Program

WELCOME and INTRODUCTIONS
Rev. Kail C. Ellis, OSA, PhD
Assistant to the President and
Chair of the Mendel Medal Advisory Committee

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Crystal Lucky, PhD
Professor English,
Associate Dean, Baccalaureate Studies

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Ellen Mosley-Thompson, PhD
Amanda Grannas, PhD
Professor of Chemistry,
Associate Vice Provost for Research
and Chief Research Officer

INTRODUCTION
Lonnie G. Thompson, PhD
Adam Langley, PhD
Associate Professor of Biology

PRESENTATION of MENDEL MEDALS
Rev. Peter M. Donohue, OSA, PhD
President

ACCEPTANCE of MENDEL MEDALS
Ellen Mosley-Thompson, PhD
and
Lonnie G. Thompson, PhD

REMARKS
Rev. Peter M. Donohue, OSA, PhD
President

BENEDICTION
Rev. Robert Hagan, OSA, JD
Senior Associate Athletic Director

Introduction to the Mendel Medal Celebration 2021

Kail C. Ellis

Good Evening and a very warm welcome to Villanova University and to the Fiftieth and Fifty-first Presentations of the Mendel Medal. Tonight, is a historic occasion as it is the first time in the history of the medal that they are awarded to a couple—in this case, a married couple—Ellen Mosley-Thompson and Lonnie G. Thompson, who have been recognized by the nation's top academic and research study groups, all of which are listed in the program that is at your table. We thank Ellen and Lonnie Thompson for being with us this evening to accept Villanova University's Mendel Medal. We would also like to extend a warm welcome to their daughter Regina, who is with us this evening to join in this celebration.

Villanova University is proud to present an award in honor of Gregor Mendel, not only because he was a member of the Augustinian Order that was established in Moravia in 1350, in what is now the Czech Republic, but because Mendel epitomizes the struggles and patience that researchers and scientists have to endure on occasion to have their contributions recognized. In Mendel's case, he had the additional distractions that were entailed by the civic responsibilities he held until his death on January 6, 1884 at the age of 61. His patience is epitomized by the comment he made just before his death, when he reflected on the lack of recognition his work received. He stated: *"My scientific labors have brought me a great deal of satisfaction, and I am convinced that before long the entire world will praise the result of these labors."*

We recall's Mendel's comment as we mark next year the two hundredth anniversary of his birth in 1822 as well as the 92nd anniversary of the first presentation of the Mendel Medal in 1929. Experience makes us realize that most things in life are fragile and entail continuing work and commitment to ensure that they endure. With this in mind, we thank everyone who has endeavored this evening to make the Mendel Medal award possible. We thank Ellen and Lonnie Thompson for accepting the Mendel Medal award, and all who have made this evening possible.

St. Augustine wrote in one of his letters, "Thanks be to God. Nothing can be said more briefly than this, nothing heard more gladly, nothing understood of more grandeur, and nothing done more fruitfully." (Letter 41.)

Thank you for again for honoring us with your presence this evening.

Crystal Lucky INVOCATION FOR MENDEL MEDAL DINNER
10/30/21

Dear Heavenly Father—

We bow in prayer this evening to thank you for the privilege of gathering together as a community, ones who seek your wisdom, guidance and knowledge. Where we may have taken such opportunities for granted in the past, we thank you for the changes to our world that have taken place over the past few months because of the diligent efforts of scientists, researchers, medical professionals, healthcare workers, people of service, and people of faith. We are grateful for life, health, strength, and your great and providential care.

Care is what you have shown to humanity from the beginning. In the Garden of Eden, you showed care to the first man and woman, providing them with food to eat and a space to live freely. You then gave them a charge, to care for and tend to the beautiful world you made for them. That charge, to care for the world we have and all in it, has extended to us who live today. Keep that charge ever present in our minds, O Lord, that we may care for our world, care for the environment, and care for all people who inhabit it.

Thank you for Drs. Ellen and Lonnie Thompson, for their years of service to the study of the earth, its environs, and its climate. Thank you for their dedication and the collective knowledge we can gain from them and others like them if we will only listen, if we will only believe, if we will only put our selfish interests aside and think of others, both now and in the future. Open our eyes to the truth and the ways we can preserve the world we live in for those who will follow us, that we might even reverse damage that has already been done.

Thank you for Villanova University, for its leaders, and for the vision to honor scholars who believe not only in science but believe also in you as God. Thank you for this evening of food and fellowship. We ask your blessings on this community of students, faculty, administrators, and those who support both visibly and behind the scenes. Bless those who organized this event this evening and those who stand ready to serve us who have gathered.

