Interview

with

Capt Richard C. Agbeyibor,

AF Test Center Commander Executive

Air Force Test Center

Edwards AFB, California

21 May 2021

At

0800L

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RICHARD C. AGBEYIBOR, Capt, USAF
Air Force Test Center Senior Executive Officer

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Murphy: I am John Murphy, Air Force Test Center Historian and am doing a TESTing Voice interview with Capt Richard C. Agbeyibor. It is 21 May 2021 at 0800. Good morning Sir, can you provide some personal background information? (AFTC time/education background/employment interest)

Agbeyibor: Yeah, absolutely. I have been working in the Air Force Test Center since July 2018, after graduating from test pilot school. I was one of the lucky ones to be chosen to be an exchange student with the French Test Pilot School so I went to École du Personnel Navigant d'Essais et de Réception (EPNER), in the south of France from summer 2017 to summer 2018. Upon graduation, I was selected to come to Edwards [Air Force base, California] and be the initial cadre of the Emerging Technologies Combined Test Force here at Edwards Air Force Base. So, I spent two years at the ET CTF, as it's abbreviated, working on all kinds of cool test and evaluation projects. From working on counter small UAS [Unmanned Aerial System] testing to working on autonomous aircraft and figuring out how to develop flight test techniques and autonomous systems to working on a 5th gen[eration] stealth aerial target, full size aerial target, and I really enjoyed my time there. For the last year I have been here at the Headquarters Air Force Test Center working as the executive officer and assistant to Maj Gen Azzano [Christopher P., Air Force Test Center commander] the commander, and I'm getting ready to transition to my next job which will be Assistant Director of operations at the Multi-Domain Test Force.

Murphy: OK, great. Are you familiar with the Test Pilot School here?

Agbeyibor: I am, in that before sending me to France I came [here] for a week to get a bit of introduction and familiarization into what Test is and to pick up equipment; and I am familiar with them being my sponsor and my administrative oversight while I was in France. I am also familiar with them in that I interact day-to-day with all the graduates, some of the instructors and I've also had the opportunity to go do some incentive, qualitative, evaluation flights over there when they have unique aircraft come in that I haven't seen yet. They have given me an opportunity as well as other alumni to go fly those aircraft and experience what they are like.

Murphy: Could you compare the two – the French Test Pilot School and the USAF Test Pilot School?

Agbeyibor: There are about four large military test pilot schools around the world. We have the USAF Test Pilot School here at Edwards Air Force Base. We have the U.S. Navy Test Pilot School at Patuxent River in Maryland. Then we have the Empire Test Pilot School in Downing, it's not Downing I forgot the name (Boscombe Downs) of the town in the UK [United Kingdom] and then we have EPNER. Which is École du Personnel Navigant d'Essais et de Réception, which is the Test Pilot School in the South of France. They each have their specialties and their uniqueness, but overall they collaborate and their Commandants get together at least once a year to talk about curriculum and to harmonize their educational processes. I would say that everybody likes to think their school is the best. I had a good time at EPNER and got to get some specialized attention and training as an engineer. I think much more so than we get at the other

schools: having instructors with me on every mission; instructing me and teaching me the ropes that way.

Murphy: What has attracted you to the TESTing community?

Agbeyibor: Yes absolutely. I am a scientist in that I love discovery. I love learning new things. I am an engineer in that I love creating and love tinkering. I am also an operator in that I am a pilot a civilian pilot and I love flying airplanes, helicopters, drones, all kind of things. Test gives me an opportunity to combine all of those. Test really is the scientific exploration of engineered systems and as a flight test engineer I get to do that. As a test conductor, on the ground in a control room all that, but also airborne in the back of the aircraft where sometimes I get to control. And sometimes as the operator I get to experience what it is like to operate the system that I am evaluating. The ability to bring together all those facets is what attracted me to the testing enterprise.

Murphy: How did your initial involvement in the TESTing enterprise affect your personal ambitions?

Agbeyibor: Absolutely, so several things, one I have to say I was privileged to see a little bit of test before coming into AFTC. [I] worked in cyber testing which is different but similar in that T&E [Test and Evaluation] across all the disciplines has similarities. I worked on avionics testing for the KC-46, F-35, and JSpOC - which is a space system - and also the *Ninja* counter UAS system back when I was at the Air Force Research Laboratory. After test pilot school, being assigned to the ET CTF, I got to work on the *Ninja* counter small UAS system as a tester. Having been on the engineering side of it and the avionics side of it, now I got to be part of the flight test cycle, so I got to see a full spectrum, or at least a broader spectrum of the acquisition lifecycle of a system. [That] was really beneficial to me and really encouraged me to continue working, not just in test but across the whole acquisition life cycle in my career. One thing specifically, that I got to work on at ET CTF was the testing of urban air mobility vehicles which are globally known as flying cars or EVTOLs, Electric Vertical Takeoff Landing aircraft; and being part of setting up the test infrastructure and learning processes for that while I was [at] ET CTF. Growing up I watched the *Jetsons*; and professionally finally got to be part of an organization that was making that a reality. It encouraged me to keep doing this kind of work and maybe after the Air Force go contribute to that mission, making flying cars a reality and put one in every American's garage.

