SPEARS: WELCOME BACK TO THE ONE BOOK ONE NORTHWESTERN PODCAST. I'M BAYLOR SPEARS. AND WE'RE CONTINUING OUR CONVERSATION ABOUT THE THEMES OF THIS YEAR'S ONE BOOK -- HIDDEN FIGURES BY MARGOT SHETTERLY. IN THE LAST EPISODE, I SPOKE TO HARVARD PROFESSOR AND AUTHOR OF THE PRIVILEGED POOR, DR. ANTHONY JACK, ABOUT THE OBSTACLES THAT LOW-INCOME AND FIRST-GENERATION STUDENTS FACE WHEN ATTENDING COLLEGE.

TODAY…WE RETURN TO SOME OF THE WORK THAT BLACK WOMEN DO IN THE SCIENCE TECHNOLOGY ENGINEERING AND MATH FIELDS

AS WE'VE DISCUSSED, IN THE PAST IT WASN'T EXPECTED THAT BLACK WOMEN WORKED IN THE STEM FIELDS, LET ALONE DID THE MAJORITY OF AMERICA KNOW THAT MANY WOMEN WERE CRITICAL IN HELPING THE U-S WIN THE SPACE RACE. IT'S PARTLY BECAUSE OF THESE PAST SENTIMENTS THAT BLACK WOMEN AND THEIR WORK IN STEM IS OFTEN INVISIBLE THROUGHOUT HISTORY. TELLING THE STORIES OF THESE -- QUOTE, UNQUOTE -- HIDDEN FIGURES, HOWEVER, IS IMPORTANT TODAY PARTIALLY BECAUSE IT GIVES BOTH A NEW PERSPECTIVE ON THE STORIES WE'VE ALWAYS BEEN TOLD AND PROVIDES NEW INSPIRATION AND ROLE MODELS TO WOMEN ENTERING STEM FIELDS TODAY.

IT'S BECAUSE OF THIS GAP THAT IN THIS EPISODE, I'LL BE HIGHLIGHTING THE STORY AND WORK OF ANOTHER "HIDDEN FIGURE," ANDREA MOSIE, SENIOR SCIENTIST SPECIALIST IN THE ASTROMATERIALS RESEARCH AND EXPLORATION SCIENCE OR THE (ARES) DEPARTMENT AT NASA'S JOHNSON SPACE CENTER IN HOUSTON TEXAS. SHE WORKS WITH THE APOLLO LUNAR SAMPLES. MOSIE, ALONG WITH RYAN ZEIGLER, NASA'S APOLLO SAMPLE CURATOR RECENTLY VISITED NORTHWESTERN UNIVERSITY TO DISCUSS THE LEGACY OF THE APOLLO wSAMPLES AND HER CAREER AT NASA WHICH BELIEVE IT OR NOT ACTUALLY BEGAN IN HIGH SCHOOL HOUSTON, TEXAS.

MOSIE: I started there when I was in the 10th grade. There was a vocational office education program, and with that particular program, you become a secretary. My teacher thought that I was typing pretty good, back in those days, so she put me in this program, and I ended up working in building four which was astronaut building at that time.

SPEARS: SHE SAID THERE WAS A LOT OF EXCITEMENT BEING INVOLVED WITH THE SPACE PROGRAM AND IN GETTING TO SEE ASTRONAUTS AROUND THE PROPERTY. MOSIE EXPLAINED SHE'S ALWAYS LOVED THE SCIENCES AND PART OF THAT LOVE COMES FROM BEING WHAT SHE CALLED A "COPYCAT SISTER"

MOSIE: My sister was in love with the sciences. And so everything that she did, I did. She majored in chemistry and math. She went to Huston-Tillotson. She graduated and started working at NASA. And that's how I actually took the job at NASA.

