipemaking, key action, finishing, wind system
 - Martin Pasi: Carvings, pipemaking
 - Larry Damico: Casework
 - Roger Hornung: Wood pipes, bench
 - Judy Fritts: Metal pipes
 - Dana Hull: Voicing
 - Kevin Fisher: Voicing

Sources:

Interview with Charles M. Ruggles, October 5, 2015

"Dedication of the Charles M. Ruggles Organ, Opus 22," Dedication Program, April 7, 1991

<http://rugglesorgans.com/opus22.html>

Photograph provided by Charles M. Ruggles



Opus 23

1992

St. Timothy's Episcopal Church
Cincinnati, Ohio

Great – 56 Notes

Bourdon 16' *
Principal 8'
Rohrflöte 8'
Octave 4'
Flute 4'
Quinte 2 2/3' *
Octave 2' *
Tierce 1 3/5' *
Mixture V
Trumpet 8' *

* Half draw, starts at
C4/C#4

** C2–G#2 common with
Gedackt 8'

Swell – 56 Notes

Principal 8' **
Gedackt 8'
Gamba 8' **
Octave 4'
Spitzflöte 4'
Gemshorn 2'
Larigot 1 1/3'
Plein Jeu IV
Dulcian 8'
Vox Humana 16'

*** C2–B2 common with
Subbass 16'

**** Extension of
Trombone 16'

Pedal – 30 Notes (Flat)

Subbass 16'
Octave 8'
Bourdon 8' ***
Choralbass 4'
Trombone 16'
Trumpet 8' ****

Couplers

Swell to Great
Swell to Pedal
Great to Pedal

Tremulant

- Temperament: Kellner 1978
- Wind pressure: 70 mm manuals, 100 mm pedal. The manuals are supplied with wind from a single wedge bellows, and the Pedal from a square reservoir. Wind comes from a one-horsepower electric blower.
- The case is made of walnut-stained white oak.
- The majority of metal pipes are made of a high lead alloy, except for the Principal 8' façade, which is 75% tin. The Gedackt 8' is made of walnut and maple. The Subbass 16' and bottom octave of the Trombone 16' are made of poplar. The reeds were made by Stinkens.
- The pedal division is located in the upper far left section of the case.

Sources:

Personal visit on June 28, 2013

Interview with Charles M. Ruggles, October 5, 2015

<http://rugglesorgans.com/opus23.html>

<http://www.sainttimothys.com/st-timothys-organ/>

Photograph by Mark A. Herris



Opus 24

1994

Calvary United Methodist Church
Brownsburg, Indiana

Great – 58 Notes

Bourdon 16' *
Principal 8'
Rohrflöte 8'
Octave 4'
Quinte 2 2/3'
Octave 2'
Tierce 1 3/5'
Mixture V
Trumpet 8'

Tremulant to the Manuals

Zimbelstern

* C2–B2 common with
Subbass 16'

Swell – 58 Notes

Principal 8' **
Gedackt 8'
Gamba 8' ***
Octave 4'
Rohrflöte 4'
Nazard 2 2/3'
Waldflöte 2'
Tierce 1 3/5'
Plein Jeu IV
Dulcian 8'

** C2–G2 common with
Gedackt 8'

*** C2–B2 common with
Gedackt 8'

Pedal – 30 Notes (Flat)

Subbass 16'
Octave 8'
Chorlbass 4'
Mixture IV
Trombone 16'
Trumpet 8'

Couplers

Swell to Great
Swell to Pedal
Great to Pedal
Swell to Rückpositiv
Rückpositiv to Great
Rückpositiv to Pedal

- Temperament: Kellner 1978
- Wind pressure: 70 mm manuals, 90 mm pedal
- The majority of metal pipes were made by July Fritts using hammered metal containing 96% lead. The façade contains pipes from the Great Principal 8' and Pedal Choralbass 4'. The largest façade pipes in the center and outer towers are made of zinc, and the remaining double façade pipes made of 75% tin. The Subbass 16' and bottom octave of the Trombone 16' are made of poplar. All reeds on the organ have full-length resonators.
- The casework is made white oak, and the panels of quarter-sawn white oak, all stained with a medium walnut oil finish. Keyboard naturals are covered in bone and the sharps are of grenadilla.
- The organ is prepared for a Rückpositiv. The third manual and coupler mechanism is extant and functional.
- The following individuals were involved in the construction of the instrument:
 - Charles M. Ruggles: Design, voicing, pipemaking, stop action, wind system, casework
 - Greg Sparks: Wind chests, key action, pipe racks, casework
 - David Betts: Pipemaking, key action, finishing
 - Martin Pasi: Reed pipes
 - Roger Hornung: Wood pipes, bench
 - Judy Fritts: Metal pipes, carvings
 - Halbert Gober: Voicing
 - Dana Hull: Voicing
 - A.R. Schopp's Sons: Façade pipes

