

The Foundation of the American Academy of Ophthalmology  
Museum of Vision & Ophthalmic Heritage

**Conversation Between Col. Thomas J. Tredici, MD (ret.) and  
B.G. Robert Enzenauer, MD**

In Partnership with the American Association for Pediatric Ophthalmology and Strabismus  
San Antonio TX, March 24, 2012

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Drs. Thomas J. Tredici and Robert Enzenauer recorded this conversation on March 24, 2012 during the Annual Meeting of the American Association for Pediatric Ophthalmology and Strabismus, in San Antonio TX.

Both are members of the US Armed Forces. Dr. Tredici is a retired Colonel in the Air Force and Dr. Enzenauer is currently a Brigadier General of the US Army Reserves.

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[In this excerpt](#) Dr. Enzenauer introduces the topic of the Brooks Air Force Base Consultation Service and Dr. Tredici provides details about his work there.

[Here](#), Dr. Enzenauer comments on residencies and fellowships and Dr. Tredici recounts his fellowship with Lorenz Zimmerman at the Armed Forces Institute of Pathology and his recruitment into aerospace medicine

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COL. THOMAS J. TREDICI: Okay, I'm Colonel Retired Thomas Tredici. I've just recently retired from a...well, let's see...70-year career with the U.S. Air Corps, Air Force, and United States Air Force. That's kind of a one-track thing, but it happened. From 1942, when I entered as an aviation cadet during the big war, then through the big war until '46, then I was out to go to college. I had gotten into aviation from high school. That's another story of its own...and then I went to college. I went to Washington and Jefferson College (W&J), a nice liberal arts school in Western Pennsylvania. Then I went to medical school at the University of Pittsburgh, where I got my MD degree. Then I had to intern and I got back into the service on duty. I went to med school as a reservist on my own...actually, on the GI Bill. Then in 1952, I came back in as an intern. I went to Brooke Army Hospital in San Antonio, interned there '52 to '53. Then I did a residency in ophthalmology at the University of Pittsburgh, School of Medicine, at their Eye and Ear Hospital in Pittsburgh from '53, '4, '5, '6. I took my boards in '57, passed, and got an assignment to Scott Air Force Base, where I was the chief. I was the chief because there wasn't anybody else there. Then I got all the family geared up and took off and went to the Philippines. I was the chief at Clark AFB. I had a lot of work in the Philippines, took care of most of Asia. Everything south of Japan, north of Australia was in my domain, so I had a lot of work there and stayed there for three years with my three children- all my children were born then- and my wife, Margaret. She didn't think too much of our move at first, but after staying there awhile she liked it. She liked to go to Manila and then she liked even better to get to Hong Kong...shopping.

Where were we? We were in the Philippines. How about yourself? How about you telling us a little bit? So you take over.

BRIG. GENERAL ROBERT ENZENAUER: I'll take over. I would just ask, because I would like to know, how does a guy when you went through World War II...you know, what was your family background- where'd you grow up, brothers and sisters, any doctors in the family?

THOMAS: I was the first generation...my father came over when he was about 14 from Italy. He was born in Tuscany near Florence. And my mother...she came here a couple years later. She was born in Massa Carrara in Tuscany. Carrara was the marble capital. I always have a joke that my ancestors cut the slab for Michelangelo, so he could chisel out his Pieta. You know, that's a one-piece slab. That could take a lot of work. Nobody's every challenged me on that, so I let it go.

Anyway, so I was born in this steel town, Monessen, 30 miles south of Pittsburgh and I graduated from high school in 1940. Actually, this whole story gravitates around my high school. Without it, and its education which was probably equivalent when I graduated, to two years at any college nowadays. You'll say, "How can you say that?" Well, you'll see in a moment. The draft was on at that time, but I was only 17, so the draft only involved people 21 to 45 in age, so I didn't give it much thought. I said, "I'm going to go to college, but I need money." So I went to work. Like every other Monessenite, I went to work in the steel mill, Pittsburgh Steel Company. There my first partner, who was Stush, said, "You got gutt job, boy." That's what he told me. Well, it was pretty hard, but it was a job. Anybody could get a job. If you didn't get a job in Monessen, you either were lazy or had something wrong with you. Your pay for 8 hours of work was 5 dollars and 8 cents.

Okay. So, anyway, everything goes along just fine, but in 1941, December, here comes Pearl Harbor, and then pretty soon President Roosevelt and Congress change the draft right away. They drop it to age 18. Now, I'm trapped. I'm in-between. And so I start...I had been a big lover of aviation throughout high school. I was in the Model Airplane Club and I had a couple of records for hand-launched gliders and indoor flying models. There was a science in building a good indoor model. It had to be light enough to stay up, strong enough to take a lot of rubber band windings, and so there was an art and science to it. A big deal throughout high school was I always wanted to go to Akron. Well, going to Akron was like going to the World Series. Why Akron? Well, Akron had the dirigible hanger for the Macon and Akron dirigibles, and that's where the indoor model airplane events were held because you had altitude. I never made it. I wasn't good enough.

Anyway, so I tried to get into aviation. You can't get into the Navy. You've got to be a college graduate. I tried the Army. They said, "Well, if you had two years of college, boy, we could look at it." But actually, the Germans took care of it. We started having tremendous losses in our air crews. The next thing you know, the Army says, "Okay, we're going to let high school graduates try this. We're going

to give you a test.” And that’s where Monessen High School comes in. I never knew until later when I was doing research that they gave this test all over the U.S. and only 15% of the high school kids passed it. I was lucky. I was one of them. Thank you, Monessen High School. So that was the start of my aviation career.

And, I remember, it was Christmastime ’42. I went home and told my mother that I had passed. She was so happy that her “Tommy” was going... she had no idea what this was all about. So we had a great Christmas dinner even though there were shortages and all.

And I remember that sergeant...I didn’t know he was a sergeant at the post office. When I finished the test he said to me, “Boy, you did real well. We’ll call you when we need you. Okay?” Second week after that Christmas party I got a letter. It said, “Greetings. Get on down here...Get on down here to the Pennsylvania Railroad Station, and don’t bring much stuff. You’re going to Basic Training in Miami Beach.” So that was the beginning of my military career.

Well, Miami Beach didn’t have any...there wasn’t any Basic training there. All there was were hotels. So somebody at these hotels was a pretty smart guy. He convinced the War Department, “Don’t build any barracks, just...we’ll put the troops in here.” So that’s what they did. They stuck me in the Atlantic Towers, a seven-story hotel. You know, there weren’t any tourists during the War. So that was a smart idea these guys had.

Now, the Atlantic Towers part, that’s how it got me into good physical training. Abrams, Adams, and Andrews- they were on the first floor. We had four people, four bunks in each room. But me, Tauburg and Zabritsky- we were on the seventh floor. That wouldn’t be too bad, except they turned the elevators off. And then they would call us into formation- “Bring this.” “Do that.” “Do the other.” Up and down the stairs. Up and down. In no time at all you either croaked or got into good shape.