We are forever grateful to you, Lord, and pray these things in the name of your dear son, Amen.

Amanda Grannas – Introduction of Ellen Mosley-Thompson

Good evening, I am pleased to welcome as recipient of the 2020 Mendel Medal, Distinguished University Professor in Geography and Senior Research Scientist in the Byrd Polar and Climate Research Center at the Ohio State University, Dr. Ellen Mosley Thompson.

Her transformational research in the areas of glaciology and climatology has resulted in over 140 articles and contributions to 7 governmental reports on climate change. She has been awarded honorary degrees from several institutions, including Colgate and the University of Pennsylvania. A testament to her dedication to service and public outreach – she has participated in nearly 250 outreach activities and invited lectures – everything from speaking at local churches about climate change, to inspiring hundreds of K-12 students through tours and activities at the Byrd Polar and Climate Research Center. Her impact on both science, and people, has been tremendous.

Dr. Mosely-Thompson is a recipient of the Bejamin Franklin Medal, the Dan David Prize, and was inducted into the Ohio Women's Hall of Fame. She is a fellow of numerous academies and societies including the National Academy of Sciences, the American Academy of Arts and Sciences, and the American Philosophical Society. And a key landscape feature in Antarctica bears her name - prominent steep-walled cirques that indent part of the landscape in Victoria Land are named the Mosley-Thompson Cirques – a lasting tribute to her significant impact on the field of glaciology and climatology.

Dr. Mosley-Thomspon enrolled in Marshall University in 1966 where she majored in physics (with a minor in math) and was only the second woman ever to enter the department, and the only woman at the time. Less than a week into her college experience, she met with the department chair – who said "You know, you're the only woman in the department and you're taking a seat from some male student who will likely be a breadwinner, and you're probably going to end up being a homemaker." Knowing that she was blazing a trail, and savvy enough to know she couldn't alienate people early on she simply replied, "Sir, I know exactly what you're saying, but that is not my goal in life. And my goal is to do the best I can, be competitive, and to make you proud."

This certainly wouldn't be Dr. Mosley-Thompson's only experience as a trail blazer, in fact, her career could be described as consistent trail blazing – both in her science and discoveries, and in the environment that she'd help build for those to follow.

She graduated from Marshall in 1970 and went on to earn her M.A. and Ph.D. in Geography from the Ohio State University. She began work on ice core analysis during her graduate studies and participated in conversations with colleagues from the Institute for Polar Studies (predecessor of the Byrd Polar and Climate Research Center), and she caught the bug for field studies. She and Lonnie remained at Ohio State, working in the Institute, and she wrote a proposal to the National Science Foundation that would fund her first expedition to Antarctica in 1982. She has since been on 16 different research expeditions, from Antarctica to Greenland, serving as field leader for the majority of those trips. Her funded work has encompassed 57 different research projects, supported by the National Science Foundation, NASA, and NOAA, among others.

Dr. Mosley-Thompson's work has revealed ancient histories, captured and stored in ice cores from around the world, telling us about the nature of the Earth and its atmosphere over many millenia. In regions of the globe where the snow that falls each season does not melt, year over year this snow accumulates, compacts, and eventually turns into ice – trapping anything in the air in tiny air bubbles locked in the ice, or preserving what was in the snow crystals in the ice itself. Some of this history is visible to the naked eye – like layers of ash laid down because of major volcanic eruptions. Most of this history, however, is invisible – hidden away in the chemical signatures that can only be discerned using highly sophisticated analytical techniques. These histories provide a critical backdrop against which the recent warming of the Earth System can be assessed.

Early in her career, she was instrumental in encouraging the glaciology community to focus more strongly on high temporal resolution climate histories, particularly from remote sites situated away from the established stations in Antarctica and Greenland. This work is no small feat. You must find a way to access these remote sites and bring along all the equipment needed to drill hundreds of meters of core, work for weeks or months at a time to drill the core samples, get those samples – in a frozen state – back to your home lab for analysis, and do all of this in often dangerous and unrelenting environmental conditions.