Sources:

Home church of Mark A. Herris

Interview with Charles M. Ruggles, October 8, 2015

<http://rugglesorgans.com/opus24.html>

Ruggles, Charles M., Cleveland Johnson, and Harold L. Leininger. "Calvary United Methodist Church, Brownsburg, Indiana." *The American Organist*, 1994, 54–56.

Photograph provided by Bob Thompson



Opus 25

1995

**Gloria Dei Lutheran Church
South Bend, Indiana**

Manual I – 56 Notes

Principal 8'
Rohrflöte 8'
Octave 4'
Octave 2'
Mixture IV
Trumpet 8'

Manual II – 56 Notes

Gamba 8'
Gedackt 8'
Rohrflöte 4'
Nazard 2 2/3'
Principal 2'
Tierce 1 3/5'

Tremulant to the entire
organ

Pedal – 30 Notes (Flat)

Subbass 16'
Octave 8'
Choralbass 4'
Trombone 16'

Couplers

Manual II to I
Manual II to Pedal
Manual I to Pedal

- Temperament: Kellner 1978
- Wind pressure: 75 mm manuals, 100 mm pedal
- Pipe shades were designed and made by Judy Fritts
- Both manual divisions share the same windchest and are fully enclosed. The Pedal division is located in the façade and base of the organ.

Sources:

Personal visit on July 30, 2013

Interview with Charles M. Ruggles on October 8, 2015

Photograph by Mark A. Herris

**Opus 26**

1996

**Cleveland State University
Cleveland, Ohio**

Manual I – 56 Notes

Principal 8'
Rohrflöte 8'
Octave 4'
Octave 2'
Mixture II

Manual II – 56 Notes

Gedackt 8'
Flute 4'
Principal 2'
Sesquialtera II *

* Half-draw Nazard,
from C4

Pedal – 30 Notes (Flat)

Subbass 16'
Bourdon 8' **
Choralbass 4'

** Unit with Subbass 16'

Couplers

Manual II to I
Manual II to Pedal
Manual I to Pedal

- Temperament: Equal
- Wind pressure: 60 mm
- The case was made of cherry. The organ was built with casters so that it can be easily moved from a small practice room to a recital hall.
- This is the first of four Ruggles organs with pipe shades inspired by geometric shapes of crop circles. Of note is the 1991 Barbury Castle triangle in the center shade.

Sources:

Interview with Charles M. Ruggles, October 13, 2015

Photograph provided by Charles M. Ruggles



Opus 27

1996

Susquehanna University
Selinsgrove, Pennsylvania

Manual I – 56 Notes

Rohrflöte 8'
Principal 4'

Manual II – 56 Notes

Regal 8'
Flute 4'

Pedal – 30 Notes (Flat)

Bourdon 8'
Choralbass 4'

Couplers

Manual II to I
Manual II to Pedal

- Temperament: Young
- Wind pressure: 50 mm
- The organ case was made of cherry.
- The manual naturals are of lemonwood and the sharps are grenadilla. The pedals are oak and walnut.
- The figures cut into the center panels were inspired by the geometric shapes of crop circles.

Sources:

Interview with Charles M. Ruggles, October 13, 2015

<http://rugglesorgans.com/opus27.html>

Photograph provided by Charles M. Ruggles



Opus 28

1997

**The Randolph Church
Randolph, New Hampshire**

Manual I – 56 Notes	Manual II – 56 Notes	Pedal – 30 Notes (Radiating)
Principal 8'	Gamba 8'	Subbass 16'
Rohrflöte 8' *	Rohrflöte 8' *	Bourdon 8' ****
Octave 4'	Flute 4'	
Octave 2' **	Octave 2' **	**** Unit with Subbass 16'
Sesquialtera II ***	Dulcian 8'	
Mixture		
		Couplers
		Manual II to I
		Manual II to Pedal
		Manual I to Pedal
* Shared Stop	** Shared Stop	
*** Starts at C4		

- Temperament: Equal
- Wind pressure: 60 mm
- Shared stops can be played on either manual, but not simultaneously used on both.
- The organ rests against a wall. Access to the pipes for tuning is from the front through hinged doors containing the façade pipes.
- The Gamba 8' is full range and uses Haskell pipes in the bottom octave.
- The figures in the pipe shades and front panels were inspired by the geometric shapes of crop circles.