So I’m now in the military and they’re pigeonholing me for awhile because they weren’t ready for me at either Santa Ana, California or San Antonio, where you were classified. You took a myriad of tests there to see whether you were more capable of being a pilot or navigator. But another group had had a pretty good idea also- the colleges. There was nobody attending college. There was no football. So the Air Corps started the College Training Detachment (CTD). I went to Wittenberg, a nice school in Springfield, Ohio. That’s how I got...that’s why I went to W&J later. Wittenberg, which was a nice liberal arts school, intrigued me

when I got back after the war. I didn't go to Pitt or Penn State. I went to W&J which was similar to Wittenberg. I was there for 5 months until I could go to the classification center.

Finally, anyway, I got to Santa Ana, there at the Classification Center, where you took a myriad of tests—IQ, pencil and paper, psycho, physical tests, etc. The Randolph Field staff had figured all these out. They were trying to see which stanine you would get into. If you ended up in 7, or 8, or 9...later I found this out when I was doing research...if you were in those groups, you had a 90% chance of completing pilot training. It was pretty accurate. These tests had all been developed by the psychologists at Johns Hopkins and they worked fairly well.

Well, anyway, I passed. Went into pilot training. Went to the Western Training Command and stayed in the west all the while. I went to Tucson, Arizona for primary flight training. Ryan was the only school that had its own airplanes- Ryan School of Aeronautics. Actually, Ryan was building its own planes. They had a Ryan Sportster, a low-wing monoplane. They built it because they were going to enter the 1935 Cleveland Air Races. Any old-timer can remember the Cleveland Air Races; they were big things back then. So what they did when the War came, they converted the Sportster to a military-type trainer, and it was used by the Air Corps as a primary training (the PT-22).

From there I went to Basic Flight Training (BT), and then I got into bombers. So I went to Pecos, Texas, Army Air Field and graduated from Pecos as a bomber pilot in May 1944.

That was only the beginning, though, because then I had to train in a B-17, and went to Yuma, Arizona. After 6 weeks of training I was assigned to an air crew at Biggs Field, Texas. All 10 of us trained together for six weeks. And then we were supposed to get an airplane and fly to the 8<sup>th</sup> Air Force in England. The airplane never materialized. So we went to Lincoln, Nebraska and then to Boston, got on the Ile de France, a huge ship which was making one of its last trips. Anyway, it made it across the Atlantic, and we got to Glasgow in Scotland. It was now December of 1944. I started and flew as a pilot 18 missions in the 457<sup>th</sup> Heavy Bomb Group until the War ended. That's it.

The War ended in Europe in May 1945. We took the plane back to the U.S. I flew it back with the other pilot, and we left it... we left the plane in Connecticut, never to be seen again. The plane was called "My Mary Myrtle." I don't know who Mary Myrtle was. I inherited the airplane. But it was a good plane. Took me to

all... most of those missions, and got back. It got a lot of flak holes but never got shot down. I see now as I'm reading about the 8<sup>th</sup> Air Force, it was a more hazardous place to be than the Marines as far as losses. That's the way it was. We didn't know that then. We didn't care much, but it turns out that way.

Anyway, I got 30 days' leave, then to Sioux Falls, South Dakota because I'm going to go and retrain in B-29s because the War is still going on in Japan. I listen to the radio and I hear...it's August 5<sup>th</sup>. I hear about this atomic bomb. The entire place is devastated. Now...Monessen High School had taught me...by the time I took chemistry in high school there were 92 known elements and I knew about atoms. I said, "Wow! We used to take a thousand airplanes to go over there to do a job like that, and this was only one bomb!" Anyway, two days later I'm still listening to the radio and now another bomb drops on Nagasaki. Two or three days after that all hell breaks loose on Sioux Falls Army Air Field because nobody is leaving. The War is ending; everybody is coming in. There's no room... they're putting people in the gym and... oh.

Anyway, I got shipped out of there soon and went to Randolph Field, Texas, and then got sent home. It's Christmastime of '45. In January, I began my college career at W&J. However, I was still in the Air Force Reserves.

That was my whole War experience. So I did have a War experience. I didn't know how really precarious it was until many years later. So what can I say?

ROBERT: Well, let me jump in. I'm Dr. Bob Enzenauer, a pediatric ophthalmologist by training. But part of the reason I was so very excited when I was contacted about this interview process is my career has kind of followed yours, Colonel, just about 30 years afterwards.

THOMAS: Well, yeah, 30 years later... okay. Okay. Lucky guy.

ROBERT: So I grew up in South St. Louis. Neither of my parents had gone to college. My father is a World War II veteran, just two years older than you were. He was born in '20. He was a house-painter. He didn't have any money to send us through school. So my twin brother and I both applied to service academies, so I, like you, started out as a soldier before I ended up going into medicine.

I... my draft number was 25. I don't know if... if I had a different draft number I don't know what I would have done, because my parents certainly weren't pushing

me that way. But my fraternal twin brother went to the Naval Academy, became a Naval flight officer. I went to the U.S. Military Academy at West Point...

THOMAS: Wow.

ROBERT: ...turning down an appointment I had to the Coast Guard Academy, which really frustrated my mother.

THOMAS: Yeah, it would.

ROBERT: Right. So I graduated from West Point, and just when... 1975, just when Vietnam was ending. So, again, when I went to West Point, the same way when you went to flight school, the war was on. None of us thought it would be over, but...

THOMAS: It hasn't. It's still not over now.

ROBERT: So I finished West Point with a degree in nuclear engineering, was commissioned in the Corps of Engineers, and the opportunity presented itself as they were downsizing that they were sending active duty people to medical school. And this is before the military medical school. So I ended up going to the University of Missouri in Columbia, Missouri, to medical school.

THOMAS: May I ask you a question right there?

ROBERT: Sure.

THOMAS: Did you have anything to do with Rochester? That's where all the nuclear studies were done. When I first got to the School of Aerospace Medicine and then became chief of the department, the University of Rochester had a whole nuclear study, and we at the school were thinking of the nuclear airplane. So we were... not my department, but the next-door department. So they were deeply into all of that... most of those people got a master's degree from somebody—I can't remember his name now. Maybe you will.

ROBERT: No...basically, when I was studying nuclear engineering, it was really just thinking about nuke power.

THOMAS: Oh, okay.

ROBERT: So we weren't doing the offensive stuff. But, again, I will just say part of the reason I was excited to have this event is, again, 30 years kind of after you were doing your thing, I also did two residencies and a fellowship. We'll go through that with your career, where... because I know you did two full residencies and a Path Fellowship while I...

THOMAS: Yeah, I did.

ROBERT: After I finished med school, I had some incredible mentors who were pediatricians. So I went to Triple Army Medical Center, Honolulu, Hawaii. And I do know some people are sometimes critical about my time in Hawaii, and my answer is nobody attacked Hawaii while I was there.

Finished pediatrics. Practiced pediatrics in Schofield Barracks, Hawaii for two years, and decided I really wanted to do something outside of...

THOMAS: Let me ask you: The barracks were rebuilt or...didn't they get destroyed?

ROBERT: Oh, they were not destroyed. As a matter of fact, there's still lots of strafing and stuff... but they weren't destroyed.

THOMAS: Oh...all right.

ROBERT: So I decided I wanted to be an ophthalmologist, and the Army said, "The heck with you. You're a pediatrician," because I had all the commitment. And I will say, in 1984, I became a flight surgeon, and you were an active duty colonel...

THOMAS: '84?

ROBERT: Yes, sir.

