

## Oak Ridge High School Class of 2022, Part One

(As published in The Oak Ridger's Historically Speaking column the week of May 16, 2022)

This two-part series on the Oak Ridge High School class of 2022 is provided by Benita Albert and Jessica Steed. It has become an annual tradition for them and appreciated by Historically Speaking readers. Enjoy this look back and forward with their perspective on the ORHS class of 2022!

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"I will never forget metamorphic rocks, and the lesson on it from my Woodland Elementary third grade teacher, Mrs. (Gail) Fillers," recalled Alexandra (Alex) Shanafield, an ORHS Class of 2022 graduate. "Meta rocks are made with heat and pressure, and we lived it by making S'mores sandwiches, wrapping them in baggies, and sitting on them while we watched a long movie on dinosaurs." She also remembers making a packet of memories in third grade including a letter to herself which will be returned to her upon her ORHS graduation. She said, "I look forward to reading the goals I set for my future and seeing how my third-grade dreams apply to my life now." Alex, who has matriculated through all grades K-12 in the Oak Ridge Schools, is the daughter of Harold and Jane Shanafield.

Memories of third grade at Woodland School for Amelie Nagle include the assigned "countries project." Each student was required to choose a country, do research, and prepare a presentation. Amelie chose Ukraine, the country of her maternal ancestors. Her presentation included many mementos, a tri-fold poster, and Amelie attired in costume. She said, "My Ukrainian grandmother loaned me the blouse, vest, and skirt to wear. The headpiece was made by my great aunt using ribbons from the headpiece that my great-grandmother owned." This revelation, an especially poignant one in the spring of 2022 when Ukraine is now at war, prompted my asking about her family's safety. Amelie said that distant relatives remained in Ukraine, though she was unaware of their current status. Amelie, who has been in the Oak Ridge Schools from first through twelfth grades, is the daughter of Nicholas and Roxanne Nagle.

The ORHS Class of 2022, a class of 321 students, will graduate on May 20<sup>th</sup> after four years of high school interrupted in the middle by virtual classes, then hybrid scheduling, and finally, a return to full-time, in-person school. Their educational journey and resultant memories reflect a strong appreciation for their academic programs and their extracurricular opportunities. The diversity of interests and accomplishments in the students I have had the pleasure to interview speak volumes about the future possibilities for each of the eight graduates to be profiled in this two-part story. This installment will highlight the above-mentioned Alex and Amelie plus Sam Livesay and Walker Rice.

Sam Livesay remembers his fourth-grade graduation ceremony at Linden Elementary: "The fourth-grade graduates walked the halls of Linden where family members lined the path and cheered us on. It was our last day there. I had my parents and my older sisters present to celebrate with a poster especially made for me." Sam's two older sisters, Mary and Laura, and his dad are all ORHS alumni, Classes of 2012, 2011, and 1981 respectively. Sam is a K-12 Oak Ridge Schools' student and the son of Todd and Kristin Livesay.

Walker Rice first entered Oak Ridge Schools on the last day of spring football tryouts in seventh grade. He instantly bonded with his soon-to-be Jefferson Middle School (JMS) coach, Brian Wilson, whom he said made him feel welcome along with his new teammates. Walker said, "I was used to moving around, I had attended many schools while my father served in the US Army, but I was amazed at how friendly my new Jefferson classmates were. Arriving here with only three weeks of classes left, I was invited to a new friend's birthday party. Moving here was easy, everyone was friendly." Walker is the son of Mason and Emily Rice.

Sam Livesay's Robertsville Middle School years offered him the opportunity to attend Technology Student Association (TSA) competitions where he loved competing via student teams in such as forensics and video game design. He touted the mentorship of Oak Ridge School Board member Angie Agle: "She (Agle) ran the forensics team. She was so smart about it. From a list of facts that students were given, we had to put together our plan, form conclusions, and write it up for judging review."

Alex's and Amelie's passion for STEM began in fourth grade with their participation in Lego League activities, their first introduction to robotics and coding. It was love at first sight. They formed a close friendship and a dynamic partnership evolved, a pairing of two creative young minds.