Murphy: Right, we were supposed to have them already, were we not?

Agbeyibor: Yeah, we're a little behind. We are about 20 years behind on that dream there. We'll get there.

Murphy: What are some of your most memorable experiences since working in the TESTing environment? (Can be positive or negative)

Agbeyibor: Yes, absolutely. Test is fun. Every day is fun. You don't know what is going to happen. We predict what is going to happen but then the whole point of test is to validate what we predicted. I have had some memorable experiences in Testing counter small UAS systems.

One in particular, is called the FANG, a Fully Automated Net Gun, which was essentially a grenade that we shot at small UASs and deployed a net to capture them. Testing that system was truly fun because anytime you get to play with explosives, I'm sorry, anytime you get to work (laughing) with explosives, it was fun. It was a good time and getting to test that not just the execution part but the planning for that and the reporting on that system was really cool. I have a little cartridge from one of the grenades on my desk there. {pointing to his work space with a spent cartridge on top} That I keep as a keepsake. That was a lot of fun, but in addition being through the test pilot school, getting to fly all kinds of aircraft - I think I have flown 25 aircraft to date-the good, the bad, the ugly, and the really good aircraft that we have out there is memorable.

Murphy: When you are doing these tests do you just get to do the fun part of doing the test or do you have to sit down and write the report?

Agbeyibor: Yes there is that. You have to pay for all the fun. A lot of people think of testing only as the execution part. There is really a quite large enterprise that goes into that: Planning the test and then reporting on the test afterwards. As an engineer, I am privileged to work across all three phases of planning, execution, and the reporting phase. For the planning phase the trick is getting to learn your system. Learning the requirements of the system and learning the flight test techniques that are necessary to be able to meet the goals of your test. The execution part we talk about that it was fun, but after the execution part we talk about the analysis and scientific thought that goes into making sense of all the data we collected. Then there's reporting that involves putting all those discoveries into language that is understandable to decision makers. Being able to summarize the technical facts into something that is actionable for decision makers.

Murphy: From your point of view, the four phases, can you put them in order of your favorites?

Agbeyibor: I am a little odd in that I like writing and I like creating. I would say execution number 1 because being in an airplane is always fun. Soon after that I would say the reporting, the data analysis and the actual writing and the crafting of the document. A test report is fun because it gets you to make sense of a lot of disparate data and get to kind of get it all together and pull out meaning from all those numbers and charts and graphs. That is a lot of fun for me. I enjoy being the author of the reports. It's kind of like a baby that you are growing and when it is finally mature enough, you get to deliver it and present it to the world. That is a lot of fun.

Murphy: Looking back, if you knew then what you know now, would you want to work within the TESTing enterprise?

Agbeyibor: Yes absolutely I would have tried to get into test even earlier, if I knew what I know today. It's been a fun ride. I wouldn't change a thing. Maybe I would try to do even more, get even better than I was. I wouldn't change a thing.

Murphy: OK, that's going to come a little later (laughing). How much collaboration do you witness/experience within the enterprise on a regular basis?

Agbeyibor: It's gotten better in the last year in my perspective. I'm talking about the collaboration that it takes to make test happen. Sitting here at headquarters, I get to see not only what goes on at the squadron level but also what goes on at the group level, what goes on at the

wing level, at the enterprise level. And I get to see how we do ground test at Arnold Air Force Base[Tennessee] for a long time before it goes to flight test here at Edwards. After we do an initial flight test for testing the platforms, sending it to Eglin [Air Force Base, Florida] to do all the mission systems testing and all the avionics testing. All the data links testing that they do at Eglin really requires collaboration of a number of units within test to make it happen. Beyond just the AFTC enterprise, we have to work with our contractor brethren. We have to work with our SPOs, our System Program Office brethren and program managers, and that's where we need to get better at communication and integrating with all those people outside of test. Within test we are pretty good at it, collaborating, but outside our own community we could do better with integrating the program office. Because they have … they are a stake holder and they have interests that are different than ours. As an engineer I care very much about the science and engineering. I want to get it right I want to make it perfect. The program office, they are concerned about cost and scheduling and meeting the requirements of their customers. Trying to harmonize those varied interests is critical.

Murphy: If there is difficulty in collaboration with those external entities, is that more because you have to negotiate … for example they want "A" and you're suggesting "B" and you have to find somewhere in the middle?

Agbeyibor: Yes it is so they … we want to do things to maximize the performance. We tend to, so I'm generalizing here, but we want to do things to maximize the performance. Those in the program office want to do things to maximize the cost and the schedule. There are limited resources everywhere you go, test is no different. Acquisition is no different. You have to balance those conflicting issues and negotiate it away. What does help which I think we should do a little bit more of, is having personnel that have lived on the other side and understand the other side better, so that it's not a conflict but it's a collaborative environment. That's one thing we can improve is maybe cross community, cross communal understanding between the test community and the program office community and the contractor.