THOMAS: Yeah! I was still on duty.

ROBERT: That's right. And you gave some lectures I sat through.

THOMAS: Right! Yes.

ROBERT: So I was an active duty flight surgeon from '84 to '86, basically, in an effort to get a second residency in ophthalmology. Did a second residency in ophthalmology at Fitzsimmons Army Medical Center in Colorado.

THOMAS: Yeah, it was... it was going then, Fitz, was, right.

ROBERT: Right, yeah. It's closed, just like...

THOMAS: Yeah. Hey, the BRAC (Base Realignment and Closure) was even busy then.

ROBERT: That's right. So then I did a fellowship in pediatric ophthalmology and came back to Fitzsimmons, hoping that I could do what you did, which is basically, you know, finish my active duty time and then maybe retire and stay doing what I was doing. But when they closed Fitzsimmons and they closed...

THOMAS: ...Letterman.

ROBERT: ...Letterman. They also closed Lowry Air Force Base in Colorado.

THOMAS: Right.

ROBERT: So I chose to leave active duty and did civilian academic medicine since then.

So I think I'll switch it over because that's what I wanted to kind of talk to you about. You did ophthalmology and aerospace medicine and a fellowship in pathology. I did pediatrics, ophthalmology, and a fellowship in pediatric ophthalmology.

THOMAS: Well, yeah. You see, the military is pretty good at that. You're still getting paid...

ROBERT: Right.

THOMAS: ...and if you're lucky enough to get selected you can do that. Otherwise, it's pretty hard...I remember my son always told me that. "Gee, Dad, you know, if you're going to get into all these different fellowships, somebody has to support you."

ROBERT: Right.

THOMAS: Well, yeah, I interned and I was going to get a residency right there with Colonel Sici at Brooke Army, but I got switched. Things were easy in those days. Colonel McGraw, who was some kind of coordinator looking after all the Air Force residents, he showed up at Brooke Army about a month before I was ready to go, and he says, "Well, what about...are you all ready to go?" I said, "No, you know, Dr. McCaslin"...I had known him from Pittsburgh..."he's been bugging me all the time. He has a position open. He keeps telling me come on up. But Dr. McCaslin doesn't understand the military." And McGraw said, "Well, are you interested in that?" Now, remember, this is not that you have to go through one committee after another. And he said, "Are you interested in that?" "Well, yeah," I said. You know...it was my home...at that time. Now the home wouldn't have mattered, but...he said, "Why don't you go home and talk to your wife about that?" We were in the library at Brooke Army Hospital and he said, "Come on down here at 9 o'clock tomorrow and we'll talk about it." So I went home and we did all that. I shouldn't have asked my wife because right away she said, "Yeah." I went back there at 9 o'clock in the morning and I said, "Well, if we could do that, I would take that residency." They were both three-year [residencies] and actually maybe he was thinking that if you took the civilian residency you owed four years. If I took the military residency I only owed him one year after I finished. So he says to me, "Well, if that's what you want to do. Let me see your orders." So I gave him the orders and he took them [sound effect], he tore them up right there, and he says, "We'll have this all figured out by tomorrow and by July you'll be leaving." That was it. Now, that's how you got things done. There were no committees involved and I wrote nothing. We did that right there.

So I got a three-year residency. It probably was a little better at Pittsburgh because I worked with about 20 different MDs. Col. Sici was really good, but he was the only one there, and it would be a one-track thing, so probably it was better. And everybody had a different style. We said, "Joe does this, and Bill does..." some we stayed away from because we knew they weren't very good surgeons. Anyway...

So I finished at University of Pittsburgh. Then...oh, man, I mean, in the Philippines at Clark AFB, I...I probably had more motility cases... I hate to say that...in numbers than Marshall Parks. Now, here's what I'll tell you: We had a MAP trainee thing, Military Assistance Program. Colonel Lee came down from Taipei, Chinese fellow, a colonel he was. He was an ophthalmologist. And he stayed with me six weeks and we conversed. But he only spoke Chinese. I only

spoke English. But he watched all the patients who came in and all. Now, we did speak surgery. He helped me in surgery and there were no problems. When he was ready to leave, I said to him, "Colonel Lee, well, what do you think about your time here and what you saw?" And he said...he brought back all his total command of English, and he said, "I think all Americans cross-eyed." There were so many motility patients. Well, think about it. What? Three-, four percent of the whole human race is strabismic. I have all these young people. They all have babies. Three to four percent of their babies. So I'm loaded over there all the time. So whether I liked it or not I did a lot of strabismus.

Yeah, now I did do cataracts on the Filipino scouts. They were old, because they had worked with General McArthur, and they had dual citizenship and they were allowed to come. So my cataract surgery was from there.

And after my three years at Clark, I was sent to the War College, Command and Staff. I took Command and Staff because I really didn't know exactly where I was going to go with this. So I went down to Maxwell AFB in Alabama and spent a year at Command and Staff. And when I got back, I had a good chance...I got an assignment with Dr. Zimmerman, Lorenz Zimmerman, at the AFIP [Armed Forces Institute of Pathology located at Walter Reed]. I did a fellowship for about two-and-a-half years in ophthalmic pathology. I said I couldn't go wrong with pathology since it's everything we deal with. And so I started doing the specimens and other duties.

Now, you might ask, "Well, how did you get into aerospace medicine?" That was just like a stroke of luck. I'm a lecturer on Zimmerman's crew at the AFIP. I did the trauma part. I have a two- or three-hour session. After I ended one day this colonel comes up to me and I found out that his name was Culver, Colonel Jim Culver- later he became a brigadier general. Jim says, "You know what? We have this huge program down at the School of Aviation Medicine and we need somebody like you." I said, "Whoa! Well, what's that?" So he explains all that to me. They had a project called Flash Blindness...the Flash Blindness and Retinal Burn Project. Actually, Jim said, "We have this huge project, and you're doing pathology" and I didn't even understand what it was. It was about the effect of nuclear weapons on vision. [This is 1964, and nuclear activities was a prime topic in the United States.]

ROBERT: So you got recruited to the aerospace school. I didn't know that.

THOMAS: Yeah. I didn't know it at that time, but it had been discovered that even though the nukes destroyed everything, up to five or six miles, nobody knew that if you saw the nuke and you were 20-, 30-, 40 miles away...you still got a retinal burn if you saw it. Wow. When they found that out they had a big problem because they had to protect the air crews, B-29s and B-52s and -47s, otherwise... Okay, so that was the project that the school had, and I said to him, 'Yeah. Well, okay.'

And then I forgot about it. But the next month Dr. Zimmerman said to me, "Hey, Tom, come here. I got this note. You got orders." I said, "What?" He said, "You better go downstairs and find out." Anyway, I went downstairs and found out I had orders for the School of Aerospace Medicine...to be there in July of 1964 and after I got there I never left.

Well...well, wait a minute, I take it back. I did go to San Antonio and I was ready to do the pathology and to do all that, and Jim gets promoted, so I get elevated to Chief. So I don't do much pathology. But what I do is what Dr. Zimmerman taught me even better than path—to give lectures. He was a taskmaster on giving talks...you had to be perfect. And then the rest of my life, that's what I did. I gave lectures- dozens of them every year, both locally at the school, and away, and here and there. So I had a pretty good fellowship at the AFIP.