This work is not for the faint of heart – something Dr. Mosley-Thompson can attest to, when a resupply plane on one of their expeditions couldn't find them. They spent 21 days there, short of supplies, but while waiting, they continued their work and drilled cores that provided a 4,000 year climate history. Her high resolution ice core histories provide evidence for past abrupt climate changes on both regional

and near-global scales and help illuminate potential drivers for such change. The Thompson's work has also documented the unprecedented loss of glaciers and ice due to climate change, which is permanently erasing these precious samples and the memories they hold. Luckily, the tireless work of the Thompsons means we have countless ice core samples preserved in a vast library at the Byrd Polar and Climate Research Center.

The Thompsons are so dedicated to preserving this irreplaceable history stored in ice cores that they have created an endowment from money won from their scientific prizes to preserve the collected ice cores for future generations.

Since the early 1980s, Dr. Mosley-Thompson by her work and her example, has impacted gender equity in polar science. In 1986, she was the first woman to lead an ice core drilling project to a remote field camp on the East Antarctic Plateau near the Pole of Inaccessibility. She was the first woman to receive the Distinguished Explorer Award from the Roy Chapman Andrews Society. She was the first and only woman to be the director of the Byrd Polar and Climate Research Center. I can personally attest to the impact she has had on women in polar science. I was a postdoctoral researcher at Ohio State from 2002-2004, working on a project to develop new analytical techniques to characterize complex organic matter in soil and aquatic systems. I was also involved in Arctic field research and my passion was for snow and ice chemistry. Knowing the Byrd Polar and Climate Research Center – and their vast library of ice cores – was just across campus, I took a chance and contacted the Thompsons to see if we might try the technique I was developing on their ice core samples. They happily arranged a meeting for us to talk – one that I approached with a bit of trepidation, knowing I needed to ask for a liter of melted ice core, just for one analysis. For those not in the field this is a HUGE amount of sample. Ellen never batted an eye. She said "we're going to figure out a way to make this work". We identified a few samples of the right characteristics and with enough sample available to do the analysis. And hallelujah, it worked! We published the results just shortly after I made my transition here to Villanova. During that time at Ohio State, I was also at a bit of a crossroads, as I'd been involved in the male dominated field of polar field research and needed to make a decision as I moved into a faculty position – would I hang up my parka and transition to just lab-based work, or would I endeavor to stay involved in polar field research? I can say unequivocally it was Ellen's example and influence that helped me decide to keep that parka handy and continue doing polar fieldwork. And I want to take this public opportunity to express my deepest gratitude to her – for her mentorship and positive influence on me, and on so many other women in the polar sciences.

Lest I finish this introduction without mentioning the namesake of tonight's award ….

A fact you might not know is that there is a Czech polar research station in Antarctica, named the Mendel Polar Station, on the coast of James Ross Island. While Gregor Mendel is likely best known for being the father of modern genetics, he was also a noted meteorologist and a founding member of the Austrian meteorological society. Mendel kept daily logs of weather patterns and tracked sunspot activity. There are certainly parallels one could make between Mendel and Dr. Mosley Thompson. They both were trained in physics and mathematics, both made significant scientific impacts through meticulous data collection and extraordinary attention to detail, and both were driven by insatiable curiosity and an inquiring mind.

For her numerous contributions to polar science, glaciology and paleoclimatology, Villanova is proud to honor Dr. Ellen Mosley-Thompson as the 50th recipient of the Mendel Medal.

Adam Langley – Introduction of Lonnie G. Thompson

I am Adam Langley from the Biology Department. It is my honor to introduce Dr. Lonnie Thompson, Distinguished University Professor in the School of Earth Sciences and Senior Research Director of the Byrd Polar and Climate Research Center at Ohio State University. Dr. Thompson emerged from the heart of coal country to become one of the one of the world's foremost authorities on paleoclimatology and glaciology, ultimately documenting the effects of burning that coal. He has been a principle investigator on 73 grants from NASA, NOAA and the National Science Foundation and he has published over 240 articles in all the top scientific journals. In recognition of the advances he has made, Dr. Thompson has been admitted to the US National Academy of Sciences, he has won the Tyler Prize for Environmental Achievement, Benjamin Franklin Medal for Earth and Environmental Science, and the National Medal of Science, the highest honor bestowed on American scientists. His acclaim knows no borders on Earth. For instance, he has won the International Science and Technology Cooperation Award (the highest award given to a foreign scientist by the Chinese government) and been inducted into the Chinese Academy of Sciences. He has received numerous other honors and awards, all leading to the prestigious award we're bestowing tonight.