Sources:

Interview with Charles M. Ruggles, October 13, 2015

Photograph provided by Charles M. Ruggles



Opus 29

1999

Wright Chapel
Lakewood Presbyterian Church
Cleveland Heights, Ohio

Manual I – 56 Notes

Principal 8'
Rohrflöte 8' *
Octave 4'
Sesquialtera II **

* Shared stop
** Starts at C4
*** Starts at C3

Manual II – 56 Notes

Rohrflöte 8' *
Flute 4'
Trumpet 8' ***

Tremulant to the entire
organ

Pedal – 30 Notes (Radiating)

Subbass 16'

Couplers

Manual II to I
Manual II to Pedal
Manual I to Pedal

- Temperament: Young
- Wind pressure: 75 mm
- The Rohrflöte 8' can be played on either manual, but not simultaneously used on both.
- The case is made of light oak with walnut side panels, music desk, and pipe shades. The keys are made of cherry with ebony sharps.
- The Manual I Principal 8' uses Haskell pipes for the bottom 8 notes. The remainder of the rank is open.
- Three embossed pipes are each of different design and were made by Ruggles.

- A foot lever on the lower left opens and closes a vent for the Subbass 16' chest. None of the subbass pipes rest on the chest, but are located behind the organ or stacked horizontally in the bottom half of the case. The subbass pipes on the back of the organ are hinged together and swing out to allow access for tuning.
- Pipeshades were designed and cut out by Charles Ruggles. Julia Von Evig of Bailey, Colorado, completed the carving. The leaded-glass insert was created by Jean Griffith of Fort Collins, Colorado. Dana Hull assist with the installation and voicing.

Sources:

Personal visit on June 10, 2013

Interview with Charles M. Ruggles on October 13, 2015

<http://rugglesorgans.com/opus29.html>

The American Organist, September 2003

Photograph by Mark A. Herris



Opus 30

2008

Memorial Chapel
Fairmount Presbyterian Church
Cleveland Heights, Ohio

Manual I – 56 Notes	Manual II – 56 Notes	Pedal – 30 Notes (Radiating)
Principal 8'	Dulciane 8'	Subbass 16'
Rohrflöte 8'	Gedackt 8'	Octave 8'
Octave 4'	Flute 4'	
Quinte 2 2/3'	Blockflöte 2'	
Octave 2'	Trumpet 8'	
Tierce 1 3/5'		
Mixture		
Zimbelstern		
	Tremulant to the entire organ	
		Couplers
		Manual II to I
		Manual II to Pedal
		Manual I to Pedal

- Temperament: Young
- Wind pressure: 75 mm manuals, 100 mm pedal
- The case is made of white oak with redwood side panels and pipe shades. The keys are made of cherry with ebony sharps, and drawknobs are of rosewood.
- The doves in the center pipe shade were inspired by doves within a large stained glass window, built by William McVey, at the back of the chapel. The design is derived from the crop circle at Milk Hill below Adam's Grave, Wiltshire, England, on June 24, 2003.

- Four stops from the former Holtkamp organ were restored and reused in this organ. These included the Manual I Mixture, Manual II Dulciane 8' (originally built by Aeolian), Pedal Subbass 16', and Pedal Octave 8'.

Sources:

Personal visit on June 11, 2013

Interview with Charles M. Ruggles, October 13, 2015

Interview with Robert Moncrief, June 11, 2013

Ruggles, Charles M., and Robert Moncrief. "Cover Feature: Fairmount Presbyterian Church, Cleveland Heights, Ohio." *The Diapason* 100, no. 7 (2009): 30-31.

