NATIONAL SECURITY AGENCY HALL OF HONOR

In a solemn ceremony 1 September 2004, the National Security Agency inducted four additional pioneers into the Hall of Honor at the National Cryptologic Museum. Combined, they represented a total of more than a century and a half of service, including—in one case—service to two nations, native and adopted. They worked in the fields of computer technology, cryptolinguistics, communications security, and cryptanalysis.

With opening remarks by NCM Curator Jack E. Ingram, the National Anthem was rendered by Maj. Gen. John E. Morrison, Jr., USAF (Ret.), President of the

National Cryptologic Museum Foundation. The Director of NSA and Chief of the Central Security Service, Lt. Gen. Michael V. Hayden, USAF, then welcomed the assembled guests and distinguished visitors. NSA Historian Dr. David A. Hatch, Center for Cryptologic History, delivered a narrative recounting the highlights of the careers of the inductees, with Gen. Hayden unveiling the respective plaques, in company with representatives of the honorees. Following the ceremony, the Foundation hosted a reception as has become the custom.

Meet the 2004 inductees:

OVERVIEW

Before you read these words, we shall have held our 2004 Annual Meeting, with its emphasis on "Information Assurance"–what we once called "communications security" (COMSEC), rolled into computer security (COMPUSEC) and other aspects of ensuring the safe and secure transmission of information. Naturally, the planning of the meeting has occupied much of our attention during the summer. But we've also found time to enjoy a visit by Mrs. Eunice Willson Rice, the sprightly and delightful nonagenarian whose life with U.S. Navy cryptology was related in our Winter issue (Vol. 6, No. 4), and I want to thank NCMF member Ray Schmidt (CAPT USNR Ret.) for his research and assistance in recognizing the Rice family. I've also had the rare opportunity of re-living my own history through a reunion (our first) of old buddies from a distant past, and in recalling a departed friend though an encounter with his children and a "MAGIC carpet."

Reflecting on the names now a part of our Hall of Honor, and the description of their service, I see how fittingly they complement our Information Assurance theme, echoed in these recent visits. Use of the now quaintly old-fashioned term "problem" (instead of the present "target") had the connotation of intellectual challenge (instead of conjuring up the image of things to shoot at or destroy). And so it was. Not that circumstance did not introduce a timeliness factor, adding pressure and stress, but there was a personal involvement as well as a sense of teamwork in the battle of wits, seeking to procure vital information about an adversary, while keeping secure our own exchange of information and orders based upon what we had learned. That balance between exploitation and protection has been the hallmark and peculiar distinction of the National Security (not "Intelligence") Agency since it was founded in 1952, drawing from the then-recent experience of World War II and more than a century and a half of American involvement with what we now call "cryptology." For those alert to it, that balance is reflected in the exhibits of the National Cryptologic Museum, both the one that exists and the one we hope to see in the future.

We want to thank "Eagle Alliance" once again for the highly successful annual golf tournaments played "on post," and the donation to the Foundation that results. Congratulations to this year's winners, a repeat performance for the First Place team.

John E. Morrison, *President*

REMEMBERING MARTHA SCHUCHART-SACHS
By Pat Jernigan, COL USA (Ret.)

LTC Martha Schuchart-Sachs, USA-Retired, died Saturday, 31 July 2004. She was 90. An obituary appeared in the *Washington Post* on Friday, 6 August. She was active in a wide range of veterans', civic, and cultural activities. She was always interested in what was happening, willing to pitch in, and delighted to get news.

Martha was a Missouri native, the third oldest of nine children. She began teaching the fall after graduating from high school. During the summers she attended (and graduated from) Cape Girardeau Teachers' College; during the winters she taught school. She was often the only teacher in a one-room school house where she was also the janitor, and did "other duties as required."

When the Women's Army Auxiliary Corps began recruiting in the summer of 1942, Martha was one of the first women to join. She completed basic training at Ft. Des Moines, IA in the fall of 1942, and was assigned to the training center as an instructor. In February 1943, she attended OCS at Des Moines, graduating as a third officer, the WAAC equivalent to a second lieutenant. After another assignment as an instructor, she was assigned to the 2d Signal Service Battalion, Arlington Hall Station, Virginia in 1944. The 2d Signal Service Bn was later to become part of the Army Security Agency.