SPEARS: FOLLOWING THE SECRETARY PROGRAM AND GRADUATING HIGH SCHOOL, MOSIE, LIKE HER SISTER, WENT TO HUSTON-TILLOTSON UNIVERSITY, A HISTORICALLY BLACK UNIVERSITY IN AUSTIN, TEXAS. SHE GRADUATED IN 1975 WITH A DEGREE IN

CHEMISTRY AND MATH. AFTER GRADUATING, SHE HAD JOB OPPORTUNITIES FROM A NUMBER OF PLACES INCLUDING J. DOW CHEMICAL COMPANY AND .. NASA.

MOSIE : The reason I took the NASA job, you had to have a science background. I didn't have any geology, but it just had to be a science background. So I had that requirement, but I did not have a car. I had a sister and a brother-in-law that worked at NASA, so I figured I could get to work every day because I could catch a ride.

SPEARS: WHILE MOSIE SAID SHE STARTED WORKING AT NASA MOSTLY BECAUSE SHE COULD CATCH A RIDE, SHE STAYED BECAUSE SHE FOUND OUT IT WAS THE PERFECT JOB FOR HER. SHE SAID WORKING IN A CLEAN LAB WENT TOGETHER WELL WITH HER TENDENCIES TO WANT THINGS JUST RIGHT.

MOSIE 4: When I first started working there I realized that because it was such a neat place and it was so clean.

SPEARS: AND SHE SAID ONCE SHE REALIZED HOW MUCH SHE LOVED THE JOB THAT EVERYTHING SHE DID WAS FOR THE LAB.

MOSIE: I'm not going to try to do something that I just want to do, because that's what I want to do. If it's not for the betterment of our lab or something like that, well it’s like that's where my heart is, so I'm a moon person.

SPEARS: TODAY, AS THE SENIOR SCIENTIST SPECIALIST, MOSIE WORKS WITH MOON ROCK SAMPLES, PULLING SAMPLES WHEN REQUESTED AND MAKING SURE EVERY SINGLE PROCEDURE IS FOLLOWED. BEFORE MOSIE CAN DO HER JOB, HOWEVER, THE REQUESTS GO THROUGH THE APOLLO CURATOR, RYAN ZIEGLER

ZEIGLER: My main job as the curator is to keep the samples safe for future investigators to use while maximizing the science we get out of it now. So scientists will propose a study and it's my job to review that and decide if it's meritorious, and if it is, then figure out how much samples to give them and, then, give them some samples.

SPEARS: THE LAST STEP, GIVING SCIENTISTS SAMPLES MAY NOT SEEM LIKE A BIG DEAL, BUT IT CAN ACTUALLY BE VERY TEDIOUS AND REQUIRES FOLLOWING A THOROUGH PROCESS. ZEIGLER SAID MOST OF THE REASON THEIR LAB FUNCTIONS SMOOTHLY IS BECAUSE OF MOSIE.

ZEIGLER : Andrea is what keeps the lab running. I mean, she's the one who's as organized, organized have to keep everything together and everything running smoothly. So I might review the science but she does all the real work in the lab, she and the other processors. It's been a real privilege to work with Andrea over the years

SPEARS: IN ORDER TO GIVE SCIENTISTS SOME SAMPLES THE DATA PACK HISTORY MUST FIRST BE CHECKED. WHAT ARE DATA PACKS YOU MAY ASK?

MOSIE: Everything is documented. We have what we call data packs of every history, everything you do. Transfer this sample from this cabinet to this cabinet, you write that down and two people sign it. It seems like a tedious process and it is.

SPEARS: THE DATA PACK HISTORY IS USED TO DETERMINE EXACTLY WHAT SAMPLES THEY HAVE AND WHETHER THEY CAN THEN BE ALLOCATED.

MOSIE: If we have a sample, that's broken up into 500 pieces, you should be able to look at the history of the sample and find out where any piece of that rock actually came from and how it would fit back together because we have scientists that need to know exactly how they were sitting on the moon for their particular investigations

SPEARS: AFTER EVERYTHING IS APPROVED A C-O OR CURATORIAL ORDER IS PREPARED. THE C-O DETAILS WHAT HAS TO BE DONE TO GET AND TRANSFER THE SAMPLE. THIS THEN HAS TO BE SIGNED OFF BY THE CURATOR -- ZEIGLER. THEN SAMPLES CAN BE PULLED.