What did he do to receive all of this acclaim? He traveled to places no one else did and learned things no one else had known. He has lead 64 expeditions to remote, tropical highlands to find the mountaintops where previously unread records exist, and he learned to translate the story of Earth's past from the language of the ice. To do so, he had to figure out how to get drilling equipment to heights unreachable even by helicopters. His work has shown how exceptional the recent climatic changes are compared the Earth's past fluctuations. He has refuted dogmatic notions that climate changes in the tropics are milder than at higher latitudes and characterized the feedbacks that can act to stabilize climate or amplify the changes we are causing.

Dr. Wally Broecker, a climate scientist famous for popularizing the term "global warming" among other achievements, described Dr. Thompson's work:

"…It reveals how the tenacity of a lone scientist moving against the grain of conventional wisdom can alter the course of thinking. While most scientists in his field were obsessed by the record kept in ice cores from Greenland and Antarctica, Lonnie Thompson pushed to extend these studies to small glaciers capping the Earth's highest mountains. For years, he fought not only the cold conditions of his field sites but the lukewarm reception by many in his field." And apparently Dr. Broecker was a primary scholarly rival of the Thompsons. He went on to describe one particular trip in which Dr. Thompson's team hauled 6 tons of equipment to an elevation of 20,000 feet in the Andes. "This accomplishment alone places Lonnie Thompson in the ranks of our great explorers." With rivals like that, who needs collaborators?

Thompson and his team certainly exhibited the fortitude of explorers with one major difference. These explorers had to return home with tons of intact ice that they had drilled from the top of the mountain. Dr. Thompson didn't scale these mountains for glory or for adrenaline, but instead as the NYT put it, "His enterprise was driven by a lust for hard data".

I am an ecologist here at Villanova assessing how ecosystems respond to climate change. My fieldwork often involves slogging through waist-deep muck in alligator-infested wetlands. The lust for hard data is the same, but Dr. Thompson's experiences make mine seem like a casual stroll through Mendel field. Notably, we both have navigated the most treacherous obstacle of all- having a spouse in the same field.

The science that Dr. Thompson worked to established serves as the foundation of my own field. My entire career, the science of climate change has been settled: humanity's emissions are warming the planet. But when he started, the field was very different. The science of climate change was a theoretical curiosity of atmospheric physicists, but it was not consensus, and had not touched the mainstream consciousness as a concern. As temperature records showed warming, even thermometers were called into question. But ice serves as an unbiased physical thermometer recording past climate changes in its layers and reflecting recent climatic changes in its shrinking extent. Dr. Thompson showed that the current rate of warming exceeds past rates, glaciers were melting, and that the melt was accelerating. As he said last night, "Ice doesn't care about your opinions or politics".

It may come as a surprise to find out that humans are not the only beings on earth that have modified their habitat to render it less habitable to themselves and other species, by consumption of resources and production of deadly byproducts. The fossil record is full of examples. In my microbiology class, students watch hapless bacteria in a test tube metabolize headlong into their own demise. They grow exponentially and crash spectacularly, all within a week. Self-destruction is not new on Earth nor is it uniquely human. What appears unique to humanity is that we have the ability to foresee our own collective demise. We can measure it precisely and project it into the future. Dr. Thompson's work is the manifestation of this transcendent ability, to look deep into the past and explicitly describe the arc we are on. Now, you notice I said we can foresee it. Can we forestall it? Well, that is yet to be determined.

Sometimes scientists peering into the dire messages our subjects are telling us just want to keep our heads down and continue reading the messages in greater detail without fully facing the gravity of what we're learning. From a purely academic perspective, it's kind of fun for us. What is climate change but the grandest experiment ever, though poorly replicated and uncontrolled as it may be? Over a decade ago, Dr. Thompson suffered congestive heart failure that was going to put an end to his pioneering work and life as he knew it. It was a harsh reminder of how short our time is to make a difference while on Earth. A successful heart transplant gave him the opportunity to renew his research efforts, and he has since completing 6 more expeditions that would represent a full life's work for most. The brush with mortality also prompted him to refocus his efforts on the bigger picture of making, in his words, "a positive impact on the world and fellow human beings." In talking to him yesterday, it's clear that his concern is not only for the lost historical record when ice melts but for the people downstream that will lose a stable water source during droughts and missed monsoons. By all accounts, he has conducted this work with great humility and a deeper sense of purpose to serve the disadvantaged peoples of the world, who are, by geography or by lack of resources, inordinately affected by climate change.