Now, that wasn't the end of my surgical career, though. One day, in 19...in... Thanksgiving of '65, I was just transitioning into Chief. Jim was still there ready to leave. Ms. Gilbert, she was our secretary, says, "Dr. Tredici, your orders are on your desk." I said, "What orders?" "Well," she says, "for Vietnam." Oh, my God. I had just brought my family down to San Antonio. "Orders for Vietnam? What is this?" So that's right, I got sent as an eye surgeon to Clark and Vietnam where I stayed from probably Thanksgiving...no, Christmastime of '65 to June of '66, even though I hadn't done eye surgery for two years. That was my last surgery, by the way...

I was... at that time, the only eye surgeon over there. I started getting relief in the spring of '66. The first guy to show up was Spivey.

ROBERT: Bruce Spivey, sure.

THOMAS: Bruce Spivey shows up. He comes to Clark, and I brief him on all that was going on...and he was Army, so he was going to go in and stay there. Me, I was Air Force. I'd fly in and out. I'd go to Da Nang and do some things, come

back, then do the surgery...and then I always said...It reminded me of Dr. Debakey. Once I put on the greens, I never took them off again because we had three planes a day. It looked like M.A.S.H. Three planes a day would come in. And I didn't have any staff, just me.

So that was it. That was my last surgery. So when I came back...the week I was coming back I thought, "at Brooks [AFB] I had been writing papers" and I said, "Oh my! I've got a whole thing here. I didn't go over here to write a paper, but I better do that." So I went down to see the registrar. I had known him from five years before. He was still there. I said to him, "Can you get me the cover sheet, the surgical sheet, and the summary on all 300 patients that I saw here?" "Oh," he said, "Colonel..." I was a lieutenant colonel then... "...don't worry, we'll have that." And he did. He thermo faxed them...remember [those]?

ROBERT: Yes. Yeah.

THOMAS: It looked like butcher paper.

ROBERT: Right.

THOMAS: And it smelled. He thermo faxed an entire footlocker full and I took it back with me. I threw it on the plane. I was coming back air evac. And then that whole year and a part of the year later I went through all those and I wrote a paper on my experiences in Vietnam. Now, it wasn't any of my best, but I didn't go there with that intent, but I did it as an afterthought. And it turns out nobody else has written a paper on eye care in Vietnam, so that's it. I got it published in *Military Surgeon* in '68, and so be it.<sup>1</sup> Good, bad, or indifferent, I got to go with it.

And as far as the paper, it was published by the Association of Military Surgeons of the United States.

ROBERT: Yes, sir.

THOMAS: The journal is called *Military Medicine*, and the journal is still ongoing as we... now. I just got one last month.

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<sup>1</sup> Tredici, TJ. "Management of Ophthalmic Casualties in Southeast Asia." *Military Medicine* May 1968: Vol. 133, No. 5.

ROBERT: Yeah, I'm going to add...it used to be called *Military Surgeon*, because I did some research from World War I.

THOMAS: Yes.

ROBERT: And it switched to *Military Medicine*.

THOMAS: No, you're right.

ROBERT: Right.

THOMAS: The one in '68 is in the *Military Surgeon*. I can't remember when... because it wasn't my forte...I can't remember when they switched the title over. It's now a big, blue journal.

ROBERT: Right.

THOMAS: Actually, George Anderson runs all that, Major General George. He used to be my commander, and now he is the civilian boss. I don't know his real title, but it's on the front page...

Okay, so that was it. After Vietnam, I became the Chief, and I stayed at... I stayed at Brooks for all the...well, until the BRAC shut us down. Let's see, that was '65 to 2011, yeah.

Now, another thing happened that was curious. In 1980, I had to retire by OGLA, you know, Officers Grade Limitation Act...

ROBERT: Oh, yeah, right. Yeah, you're an old colonel, right.

THOMAS: I was 58-years-old. That was the end of that. So somebody up the chain of command...They offered me a recall. Now the only person I had ever seen recalled was Admiral Rickover, and they passed a law for him.

ROBERT: Right.

THOMAS: Well, that law was used for me because they didn't have to pass one, and they recalled me and then extended me for five years. So I was going to go to the medical school and do something there because I had an offer. But when they said I could stay at Brooks and I was still the Chief, I stayed.

ROBERT: So, sir, when you say the med school, you're talking about USU, right? The new Uniformed Services [University of Health Sciences]...

THOMAS: No, no, I was going to go to the University of Texas.

ROBERT: Okay, sir.

THOMAS: I was going to retire...I had to retire, but I got a recall for five years. Then I got recalled again for two more. That put me up to age 65. Then there was some other kind of problem at 65, so the school commander said, "Tom, we have a GS slot available. You can...you can bid for it. You put in your application and we'll see what happens." So I retired from the U.S. Air Force on my birthday, August 27, 1987 at age 65.

ROBERT: When the Academy approached me [for the oral history project], they wanted leaders in military ophthalmology, and certainly there's nobody more senior as the good colonel remarked. But I had the good fortune to do some research. I wasn't able to find another person besides you, sir, that was...the first guy who was a rated pilot, who then did ophthalmology, who then did aerospace medicine. Because currently there actually is a program where they have flight surgeons, you know, so people that specialize in taking care of pilots who are also rated pilots, and I think you were the first one.

THOMAS: Most of those rated pilots are only...well, I'm not going to say 'only.' They're flight surgeons.

ROBERT: Right.

THOMAS: But they're not specialists in vision.

ROBERT: Right.

THOMAS: Yeah, I'm a member of that. We have a unit...I forget. It has... it has a whole group of letters designating it. I'm a member of that.

ROBERT: Right.

THOMAS: I'm the oldest guy in there, but...we meet at the Aerospace Medicine Meeting annually.

ROBERT: Okay.

THOMAS: And most of the material they put on lately is on night vision and night vision goggles. They're all intrigued with that.

ROBERT: Right.

THOMAS: And, now, Dr. Colonel Bob Miller and I wrote a manual on- for the flight surgeon- on night vision and the night vision goggles. When that came out in about 1985 there was absolutely no information except one book in French on this whole matter. And so we sat down and put that together because we had to do something for the flight surgeons. The official line was embracing this night vision stuff full-time without much medical backing.

ROBERT: I would want to ask you, as a flight surgeon and an ophthalmologist, which we both are at different stages, you went through from both sides of the exam chair. So you, I think, went through the Bárány chair, and all those interesting things they used to try and test pilots, [to see] if you get dizzy or sick.

THOMAS: No. No, I'm not going to be able to answer that, because I just missed those. That was at Randolph, and I just...I got over...they moved from Randolph to Brooks in 1960, actually at Christmastime in '59, and I started working on these projects in '62, actually for the school. While I was at the AFIP I had a project. I called it "Sam's Dog Project." There were dogs that had been...had...

ROBERT: Hyperoxia.

THOMAS: Hyperoxia, right. And that was what I was doing for the school. And so by the time I got there in '64 my prime project for Colonel Culver was to work on glaucoma in aviators, take care of the contact lens project and start rewriting, upgrading the curriculum for the flight surgeon's course, which I did all the rest of my career.