Alex's mother, a JMS teacher, received a grant from the Oak Ridge Public Schools Education Foundation to establish a FIRST Lego League team. FIRST is an acronym, For Inspiration and Recognition of Science and Technology, an

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educational program one can research online at <https://www.firstinspires.org>. Alex and Amelie joined FIRST Lego in the very first year it was offered, their fifth-grade year at JMS. They competed and grew their passion for this hands-on STEM activity through middle school moving on to four years of FIRST Robotics Competitions at ORHS.

Alex said, "I like to build while Amelie likes coding. FIRST Lego helped Amelie and I find our passion." Both girls have participated as mentors to younger students in FIRST Lego at JMS and as female role models and teachers for girls through the Oak Ridge Computer Science Girls classes, an online offering which has now expanded to national and international participants (<http://www.orcsgirls.org>).

Amelie wrote, "In my sophomore and junior years, I wrote proposals to the National Center for Women and Information technology, receiving \$6,000 over the first two years to develop an all-girls robotics camp. When that funding stopped last summer, I obtained sponsorship from my robotics team. During camp, the girls are split into groups to build and program a dancing robot. Over three years, 84 girls from eleven states and three countries have participated. Running this camp made me realize my passion for teaching and mentoring which I would like to continue in college."

From snippets of the college admissions essay Alex wrote: "I volunteered to become the first student to create and teach a class for ORCSGirls. I was confident in creating a class, but teaching scared me. I think being a good teacher is the hardest and most important job in the world."

"I took my own passion for music and art and created a class incorporating music creation with programming. I made sure it was very beginner-friendly, because I did not want to scare any girls away. The girls loved the class and stayed afterwards to share their creations. Bolstered by their excitement, I have gone on to create and teach two more art-themed classes. To date, my classes have reached over 250 girls all over the world."

In their senior year, Math Thesis course, Alex and Amelie partnered on their project under UT Assistant Professor, Catherine Schuman in the Electrical Engineering and Computer Science Department. The title of their final paper, "Using Machine Learning to Optimize Neuromorphic Autonomous Vehicles," describes their goal of training a small-scale autonomous racecar to navigate any track environment using machine learning and neural networks. Amelie said, "The car reached a peak speed of 6.9 ft/s while still being able to navigate the tracks." Both girls plan to spend a part of the summer of 2022 extending their research and improving the car's performance.

Our interview had to be carefully scheduled as their time was limited due to preparation for the International FIRST Robotics competition for which their ORHS Secret City Wildbots Team had qualified. That preparation would require many extra hours, on average four hours after school during the week plus 12-15 hours over the weekend. Since the interview, the team has returned from the competition with the Autonomous Award from Ford Motor Company. The award honors the team that has demonstrated consistent, reliable, high-performance robot operation during autonomously managed actions.

Lest one might think these students are all about STEM, their resumes speak to very well-rounded interests. Alex has played volleyball since seventh grade. She served as ORHS team co-captain during her senior year, as senior class secretary, and as treasurer for the Youth Advisory Board of Oak Ridge. She was Co-captain of the FIRST robotics team during her junior and senior years.

Amelie was in the orchestra at JMS plus the first two years at ORHS. She plays the cello, and she has continued with private lessons to the present. She has been the lead programmer for the Secret City Wildbots robotics team all four years at ORHS.

Both students will attend the Massachusetts Institute of Technology (MIT) where Amelie plans to major in math and computer science while Alex will pursue mechanical engineering with a concentration in robotics. Their career dreams include research, and/or academic appointments for Amelie. Alex hopes her future will be in industrial product development, entrepreneurship, and ultimately in teaching where she said, "I want to be a part of early engagement for students in STEM." Already, they have built impressive resumes of service hours in mentoring and program offerings for the involvement of young girls in STEM.

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Sam Livesay has been a member of the ORHS Naval Junior Reserve Officer Training Corp (NJROTC) for four years, achieving the rank of Commander. He said he chose this path to honor his grandfather, Jim Livesay, a decorated WWII combat engineer. One of the culminating events of his senior year has been the participation of the ORHS NJROTC in the 80<sup>th</sup> year observance of Pearl Harbor Day. The school trip to Hawaii afforded the Corps the honor of representing the State of Tennessee and to march in the commemorative parade.

Sam's academic choices at ORHS have focused heavily in the Career and Technology path. He raved about his welding teacher, Eric Mason, saying: "Mr. Mason is phenomenal. I have been in his classes all four years. I found my passion." He is quite proud of his 3G Vertical Welding certification which he described as a challenge because it requires fighting gravity and is considered a highly advanced skill. Sam is now working on overhead welding and a 4G certification, specifically 4G "open face root." Asking Sam for a further explanation, he described his challenge as a process of joining two pieces of metal together by chamfering the edges then filling the gap with welds.