MOSIE: Once we pull samples, there's a sealed tray and there's a seal on the tray because that tray has possibly a hundred or more samples, and we don't want to have to inventory that tray every time, so we keep a seal on there and break it in the presence of the curator.

SPEARS: SHE EXPLAINED THAT IF THE SEAL IS BROKEN WITHOUT THE CURATOR, THEN HUNDRED PLUS SAMPLES HAVE TO BE INVENTORIED, AGAIN. SO ONCE THE SAMPLE IS FINALLY OUT OF THE SEALED TRAY AND READY TO BE CUT APART, IT SEEMS THAT CUTTING THE SAMPLE COULD GO ONE OF TWO WAYS.

MOSIE: If you pull out a very small sample and maybe it's like 'oh, I just need half of that'. You can just take dikes and snip it and you've still got to give them different samples. You have to take pictures of them, bag them up, and you have to do all your paperwork and stuff, you know and get it ready to be transferred.

SPEARS: PRETTY SIMPLE, RIGHT? WELL IT COULD ALSO BE A LITTLE MORE TEDIOUS THAN THE PROCESS ALREADY IS. LET'S SAY FOR EXAMPLE THAT YOU HAVE A LARGER SAMPLE WITH A SPECIFIC PIECE TO REMOVE.

MOSIE: You think you're going to break it right here and then it breaks here and falls apart. Different story. So you thought you were going to make one break and have two pieces, and you made one break and now you have 15 pieces. You actually are going to have to give a number to each one of those pieces and take pictures of them and figure out if you can put it back together where that how it would fit back together. So you can be really fast. Some samples we call quick allocations, and then some samples are not quick at all.

SPEARS: MOSIE SAID HER WORK WITH MOON ROCKS IS IMPORTANT, ESPECIALLY NOW, SINCE THE U.S HAS STILL NOT BEEN BACK TO THE MOON SINCE 1972

MOSIE: I would have thought by now we would have gone back to the moon and brought samples back by now 15 years later from 1969 to 1972. Who would have thought that we have

not gone back to bring additional samples back but I do understand there are reasons behind everything. But I just feel like space exploration is very important. There are a lot of things that we've found out about Earth because we went to the moon and brought samples back

SPEARS: IT'S CLEAR FROM THE WAY THAT MOSIE DISCUSSED HER CAREER THAT SHE REALLY VALUES THE WORK SHE'S DONE FOR THE LAST FORTY-PLUS YEARS.

MOSIE: Moon rocks are special, very special, and I love what I have chosen as a career. I mean, I feel the same way about it that I felt when I started or maybe it had even grown to a more depth because I've been working with them so long, but it's what I do.

SPEARS: MOSIE, WHO RECENTLY TURNED SIXTY-SEVEN, SAID WHILE HER COWORKERS PROTEST THE IDEA OF HER LEAVING, PEOPLE CONTINUE TO ASK HER WHEN SHE PLANS TO RETIRE. MOSIE, HOWEVER, SAYS SHE WANTS TO LEAVE WHEN SHE'S READY.

MOSIE: People say you need to retire so you could travel and do this. I travel, you need to retire so you could do this. I do that. I do everything that I want to do, and I'm still doing what I enjoy doing as a career. So I'll continue it until I feel like it's time to leave

SPEARS: THAT'S ALL FOR THIS EPISODE OF THE ONE BOOK ONE NORTHWESTERN PODCAST. THANK YOU TO MY EDITORIAL ADVISOR DR. AVA THOMPSON GREENWELL AND BE ON THE LOOKOUT FOR THE NEXT EPISODE WHERE WE'LL BE TALKING ABOUT TARANA BURKE, THE FOUNDER OF THE #METOO MOVEMENT.