ROBERT: I want to speak up because I actually sent you some patients. You wouldn't necessarily remember, but Brooks Air Force Base, for all the services, was really the leader of a kind for aviation ophthalmology. So when I was a flight surgeon at Fitzsimmons Army Medical Center in Colorado, if I had a soldier, aviator, with an eye problem, or if they had heart disease or whatever, they would normally come down to your place at Brooks Air Force Base...

THOMAS: Correct.

ROBERT: ...and couldn't go back until they got either thumbs up or thumbs down. And for eye stuff it was probably from you personally.

THOMAS: Yes, it was the Consultation Service. We were the last...we were the court of last resort for every aviator. I always had pride in that, because we always gave them the best shot we could and we got pretty good at this. People who had pretty devastating things, we tried to put them back on duty if we could because we knew they were good. They already had gone through a \$2 to \$3 million training process. We sure didn't want to do another one if we didn't have to. We could save a lot of money. So during my tenure I came up with a lot of techniques that could put people back on duty who had had a certain eye problem, as long as it wasn't going to cause a problem in flying the airplane. So, yeah, and cardiac folks were the second largest number of patients that were sent down to see us. Every department had them, but some of the other departments we didn't have as large a number, like in psychiatry. But once you got a psychiatric case it was there for a long time...and they really worked them over. But, yeah, I appreciate what you said there.

At the Consult Service, we eventually came down with about a dozen diseases and conditions that we saw most often, which were the ones we pursued vigorously... for instance, cataracts. That's a nemesis. You just mentioned that to me. When I got to USAF SAM in 1964, if you had a cataract, your career in aviation was finished. If you got cataract surgery...when I first got there [in 1964], it's the kind of cataract surgery I did, intracapsular, because if we did an extra caps, that means that we had...we had messed up. Even if your surgery was successful you couldn't go back to fly because you lost stereo [depth perception]. The correction method, the glasses, was such that you could never recoup stereopsis. So without stereo you couldn't pass the test. So everybody was grounded. I tried to put people back on status with contact lenses. I was pretty good at contacts. This is hard contacts, PMMA. I had a great technician, Sergeant Lee Arnold, who was a contact lens master, and he taught me all about the lenses because I was interested. And I was able to get about 20 pilots back on flight status who had cataract surgery, the first time that ever happened. I was able to get them back stereo because with a contact you reduced that differential image in size from 33% to 5%, and a lot of people could take a 5% difference and still pass the stereo test. They didn't get anything free. They had to pass the test.

Now, what got us off of the hook was the intraocular lens. When the intraocular lens came, man, everyone got their stereo back. They also got their vision back. A lot of them got their vision back without glasses. Now, the only problem was, though, would it stay? So we ran a whole study on the centrifuge. Not on humans. We actually got one of the eye surgeons...this was early on, so not everybody was doing IOLs. We did them in primates. We had a hard time getting the lenses. We had to get the smallest...anyway, we did 12 primates and then we ran them all through the centrifuge and we ran them all through vibration studies. Nothing. Nothing happened. So we said, "We're going with it." So I remember, I gave the first talk on this. It was in Nashville at an ASMA meeting, probably in '86. I had seven patients who had had IOLs, all of them were flying. First, I was a little timid. They only had them in one eye. Later on, they got the cataract in the other eye. So what are we going to do now? Now, by the way, I wasn't doing the cataracts. They were being done over at Wilford Hall because we don't have surgery at Brooks...at the school. And then they would come back to us and we would do the evaluations and so forth.

You know, that's the most successful program of surgery and public health we ever did. We now have about 150...when I left. That was last year. We probably have more. We had 150 aircrew who had had cataract surgery and who had all gone back to flying every airplane in the inventory- F-15s, F-16s. We've never had a lens dislocate, so it's a really great project. In numbers, we have more patients in the glaucoma group, but in success rate, it's our best. So I think you have to...and, remember, for all 150 of those aircrew we would have had to train new candidates.

ROBERT: Sir, I was going through your history, and, again, you retired with 45 years active duty. Is that close?

THOMAS: No, I had about 40... I was about a month short of 40 years of active duty.

ROBERT: Okay, 40 years of active duty.

THOMAS: Right, because of the recalls.

ROBERT: Right.

THOMAS: Right. Now, the other thing was when I retired as a colonel...I don't think some of you generals would like this...when I retired as a colonel in '87, I was number one on the Blue Book.

ROBERT: Uh-huh.

THOMAS: I mean, from...after working your way up through the thing, I was number one of the Blue Book as far as...

ROBERT: The most senior colonel?

THOMAS: Yes. I was always more senior than all the generals.

ROBERT: Sure.

THOMAS: They figure, "Who's this guy anyway?" Because generals rarely get recalled. It's hard. You have to have some...colonels can get recalled because they're doing some project or other. Nobody seems to mind or care. But I think I gave them their money's worth.

Let's see, the second one was...oh, yeah, the second one was...oh, jeez...when I retired in 1987, I was the last person who had flown combat in World War II still in the service. That date was August 27, 1987.

ROBERT: Right.

THOMAS: Now, you know who picked up on that? *USA Today*. That was...I was in the newspaper. Yeah, somebody at the Surgeon General's Office told them that and they found me. I was at an American Academy of Ophthalmology meeting in New Orleans. I was 65 then. That was my last...I think it was the last. And they came to the hotel room [knocking], knocking on the door in the early morning to interview me because they wanted to put it in the...I think it was Armistice Day of November the 11<sup>th</sup>, 1987. They had this big story they cooked up. And so...so I saw them so involved in it, I said, "Oh, okay! Okay!" So I got dressed. I put on my uniform. I was still in uniform on duty. I went downstairs, and they took a photo of me in front...oh, I had a display.

ROBERT: A poster or something.

THOMAS: My poster. [Our Branch project]

ROBERT: Yeah.

THOMAS: So they took a picture of me in front of my poster, and it's...it was in that day's paper, right next to President Bush. I don't know how...President Bush was in the next story, but we were side-by-side. So, anyway, that was another oddity that I might bring up. It's got nothing do with...except longevity.

ROBERT: So how many years after your retirement did you...because I referred you patients when you were retired.

THOMAS: Yeah, after...well, after I retired in 1987 I was off a month and then I came back as the...well, let's see, I was the senior scientist for our branch and the school. And I just went back to work full time. I went back on the firing line. I just went back to see the patients, write them up. And as long as...you know, my demise was the computer. I did it until about a year before my absolute final retirement in 2011. By 2011, they switched over to all the computer thing, which I wasn't good enough at. Now, I still saw the patients. I would write them up real quick in longhand and either give them to my trainee...because all the doctors, they don't know, but they've been sucked in to the undertow. They're good. They just sit there and don't realize they're doing two jobs for one. They're sitting there typing and so I'd give him all my handwritten things and he'd type it up. And when he saw his patient he would type it up real fast. So I noticed...I said, "This is it. I can't learn this all at this late stage, so maybe the BRAC is doing me a favor." So when the BRAC closed Brooks AFB, I didn't go to Dayton.

Actually, not too many...none of the civilians went to Dayton [Wright Patterson AFB]. Our blue-suiters did. Naturally, Col. John Gooch, who was one of my trainees 10 years before, is now the branch chief. And I hope John does well because he's got a tough, tough job. I would not want that kind of job, to relocate an organization, because everything you do is hard and you don't get much credit for it. That's what he's doing up there now. I haven't gone up to see what he's doing, but I'll take a trip up there one of these days. I wish him well.