<http://rugglesorgans.com/opus30.html>

Photograph by Mark A. Herris



Opus 31

2015

Denise and John Lanning Residence
Denver, Colorado

Manual I – 56 Notes

Gemshorn 8'

Manual II – 56 Notes

Rohrflöte 8'

Principal 4'

Pedal – 30 Notes (Flat)

Subbass 16'

Couplers

Manual II to I
Manual II to Pedal
Manual I to Pedal

- Temperament: Equal
- Wind pressure: 50 mm
- The case is cherry with walnut trim. Some of the walnut originated from a lumberyard owned by John Lanning's uncle. The relief carvings were by Denver woodcarver Don Woodard. The keyboard naturals are of cherry and sharps are ebony.
- The Gemshorn 8' is from the Holtkamp organ removed from the chapel at Fairmount Presbyterian Church, Cleveland Heights, Ohio. The lowest four notes are Haskelled. Façade pipes were the bottom eight notes of the Principal 4'. Subbass 16' is the same scale as Opus 4.
- The blower and bellows are located within the case.

Sources:

Interview with Charles M. Ruggles, October 21, 2015

Photograph by John Lanning



**1884 Henry Kilgen Restoration
2015**

**St. Augustine's Cultural Center
Austin, Nevada**

Manual – 61 Notes (Enclosed)

Open Diapason 8'
Unison Bass 8'
Stop Diapason 8' [t.c.]
Melodia 8' [t.c.]
Dulciana 8' [t.c.]
Principal 4'
Flute Harmonic 4'
Twelfth 2 2/3'
Fifteenth 2'

Pedal – 27 Notes (Flat)

Bourdon 16'

Coupler

Manual to Pedal

Pedal Check
Piano Combination Pedal
Forte Combination Pedal
Expression Pedal

- Temperament: Young
- Wind Pressure: 3 inches (76 mm)
- Center pivot mechanical action and mechanical stop action.
- All pipework is enclosed except for the façade pipes (Open Diapason 8') and four unison basses.
- The lowest pipes are stopped wood. Façade pipes are made of stenciled zinc with the majority of internal metal pipes of spotted metal. Metal pipes are cone tuned.

Sources:

Interview with Charles M. Ruggles, October 15, 2015

Friesen, Michael D., Howard D. Bennett, and Charles M. Ruggles. "The Henry Kilgen Organ in Austin, Nevada: A Description of the Instrument and Its Restoration." *The Tracker* 60, no. 1 (2016): 12–23

Photograph by Howard Bennett

Bibliography

- "About Charles M. Ruggles Pipe Organs." *Charles M. Ruggles Pipe Organs*. Accessed October 25, 2015. <http://rugglesorgans.com/about.html>.
- Audsley, George Ashdown. *The Art of Organbuilding: A Comprehensive Historical, Theoretical and Practical Treatise on the Tonal Appointment and Mechanical Construction of Concert-Room, Church, and Chamber Organs*. Vol. 1 & 2. New York, NY: Dodd, Mead, and Company, 1905; New York, NY: Dover Publications, Inc., 1965.
- Boe, David. "The John Brombaugh Organ (1970) at First Lutheran Church, Lorain, Ohio." *Cross Accent* 8, no. 3 (2000): 3–6.
- Boe, David. "Losses: Fenner Douglass '42." *Oberlin Alumni Magazine* 104, no. 1 (2008). Accessed November 12, 2015. <http://www.oberlin.edu/alummag/fall2008/losses.html#fenner>.
- Brombaugh, John. "Influences of Johann Sebastian Bach and His Times on Organbuilding in America in the Late 20th Century." *The American Organist* (March 1985): 113–117.
- Brombaugh, John. "The Story of the Brombaugh Opus 15 Organ." *Dedication Program*, October 13, 1974.
- Brown, Rusty. "Musical Family Grew Up to the Sound of Music on Home Organ." *The Cleveland Press*, July 6, 1979.
- Cramer, Craig. Interview by Mark A. Herris. July 30, 2013.
- Edwards, Lynn. *The Historical Organ in America: A Documentary of Recent Organs Based on European & American Models*. Easthampton, Mass.: Westfield Center for Early Keyboard Studies, 1992.
- Ferguson, Homer Ashton, III. "John Brombaugh: The Development of America's Master Organ Builder." Thesis, Arizona State University, 2008.
- Friesen, Michael D. "Henry Kilgen, St. Louis Organbuilder." *The Tracker* 58, no. 4 (2014): 12–22.
- Friesen, Michael D., Howard D. Bennett, and Charles M. Ruggles. "The Henry Kilgen Organ in Austin, Nevada: A Description of the Instrument and Its Restoration." *The Tracker* 60, no. 1 (2016): 12–23.
- "Heilman Hall (Susquehanna University), Selinsgrove, Pennsylvania." *The American Organist* 34, no. 6 (2000): 83.
- Kinsey, Linda. "Organ Maker's Care Brings Church Harmonious Sounds." *Berea News Sun*, March 11, 1982, sec. D.