Murphy: Interesting. If there is one thing you could change tomorrow, what would that be?

Agbeyibor: I would … so communications are fundamental, but specifically I would make people go experience what it is like on the other side and maybe send representatives or ambassadors to sit at each site to be able to harmonize all the collaboration between all the stake holders. That is one thing that I think that I would change, that I would improve the test mission.

Murphy: Has this idea ever been brought up before?

Agbeyibor: Yes, we do it as resources permit but resources are not dedicated to that. We do it out of hide or altruistically. I think convincing the leadership angle goes much higher than the Air Force Test Center. This is something that needs to be invested in. That is one thing that needs to be improved.

Murphy: What have you personally experienced as the greatest challenge within the Research Development Test and Evaluation enterprise?

Agbeyibor: The commercial sector is moving ahead of us at a greater pace than we can keep up with. We are held back by some of our traditions and some of our entrenched culture of doing test with access to great resources and doing test for a conventional for an era where we were the sole dominant power in the world. I think we need to adapt faster. We need to start thinking outside of our old box and expand our box or throw away the box or create a new box that involves the latest techniques, the latest science, the latest engineering from the commercial sector. That specifically goes into the computer sciences and digital engineering and the software and the data management and the data science techniques and specialties and knowledge and capabilities that we need to leverage more.

Murphy: Again, you kind of lead into the next question. I'm sure you are aware that General Brown, Chief of Staff of the United States Air Force has a philosophy of accelerate change or lose. How do you think that can be best applied to test?

Agbeyibor: I got to meet and got to brief General Brown when he came to visit Edwards Air Force Base about six or seven weeks ago. The beginning of March, the beginning of April, excuse me, and we briefed him about some of the work we are doing within TEST flag exercises. Which involves Orange Flag, involves Emerald Flag and Black Flag now is our Operational Test (OT) Partner; and with so many other flags out there to try to bring in some of this data science into what we are doing in TEST. He appreciated what we are doing and he encouraged us to do more of that. In that same thrust of bringing on data science and digital engineering is critical to meeting his goal of accelerating change or lose. On the scientific side of the house, in terms of resources and culture, I think we need to get comfortable with failing. We, rightfully so, try to get excellence in everything we do, but sometimes excellence takes a long time. Takes time to strive toward 100 percent solution where the current need is not to be fully excellent but to be good for flight**???** Accepting the 80 percent solution is a cultural change we need to do within test and within the Air Force. We are building systems faster and prototyping faster and testing faster and failing faster so that we can learn and improve faster.

Murphy: Do you think that test in general can go too fast?

Agbeyibor: Oh yes, absolutely we in aviation have a job that is inherently dangerous because when things go bad human life is often at stake. We have lost a lot of really good test professionals in the years that we have been doing this. Because we have lost so many people and decades ago we have built these processes that have ensured safety. We have to be mindful of safety as we are trying to go faster, that we don't go back to the era where it was very common to lose personnel during test missions.

Murphy: Staying in line with General Brown's philosophy, what changes do you think can improve the test and acquisition cycle?

Agbeyibor: I think we need to be less risk adverse and lean forward a little bit more. Have the political will to fail even if it is a public failure and take the example of some of the commercial companies that are out there failing really publically and really drastically with blowing up rocket after rocket after rocket and yet developing technology at a faster pace than we have ever seen on the planet. Because they are able to take those risks posture of accepting material loss in

order to advance the science and the state of the art. Culturally, politically, we need to obtain that support, that top cover in order to fail fast and learn and improve faster.

Murphy: That sounds like that would take a long time. How long do you think it would take?

Agbeyibor: We are blessed that we have leaders that have the foresight and have been advocating this for a long time. Our leadership, most recently with Dr. Roper [Will, SAF/AQ] who did a very good job while he was in AQ pushed for a higher risk profile both financially and in materiel while never risking safety of course.

Murphy: Sure.

Agbeyibor: Some of our other leaders have been pushing for us to be more bold, more adventurous, more courageous in our science and our RDT&E world. I think it will take as much time as it takes the American people to realize what is at stake. What our adversaries are doing and what we could lose if we don't embrace this mindset.

Murphy: Would you like to make any additional comments?

Agbeyibor: I am excited about the future of test, there are a lot of cool things on the horizon there is hypersonics which is coming up and we are doing more risk forward, less risk adverse in hypersonics. We are testing things and we are failing at test and we are learning the lessons and continuing in hypersonics and that is encouraging. In terms of space we are going to do some cool space technology and the Space Force is standing up its own test and evaluation enterprise and we are helping them to do that and I'm excited to see where the new space technology goes. In terms of autonomy which is near and dear to my heart from my time at ET CTF, I think we are getting closer and closer to the loyal wingman which is having a manned aircraft accompanied by a fleet of unmanned aircraft and sending that as a strike package. Being able to have the technology and the operational plans in place to do that is coming very soon. I am excited about that. We have people here that are excited about that. We have young people or at least young in heart-people that work in making that a reality. I'm glad to be a part of that.

Murphy: Sir, I thank you for your time. This concludes the interview.