In 1945 she was assigned to the intercept station at Two Rock Ranch, California to close down the WAC Detachment. Martha spent several assignments overseas, including the Philippines, Japan, Germany and Eritrea. While most of her assignments were in ASA, she also served at the WAC Center, Ft. McClellan, Alabama. Martha married Abner Sachs in 1965, and together they traveled throughout the world. Abner, a retired army colonel, died in 2000. In the past several years, Martha resumed traveling and had visited friends in both Germany and Japan.

Martha was active in many organizations including AFIO, the National Genealogical Society, the Smithsonian Associates, Zonta International, the ASAPAC veterans association, and the Army Women Veterans of Northern Virginia (NV Ch 33). She was buried in Arlington with full military honors following mass at the Old Chapel, Ft. Myer, on 16 September.

HALL OF HONOR

DOROTHY TOPLITZKY BLUM (1924-1980)-Dottie to her countless friends and admirers-significantly changed the way NSA did cryptanalysis. She was a pioneer in the use of computers to manipulate and process data automatically. As a manager, she showed empathy for her subordinates and worked to enhance the careers of everyone in her organization. Those who recall Dottie Blum usually rate her interest in people even higher than her technical gifts, which were extraordinary.

Ms. Blum was born in New York in 1924. Earning a bachelor's degree from Brooklyn College, she joined the Army's cryptologic organization in 1944. After World War II, she moved into the Armed Forces Security Agency (established in 1949) and later to its successor, the National Security Agency (established in 1952), where she spent the remainder of her career.

By the 1950s, her professional interests had expanded from traditional cryptanalysis, largely manual, but aided by electronic accounting machines and automatic data processors, into cryptanalytic applications of computer technology. She was a member of the Agency organization charged with "keeping abreast of the latest advances" in the rapidly growing field of computers.

She was one of NSA's pioneers in compiling computer software, and she led the effort to recruit Agency employees to learn how to program cryptanalytic techniques. She was aware of – and taking advantage of – the computer language FORTRAN at least three years before it became publicly available in 1957.

For the rest of her career at NSA, Ms. Blum significantly shaped the architecture of computer systems and the automation of data processing at the Agency. She was appointed Chief of the Computer Operations organization in 1972 – the only woman in the entire management chain of that organization at the time. From 1977 until her death in 1980, she was Chief of Plans and Project Development in the Telecommunications and Computer Services organization, as NSA – perhaps first in government to recognize the relationship – merged the two fields of communications and computers in one organization.

Dorothy Blum was also a leader and role model for others, through an internal organization initially known as Women In NSA – "WIN." In 1983, WIN established the Dorothy T. Blum Award for excellence in employee personal and professional development.

Throughout her years in management, Ms. Blum was admired and respected for her "sincere, personal interest in people and...for the astute and effective career guidance and counseling she gave many Agency employees."

JAMES RICHARD "DICK" CHILES (1917-2004). Dick Chiles, a native Tar Heel, was graduated from the University of North Carolina (Phi Beta Kappa) in 1940. As a member of the U.S. Naval Reserve, he was assigned to the Destroyer Command of the Pacific Fleet as a communications officer during World War II. Seriously injured and unable to continue service at sea, he entered the field of cryptography, where he worked with CAPT Stafford of the Navy and COL Friedman of the Army – legendary leaders in their respective services. After the war, he was drawn into the Armed Forces Security Agency (becoming deputy to Howard Barlow) and subsequently NSA, working in the Crypto Development division of the Research & Development organization, where he was intimately involved with all hardware developed by NSA.

Through the 1950s, he served on several panels and working groups negotiating with British counterparts on COMSEC devices for shared activities. He moved quickly through the ranks of the COMSEC organization and became chief of the Office of COMSEC Doctrine in 1960. There he oversaw development of rules for safeguarding cryptomaterials throughout the U.S. government. His low-key personality and ability to work with so
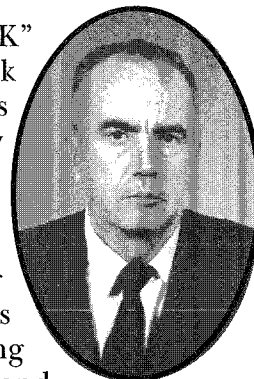
HALL OF HONOR
Continued from Page 3

many different development engineers made him the focal point for groups involved with crypto hardware and crypto mathematics. He personally contributed a number of original crypto algorithms and was involved in evaluating the security of all R&D systems under development. He was also graduated from the Industrial College of the Armed Forces (ICAF, now a component of the National Defense University).