- Kollar, Stuart. "The Instrumentalists: A Trio of Northern Ohioans Who Craft Fine Musical Instruments the Old-Fashioned-Way — By Hand." *Northern Ohio Live*, May 1, 1988, 78–81.
- Lawson, Pamela. "In the Key of Life: Organ Builder Creates a World of Sound and Beauty." *High Timber Times*, December 14, 2006, sec. A.
- Moncrief, Robert. Interview by Mark A. Herris. June 11, 2013.
- Montagu, Jeremy. "Musical Instruments in Hans Memling's Paintings." *Early Music* 35, no. 4 (2007): 505–24.
- Murlock, Kerala Akiko. "One Man's Pipe Dreams Lead to Bach's Music." *Park County Republican and Fairplay Flume*, July 16, 1999.
- "New Organ Installed in Heilman." *Music at Susquehanna*, January 1997.
- "Oberlin Organist Wins Grant." *The Plain Dealer*, March 2, 1969.
- Ochse, Orpha. *The History of the Organ in the United States*. Bloomington: Indiana University Press, 1975.
- Pape, Uwe. *The Tracker Organ Revival in America: Die Orgelbewegung in Amerika*. Berlin: Pape Verlag, 1977.
- Phelps, Lawrence I. *A Short History of the Organ Revival*. St. Louis: Concordia Pub. House, 1967.
- "Randolph Church, Randolph." NH State Register of Historic Places, New Hampshire Historical Resources. Accessed November 13, 2015.
https://www.nh.gov/nhdhr/programs/state_reg_list_details.htm.
- "The Randolph Church, Randolph, New Hampshire." *The American Organist* 34, no. 8 (2000): 82.
- Reed, Jessica. "Pipe Dreams: A Conifer Organ Maker Keeps an Age-Old Craft Alive." *Colorado Homes & Lifestyle Magazine*, May 1, 2002, 127–29.
- Reinburg, Peggy Kelley. *Arp Schnitger, Organ Builder: Catalyst for the Centuries*. Bloomington: Indiana University Press, 1982.
- Ruggles, Charles M. "Birmingham United Methodist Church." *The American Organist*, 18, no. 9, September 1984, 36–40.
- Ruggles, Charles M. Telephone interviews by Mark A. Herris. March 13, 2014; March 24, 2014; September 24, 2015; October 1, 2015; October 5, 2015; October 8, 2015; October 13, 2015; October 15, 2015; October 20, 2015; October 21, 2015; November 17, 2015.
- Ruggles, Charles M., Cleveland Johnson, and Harold L. Leininger. "Calvary United Methodist Church, Brownsburg, Indiana." *The American Organist* 28, no. 10, October 1994, 54–56.

- Ruggles, Charles M., and Margaret A. Limkemann. "New Organs: Lakewood Presbyterian Church, Lakewood, Ohio." *The Tracker* 92, no. 1 (2001): 18.
- Ruggles, Charles M., and Robert Moncrief. "Cover Feature: Fairmount Presbyterian Church, Cleveland Heights, Ohio." *The Diapason* 100, no. 7 (2009): 30–31.
- Salisbury, Wilma. "Pipe Organ is in Tune with Church's Dreams." *The Plain Dealer*, June 6, 1982, sec. D.
- Schmitt, Elizabeth Towne. "Notes on Early Organbuilders in Ann Arbor." *The Tracker* 36, no. 3 (1992): 13–18.
- Seagull, Grant. "Dr. Richard L. Ruggles Was a Leading Ear, Nose and Throat Specialist: News Obituary." January 25, 2013. Accessed November 12, 2015.
http://www.cleveland.com/obituaries/index.ssf/2013/01/dr_richard_1_ruggles_was_a_lea.html.
- Thomas, Andy. "Organ Circles Hit the USA." *SC: The Monthly Journal of Crop Circles and Beyond*, April 1, 1997, 6–8.
- Tucker, Edith. "Fine New Tracker Organ Being Built in Randolph." *Coos County Democrat*, June 25, 1997.
- Williams, Peter. *The European Organ, 1450-1850*. London: Batsford, 1966.
- Williams, Peter, and Barbara Owen. *The New Grove Organ*. New York, NY: W. W. Norton & Company, 1980.