ROBERT: So you answered my question. You literally just retired when they...

THOMAS: Oh, well, no, wait a minute, to answer your question. Okay, so I went back, and that was '87. So I stayed as a civilian from '87 to April...actually on duty until April of 2011. That turns out to be...well, I came into the Air Force in August of '42. And you know something? I'm not really out of the Air Force. I go to work halftime. I'm emeritus. I have an office in the last building left on

Brooks. I think maybe I'll close it down. I have an office in the Altitude Chamber Building. They still have the Altitude Chamber Building, they had an office and I was offered...I don't have a secretary. I don't have...I don't even have a computer. I don't even have a telephone. I'm trying to...I'm trying to put together all the material and papers that I salvaged. Some we shipped, but not much, and the rest I salvaged for a complete history of our department for over half a century. It got scattered all around, but I'll have to get some help. I'll probably have to hire some help. If I only could dictate like I did and give the tape to Bertha- she was my secretary. We out-produced the computer. You say, "What do you mean?" Well, when I heard the BRAC was coming, I kicked-up the afterburners and I started collecting all of the material that we had ever done in print and in lectures. I did it for 1960 to '70, '70 to '80, '80... in 10-year increments... '80 to '90, '90 to 2000. I finished 2000 to 2005. I now have it all... in unassembled form 2006 to 2010. That would give me a total half-century of all the publications and major presentations of our department. By count, there are about 800 publications. Now, not all...they're not Nobel Prize, don't get me wrong. But, look, if you take the trouble to put something down, I don't care what it turns out to be, you put out an effort. It's better if it's Nobel, but if it isn't, I still give you credit.

And the others, we probably have about 900 presentations. These are not those we did at the base. That's part of our work. We didn't count those. We counted those that we did at the AFIP, AGARD, the Academy, etc. For instance, we submitted a paper to *Aerospace Medicine* every year for 49 years, and we submitted a paper, a different one, for the Academy every year. I ran out of steam a couple years ago when my wife passed away. I missed my first Academy meeting last year. I appreciate that the Academy is doing this recording session in San Antonio, my hometown.

ROBERT: Well, I will say, I...

THOMAS: So... well, to answer the question, that's 70 years of Air Force duty.

ROBERT: Right.

THOMAS: All right.

ROBERT: I...we'll see if I can last as long as you did. I...again, for the people that don't know about the military, as a colonel you normally have to retire at 30. That's the kind of normal deal, you know.

THOMAS: Well, that's why I mentioned OGLA.

ROBERT: Correct.

THOMAS: Officer Grade Limitation Act has all the rules...

ROBERT: Right.

THOMAS: ...and regulations of what you can...now, they've changed recently, especially for medical officers. Since I pioneered it, they've...and they said, 'Well, that guy didn't collapse, so we'll give it...' so if you can pass all the physicals, I know there's one medical officer who is 67 and he's on duty.

Now, I could have stayed on duty because I was in pretty good health all the way until who knows when recently, but that was beyond belief. They said...well, no, I did fit in my uniform. Now, come to think about it, I was in uniform at age 75, but only for two days. How could that be? Dick Hickman- he was my chief of the division...Dick's a friend and a great guy, and a great, great doctor. He...actually, when he finished in the U.S. Air Force he went to Mayo Clinic and he's been on their staff. He's a brilliant guy. When he was to retire he said, "Tom, I want you to retire me." So a sergeant came by and he said, "The Chief wants you to..." "Oh," I said, "yeah, go ahead, put me down." This is three or four months before. About six or seven weeks before, Chief Shaw came back and he said, "Doctor Tredici, you know you have to do this retirement in uniform." "What?!" I mean, I'd been out...I said, "What are you talking about? Wow." So I went home...no, I couldn't make it. I needed to lose 10 pounds, I'll have to admit that. So that's what I did. It took me six weeks. I got back into my uniform. I retired Dick. I have pictures of that to prove it. I have a couple guys who insisted that they get the picture with me at that age because they never saw anybody 75 years old with a full colonel's uniform on. But I only had it on for the day before and the next day, and then I took it off again.

ROBERT: Time to retire.

THOMAS: But I...yeah, and I had all my ribbons and all that good stuff.

ROBERT: Sure, of course.

THOMAS: Yeah, actually, we did the retirement in Hangar 9, right by the Jenny. I remember that. That's pretty good. Well...

ROBERT: Well, what I'll share with you. When I...again, same thing, as a physician...As long as you're fit and they think you're not going to harm yourself they'll let you stay in.

THOMAS: Right.

ROBERT: So I had several extensions past my 30<sup>th</sup>, because I hit 30 years in 2005.

THOMAS: Well, see, you're on my trail. That's great.

ROBERT: Correct.

THOMAS: Perfect.

ROBERT: ...because I got my extension, I got my extension, and then...

THOMAS: That's the hardest part, by the way. You've got to get some friendly folk up the line who understand this, otherwise, the rules will stymie you.

ROBERT: But, you know, sir, if you're a flight surgeon and the head guy's a pilot and he likes you...

THOMAS: I was going to say, although getting in as a flight surgeon is a little harder because your physical is not just being any old doctor, who might be able to do it even with a lesser problem. No, no, they're not going to let you go without the visual problem or...

ROBERT: Right. So, because I was on an extension, I made my promotion to brigadier general...

THOMAS: Well, good.

ROBERT: ...and in...that was in 2010. So what's amazing with that is I basically made my promotion to brigadier at 35 years of active...of service as an officer. So once that happened, then the clock starts again, as far as how many years you could do as a brigadier. So you can go up to age 61 like as a brigadier, and then you could go up to...

THOMAS: Well, the line can do that, too, or just...

ROBERT: Yes, sir. Yep, line.

THOMAS: Oh, wow.

ROBERT: Yep.

THOMAS: Yeah, but I don't see too many old brigadiers in the line because they don't extend them usually.

ROBERT: Correct.

THOMAS: Medical, yes.

ROBERT: Well, but there's no question. There have been some that, say, were prior enlisted that then got commissioned. You know, so there's...it's not... it doesn't happen often, but conceivably...I could go to 64 as a major general.

THOMAS: Well, something I won't get any advantage of, the 40-year thing. Now if you serve 40 years, you can get 100% retirement.

ROBERT: You can't get...?

THOMAS: No. I can't get that; it's not retroactive.

ROBERT: You know, you should consider maybe volunteering to going back on active duty because I...do you know Colonel Bernstein, I think? He's an anesthesiologist, flight surgeon. He's been on active duty at age 75 on a recall.

THOMAS: No kidding?

ROBERT: Yes, sir.

THOMAS: Oh, that's right. I think I saw him in the...one of the *Air Force Times* articles.

ROBERT: Correct.

THOMAS: Would he be practicing, though...?

ROBERT: As a flight surgeon, correct, in theater.

THOMAS: Well, I have to hand it to him, then. He's a...yeah. I could have done it at that age. I assure you at 75 there was no problem.

ROBERT: Right.

THOMAS: But now, no, let's leave it rest.

ROBERT: Okay.