Sam also had high praise for the automotive course taught by Patrick Ladue. As a member of an ORHS student team, Sam recounted attending an interscholastic competition where student teams were charged with starting an engine which had been "bugged." Sam said, "It was our job to diagnose the problem and fix it which we did in one minute and three seconds. We placed first with the second and third place teams requiring some three and five minutes respectively to complete." He remarked that having had the course for only one semester, he was overjoyed at the level of expectation and knowledge he gained.

Sam has been accepted to the Tennessee College of Applied Technology, and he says he will start as early as the program permits, perhaps this summer. He describes his future career plans as being a pipe fitter/pipe welder. Saying he is a "homebody," Sam would like to remain in Oak Ridge where his training could find interesting work. His skill set will only increase in demand as the American Welding Society predicts a shortage of 400,000 welders in America by 2024.

Walker Rice started as center for the JMS Eagles football team, a position he played throughout his four years at ORHS. A shoulder injury his sophomore year resulted in his wearing a shoulder brace during his junior year. Though he suffered a season ending injury in his junior year, a broken leg, he came back for the senior season wearing a brace protective of the metal plate in his ankle. He said, "I used my injuries as motivation. I would come back. It was my obligation to my team."

He expressed pride in the honor of playing under Coach Joe Gaddis for four years, and he described Gaddis' retirement as a huge loss to a winning program. Walker laughed remembering: "Coach Gaddis had a unique style and interaction with his players including a 'running joke' for each of us. In my case, it was that my mom was going to 'one-up me.' Coach Gaddis knew my mom was a University of Florida soccer player." In short, Walker has taken great pride in his Wildcat football career including his selection as a team captain during his senior year.

Walker had high praise for history teachers, Steve Reddick at JMS and Ken Senter at ORHS. He said, "History is one of my favorite subjects, and Mr. Reddick was a role model educator for his level of engagement with students in the classroom." Ken Senter's teaching style resonated with Walker. "Mr. Senter presented us with a document he wrote each day, for example, a three-to-five-page account of such as the Great Depression and what happened and why. We were to read and ask questions to understand more complexities. He (Senter) made it easy to follow along, he has a vast wealth of knowledge."

Walker noted that a big motivation for his family's move to Oak Ridge was based on their evaluation of the Oak Ridge Schools' program offerings. Walker mentioned his love of the STEM class offerings at JMS, in particular the hands-on, collaborative project work employed by JMS teacher Chris Jaeger. Walker selected rigorous science and math coursework at ORHS preparing him well for his future plans to major in mechanical engineering at Penn State. He said, "Living on military bases, I've been around aircraft and other equipment a big part of my life. I want to understand the mechanics of it and also the history. Ultimately, I would like a career with an aerospace firm doing design and structural work."

Finally, I asked these students for advice for future ORHS Wildcats. Their answers, given separately, were incredibly similar and wise. More than one referred to the diversity of opportunities both academic and extracurricular, numerous

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options that allowed them to pursue athletics, scholastic competitions, the arts, clubs, and service projects. I also heard them speak to finding their passion and being able to further specialize and focus on enriched experiences.

Amelie said, "There is so much to do at ORHS, don't overwhelm yourself trying to do everything." Alex advised students to push their limits and take on new challenges. Sam observed, "The four years of high school go quickly, find something to commit to. It will stick and be an important takeaway." Walker said, "I have been privileged to make lifelong friends here. Get involved in a club and find your group."

Four more ORHS grads submitted written memories of their Oak Ridge Schools experience, all of whom had great praise for the arts experiences they have enjoyed. Their stories are equally compelling, prompting a part two sequel to the Class of '22 story to follow.

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Thanks Benita and Jessica for insights into the 2022 graduating class of ORHS. Look forward to part two next.



Amelie Nagle presenting her 3rd grade research project on Ukraine



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Alex Shanafield and Amelie Nagle with the Secret City Wildbots' competition robot they helped create

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Sam Livesay with the NJROTC in Hawaii for the 80th observance of Pearl Harbor Day



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Walker Rice at Blankenship Field where he played football throughout high school (photo taken by Chad Steed Photography)