Dr. Thompson has made a life's work reading the story of Earth that has accumulated in layers of ice. That record is rapidly being lost to climate change. The Earth's own Library of Alexandria is on fire, and he has taken it on himself to preserve it for future generations to read. May we all be as receptive to the story of Earth, wherever it is told, as Dr. Thompson. May we use his determination in the face of long odds to inspire us to act on the crisis his work foretells. Please join me in congratulating the recipient of the 51st Mendel Medal, Dr. Lonnie Thompson.

Fr. Peter Donohue—Closing Remarks.

Dr. Ellen Mosley Thompson and Dr. Lonnie Thompson Villanova is honored to be in the presence of one cool couple. Now I must admit that description has been used by others to describe your relationship and research. Naturally, you have spent a good part of your careers living in the cold but that commitment to your research has sounded an alarm that identifies, I should say proves, that our actions and have contributed and created global warming.

It is amazing that this proof lies deep in the ice of what is often thought to be some of the most pristine parts of the planet. From what I have seen, heard, and read, you are a couple committed to standing firm in your dedication and desire to protect our world. As you have warned, we are in a race against time to prevent the collapse of another civilization. Villanova University's Mendel Medal heralds' scientists who fuse together cutting-edge research with a deep commitment to the common good.

In his encyclical Laudato Si or Praised Be, Pope Francis laments environmental degradation and global warming, and like you calls all people to take "swift and unified global action."

This commitment, your commitment, resonates with the mission and heritage of the Order of St. Augustine and Villanova University to fuse together the mind, heart, and soul. Imbedded in our Strategic Plan Rooted. Restless, Villanova is committed to community sustainability.

Villanova's Plan integrates the University's Christian value-centered principles with environmental stewardship. Guided by the principles of catholic social teachings, our vision and work are to establish an ethos of sustainable living. By generating and advocating sustainable action that will help create a future that provides enough, for all, forever.

Your research, writings and speaking engagements have demonstrated the importance of looking towards our past to better understand our future. It is never too late to make a change that will benefit all people.

The intersection of faith and reason is important in your live and your work. In my several google searches, there was a factor of your life's work that I think has been glossed over but speaks strongly about you dedication to others. Ohio State has been your home away from the ice and snow for many years, but it was at Marshall College in West Virginia that two students met, and your lives where forever changed. If my research is correct this year you celebrate 50 years of marriage. On many weekends, I have had the great fortune of witnessing couples publicly professing their love. Often as I reflect with them, I share that married life is not just a commitment to one another but carries a responsibility to demonstrate to others what it means to live in total commitment to another. Certainly, your research brought you together, but it is the life you have shared in good times and in bad, in sickness and in health that has demonstrated to the world the importance of protecting our world for and because of the those we love. Because it is our daughters and sons who are our greatest contributions to the planet, as you so well know. In your many accomplishments the flame of love that was ignited as undergraduates in West Virginia, has fueled your desire to repair our globe for future generations.

At Villanova we instill that same mantra in our students. Whether they are writers, economists, poets, historians, nurses, accountants, scientist, performers, or engineers, it is important for them to think critically, communicate effectively and work globally. All our endeavors should be grounded in love for the other.

Doctors Thompson, Ellen and Lonnie, your lives, careers, and love call us to confront the choices we make and our daily actions to protect our communities now and in the future. We honor you tonight because you challenge us. While we may not be called to glaziers and mountain peaks to do the incredible work you do, we can be heralds and change agents to win this race to save our environment. Thank you for allowing Villanova to honor you. You have demonstrated that the warmth of your love and commitment to each other and our global communities is why you are one cool couple!

CONGRATUALITONS.

Benediction Mendel Dinner

Good and gracious God we thank you for the gift of life! You have created us all in your image and likeness… and have called us to love one another the way that you love us! We are especially grateful for those who care for others…. and use their gifts and talents for the good of all… On this special night we celebrate those who use faith and science to conduct research for the benefit of our human family.

We ask you special blessing upon Dr. Ellen Mosely Thompson, and Dr. Lonnie G. Thompson this year's Mendel Award recipients…upon their family and their most important work. We thank you not just for what they have accomplished, but for the inspiration to all of us to continue to discover new gifts and creative ways of thinking and acting.

Keep us reminded that we all have vocations, not just careers, callings from you to serve others and to make a difference in people's lives and safeguard the earth for future generations.

We thank you for this food…bless all those who prepare and serve it. May we all use the tools and resources you have bestowed on us… to live with passion… be instruments of healing and peace… and transform minds and hearts with love.
We make this prayer though Christ Our Lord…Amen.