THOMAS: Eventually, you have to hit a wall somewhere.

ROBERT: Right.

THOMAS: And the big 9-oh is a good one, which is coming up in August.

Let's see, where were... well, you were talking. Please, continue.

ROBERT: Well, I... I just was suggesting I hope that I can serve as long as you have.

THOMAS: Well, okay. Listen, I went over the Consultation Service in a meager kind of way because it was a...well, it's what the residual now of the school. The main thing that went to Dayton was the Consultation Service. I doubt if they're going to be able to delve into research as we had because we did a lot of research on thermonuclear weapons. We did a fantastic project for NASA delineating the amount of UV that there was in space so that we could give them the data so they could protect...you know we did it all before the moon landing. So they had the information necessary to build the visors to protect them both on the moon and for EVAs. The gold visor that you saw on the moon is a product of my branch. I'm pretty proud of that. Now, that gold visor was not made for moon exploration. It was made to protect against thermonuclear weapons blast. It's called a 1% transmitting visor. It restricts 99% of the electromagnetic energy, but on 1% in the daytime it would have protected you...so we built that. Now, we never used it, thank God, in wartime, but in peacetime they used it on the moon...there it was. And they used it on the moon so that the infrared would not come in and then make a greenhouse effect inside of the suit. It could have overwhelmed the climate unit, which was an air-conditioner, so they wouldn't have been able to stay there very long. And then there was the protection from UV, which was in the Lexan part of the helmet, which was inside. Anyway, that was a great project that we did.

And then on night vision, nobody was handling it. As an old-time pilot I could understand, I hated flying at night. Until I learned instrument flying it was terrible. When I was in the basic flight training of BT Vultee, I remember flying over the San Joaquin Valley in California. When I turned to the west, it was dark. I hadn't learned instruments yet, so I wanted to turn quickly so I could see Los Angeles again and see all the lights, and then I knew where my horizon was. Otherwise, when I turned back...anyway, that's it. We'll leave it at that.

ROBERT: As far as the Consultation Service certainly, I think, it is an incredible legacy...

THOMAS: Well...and it went.

ROBERT: It's also international, too, because I know, it was a tough thing there when some pilots from other countries showed up on your doorstep.

THOMAS: Yes, because most of them were training up at Sheppard AFB. And we would get into trouble with that, though, because the Germans had done it the one way, the Italians especially...“hey, mama mia”...they had their own things. We'd tell them that we'd ground them. They didn't want them grounded and we'd get into a big problem, a diplomatic problem. But most of the time we got it ironed out and then later, we had a lot of persons from the Middle East who were training at the time. That was a little bit more difficult.

ROBERT: Sir, I was also interested in reading some things that...I know Houston is kind of NASA headquarters, but early on, how much did the School of Aerospace Medicine deal with the astronaut program?

THOMAS: Completely. We...

ROBERT: So you examined every one?

THOMAS: Yes, except the first seven. Now, the first seven did not...we did them the second time around. I have...I have the histories and physicals on the original seven, but they originally were done by Dr. Randolph Lovelace and his group at Lovelace Clinic in Albuquerque because Randolph Lovelace was Chief of NASA Medicine until [1965]. [As a younger man] he jumped out of the plane and was injured...froze his hand. That was tragic. He jumped out at 40,000 feet. It was in cahoots with the Mayo Clinic. They were working on this Boothby Mask and he

jumps out and freezes a hand, and he's a surgeon. So I don't know the rest of that story. But the original seven astronauts were done there. Then we did everybody else. Actually, I have a paper on all the astronauts that we saw. I presented it two or three times. It needs to be published. We have data on all them and what their shortcomings were. They were all...it was kind of easy. They were all better than 20:20 because the original astronaut group were all pilots.

ROBERT: Right.

THOMAS: Now, we also did the scientist astronauts. They were all MDs, PhDs, etc. They had poor vision. Most of them were myopic and astigmatic.

ROBERT: Right.

THOMAS: So we had all that problem. You know, they also had some other restrictions, but we were more lenient with them. And they were going to go out in space in the...

ROBERT: The shuttle?

THOMAS: No, the big thing that went around...?

ROBERT: Oh, the parabolic...?

THOMAS: No, no, no, no. It stayed out there for two or three years and then... Sky Lab.

ROBERT: Right, okay.

THOMAS: Yeah, they were on the Sky Lab. We forgot about that. That was up there for two or three years, and then it burned up on reentry. But that's where the scientist astronaut...

Yeah, well, I was even on a program with Admiral Sheppard, the astronaut, in 1972. I gave a big program on vision and space for the Academy of Ophthalmology and Otolaryngology. We opened the Academy with that. The whole thing...there were so many people who wanted to come to that, we held it in...where the Mavericks play, the basketball team, at the Convention Center. In fact, we opened the Dallas Convention Center in 1972 because I have the picture of me and Admiral Sheppard, and I don't remember the picture so well, but I

remember the smell of the cement. It was still new, it was still curing, and we were against the cement wall, me and Sheppard, because he was the principal speaker. Probably the most people who ever came to an opening session. They filled up the whole place because the astronaut was going to talk.

ROBERT: Oh.

THOMAS: Now, after Sheppard gave his talk, I was on. Many got up and left, but that's another story!

You know, I remember this because Dr. Chuck Berry was the doctor for NASA until he retired. He's a flight surgeon. He's in Houston. He had a practice there. So we got this project on...because Dave Noonan and his staff asked us, "Well, what are you doing in space?" Well, I had to work like mad that year to put things together because I hadn't been in space. Only a few had been...this was '72. So I had to go look up everything that had ever been done. So I'm going to give the vision thing. Capt. Ashton Graybiel (USN), he's gives the ENT material. I show up, it's about 15 minutes before we're ready to go, and I said, "Where's Admiral Sheppard?" And then he shows up, and he's in a neat sports jacket, really neat, with a real flamboyant tie. And he says to me...no, he says to us, "I thought that Berry had had this all worked out. What am I supposed to say?" It's 10 minutes before we go on and he says, "What am I supposed..." Berry is smarter than all. He says to Sheppard, "See that colonel over there? Go ask him." Oh, my God. So, anyway, I say, "Come here." We looked out of the curtain and I said, "All those people out there, they're eye people, they're ophthalmologists." I said, "Why don't you just tell them what you saw." That was it. People liked it.

Anyway, that was the opening session that we had. You'll remember because we even had it in the...the Academy newspaper, that we...we called it *Argus*...?

ROBERT: *Perceiver*.

THOMAS: *Perceiver*. It was in the *Perceiver*, front page. After that I disappeared, I never showed up on there again. But that was okay, that...that was my highlight, my 15 minutes.

Okay. All right, so...so we talked about the Consultation Service, we talked about some of the research.

The last research that we got involved in, actually...well, there were a couple of things. One was called orthokeratology. Someone discovered that...well, it's the predecessor to PRK. Let's not make light of it, except it's with contacts, hard contacts. Someone discovered by ill-fitting the contacts and mashing down on your cornea you could change the refraction and we had a lot of trouble with that. So people were starting to wear hard contact lenses and then taking them off, and taking the Air Force vision test and they passed. But they were myopes, but nobody knew that. So, anyway, we did a study with the Air Force cadets, and I wrote two papers on that. Nobody else...all the papers on ortho-K were in optometry because ophthalmologists didn't bother with it. If they misfit a lens, they would change it right away and go with a new lens. But the optometrists were smarter than us. They kept fitting the lens flatter and flatter and flatter, and they were changing...they actually could...you could change a person who had probably less than a diopter-and-a-half of myopia if he had the right...it would improve his myopia...There was no research to see who would comply or not, so you did it on everybody. And on some it worked and some it didn't. They could maintain that for several days without lenses. And that was orthokeratology.

Actually, why were we even involved? Because some cadets at the Academy who were becoming myopic as they got older found out about that and they used to take off on Saturday, go into Colorado Springs to get this treatment...

Anyway, to make a long story short, orthokeratology fell by the wayside, eventually, after we did two pretty good studies which showed it did not last. The cornea would revert back and in order to keep it you had to manipulate your cornea with the lens and this was not allowed in the military. And so it was dropped. However, many years later, we are doing quite the same thing, except it's a little more permanent because now we're cutting the cornea by using the 183-nanometer laser and actually sculpting it now with PRK or Lasik. The thing about the ortho-k is that you could always back off. Well, you can't do that once you've had PRK... you can touch it up, but...

So we did another study on PRK, finally, because we said, 'This is coming and we're going to have to comply with it, or do something.' So we did a study on 80 people. Actually, we had to get a VISX laser first and all the patients that we did...Not "we"- the persons that did the surgery were the Lackland Group and we did the research work, and the selection, and the post-op work. Actually, the study went so perfectly I don't think we learned much. All 80 people who were myopes became emmetropic or pretty close to it. None of them had any bad reactions. So as a learning process, I don't think we did that much. However, bottom line is that

we now allow candidates...we followed that on and on, and we allow aircrew who have PRK and now even Lasik to fly in the military. Actually, we can thank Col. Doug Ivan for directing this important program at USAF SAM. Doug as the 2<sup>nd</sup> longest tenure as Chief of Ophthalmology Branch, after me.

We stayed away from Lasik at first because we were a little bit...we had trepidations about the flap. We didn't know whether it would...well, we were right, the flap never does heal. But we didn't know if we would get into trouble in a military set-up, jumping in and out of planes and water, and parachuting in jungles and stuff like that. So we stuck with PRK because it was your own epithelium that grows back. But now we have some Lasik cases and we accept it now. We haven't worked on the new intraocular phakic lenses. Do you have anything on that, the new lenses?

ROBERT: Yeah, and I have not...

THOMAS: The Army is doing it now, you know.

ROBERT: Well...but I don't think they're doing it for pilots.

THOMAS: No. Oh, no.

ROBERT: Right.

THOMAS: I doubt very much.

ROBERT: Right.

THOMAS: The Army is big on that because they're doing it for 10 diopter myopes, so we don't expect to ever see 10 diopter myopes trying to get into pilot training.

ROBERT: Right.

THOMAS: We've gone far enough. We're at a diopter and a half...you know, you don't need to do anything in the military, by the way, if you're only a diopter-and-a-half. Just wear a pair of glasses. You don't have to have anything done. As long as you get 20:20 or better, that's it. So there's no need to have surgery.

We did pretty well. We changed the rules. That was one of the biggest things that I did with my staff. Nobody in military flying...there were no myopes when I was flying in World War II, none, no one wore glasses. That continued until 1975. And it was a rule. Everybody accepted it. You had to be emmetropic...or the worst you could be is minus .25 myop, because with minus .25 you could still squeeze out 20:20. What happened in- this is the last story I'll tell you- in 1975, two-star General Allen called me. He said, "Colonel, you've got a..." and I don't know if he said 'he' or 'you.' I think he said, "you got a problem." I said, "I got a problem?" He said, "Look, here's the trouble. We have a thousand cadets. When they enter, 700 of them have to be pilot-qualified. That means they can't be myopic more than a quarter. They've got to pass as a pilot. Four years later when they're ages 21 or 22, half of them cannot pass the vision test and so we cannot give them...they can't go to pilot training, and Congress does not like that." Now, I was going to be facetious. I was going to tell him, "Why doesn't Congress pass a law against myopia?" I didn't say that. I went up there to figure out what was going on and that was happening. And so we looked...I brought some of my staff, and we did some studies, and we looked at what would happen...so we moved the regulation to minus 1-1/2 diopters, and that put everybody into flying except about 70 people who had worse than that. And those 70, I said, "They can go to navigator training." I said, "This is the greatest thing I've ever done. I've solved the whole problem. We'll let everybody with 1-1/2 diopters..." the 1-1/2 was magic because that's 20:50. We figured if you lost your glasses, you got them shot off or whatever, you could still land the plane. And that's as brave as I was for the first step. And so -1.50 you can fly. Naturally you must correct to 20/20 in any case.

ROBERT: Correctable, yeah.

THOMAS: So we let two classes go by and then I sent Major Provines up there and we did a study. We found out that the spectacle wearers did no worse than the rest. Some just couldn't make it, but it had nothing to do with vision. And so ever since then myopes can train and fly as military aviators.

So that's it. That's the last research and we'll leave with that.

Now, how can we... do you want to give us a final word?

ROBERT: Real quickly. I did a study when I was at Fitzsimmons...when you were still at Brooks but in your retired time. There were Air Force Academy cadets who had phorias in excess of standards.

THOMAS: Oh...

ROBERT: Okay? And I was very proud of that because these kids are 15 diopters exophoric, 20...they're outside of standards. And I was the Chief of Ophthalmology at Fitzsimmons and I operated on at least 10 cadets with phorias outside of standards, and I'm happy to say that I just...you know, there's no tables for that. So if it was atropia, as a strabismus surgeon...if I was going to do 4 millimeters of recession, for example, on both eyes for atropia, I just said I'm going to do the same number on one eye. And I'm happy to say I converted all of those phorias to...

THOMAS: To lesser...

ROBERT: To lesser phorias that were qualified.

THOMAS: And they passed.

ROBERT: And they passed. The only ones that I wasn't successful with, and I think no surprise, there were some fourth nerve palsies that had vertical phorias and maybe three or four...still had excellent stereo, 20:20 vision, but even my best work I maybe have a half or one.

THOMAS: Well, I was...no, I was going to thank you, because I did a study on that and I was going to thank all you strabismologists. If you have a fourth nerve, operate on them, because all you need to do is realign them. They have a good black box. If you let them move their head- this was my criteria- if you let them move their head and they can pass 15 seconds of arc stereo, their black box is perfect. The only trouble is their front end is a little bit out of line.

ROBERT: Right.

THOMAS: And I let 12 air crew with fourth nerve paresis go and have surgery and realign them and they all came back and passed. That...I remember reporting at an Aerospace Medicine Meeting. That was the only surgery, plus small phorias, that you could have and then come back to fly in the military.

ROBERT: Right.

THOMAS: Last, but not least, I want to thank the Academy for letting me do this, and yourself, Enz, for being part of this. Actually, we probably haven't heard the

last from me, because like I said to you, I'm not out of the Air Force. I got appointed an emeritus position to the Surgeon General, and so I go to work about halftime, and I'm going to try to pull some things together, hopefully if the good Lord gives me enough time to finish them.