Mr. Chiles remained in the upper echelon of COMSEC circles until his retirement more than a decade later. Remembered as a brilliant engineer, he thought in conceptual terms, advancing many innovative ideas on the protection of U.S. communications. He was responsible for major innovations in remote keying for COMSEC devices, including high-speed electronic key generators. (Remote keying – largely his concept – allowed crypto changes from remote terminals without physical contact. It revolutionized modern secure communications of the time and continues to be a very important component of today's world. It led the world in modern design and operation of secure communications.) He also developed rules for systematic accounting and handling of COMSEC material. He inspired and contributed to such innovations as pneumatics (without power) design, magnetic communication technology and narrow bandwidth speech ("vocoder") technology. His realization of the idea of adding another crypto variable to existing systems – implemented worldwide by NSA for certain types of crypto equipment in the mid-1970s – proved its value when the notorious John Walker spy case broke in the 1980s. (Walker had sold crypto keying material to the Soviets for some 15 years; systems with the additional variable could not be "broken" even if the key material were compromised.)

In paying tribute to Dick, five-year Deputy Director for COMSEC Ray Tate recalled that, in 1976, he had nominated Mr. Chiles to receive the Agency's Exceptional Achievement Award, which was approved by Director Lew Allen. Chiles, however, refused to accept it, saying that he "did not want a medal for doing what I'm supposed to do as my everyday job!" and refused to attend the ceremony. Tate – who considers Chiles a personal mentor from his early days and an important influence

throughout his Agency career – let the matter slide for a few months, then set up a luncheon, as they were accustomed to do, to discuss sensitive matters. By pre-arrangement, Deputy Director Benson Buffham arrived, medal in hand. Dick recognized what was going on and began to leave the room, again declining a medal. (Tate later gave it to Pat Chiles, Dick's wife.) The incidents reinforced in Tate's mind the conviction that Dick Chiles was completely devoted to the mission and its people, and cared nothing about personal credit.

Dick Chiles retired with thirty years of Federal service. He passed away in July of this year.
(Thanks to Ray Tate for personal recollections of Dick.– ed.)
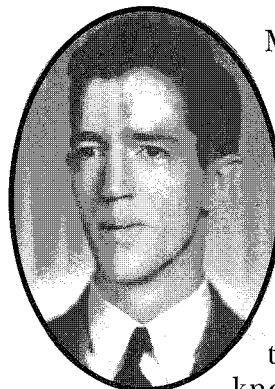
MEREDITH KNOX GARDNER
(1912-2002)

Few who labor in the veiled halls of secret intelligence live to see themselves publicly acknowledged for their once highly sensitive work, but Meredith Gardener had that distinction. The epitome of the cryptolinguist–combining knowledge of foreign languages with ability as a cryptanalyst–Gardner became publicly identified with the VENONA project in his last years, and saw the declassified product of VENONA change history.

Texas-born Gardner was teaching German at the University of Akron when the U.S. Army's Signal Intelligence Service (SIS) hired him as a German linguist in 1942. He quickly switched from German to the Japanese problem, having gained a working knowledge of Japanese in only three months. After World War II, he learned Russian and moved to the Soviet problem. In 1946, he began working on what became VENONA. "VENONA" was the final in a series of cover names for the project to exploit the cryptosystems used to protect Soviet diplomatic and espionage communications. Messages had been encrypted using a complicated numeric code that was then "superencrypted" by the application of a numeric cipher-key stream drawn from a "one-time pad." Prior to 1943, such a system was considered unbreakable and thus not worth cryptanalytic effort.

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But in that year the characterization was challenged and, in February 1943, a team was assembled to study the files of intercepted messages, looking for vulnerabilities.

When he became part of this effort, Mr. Gardner concentrated on the structure of the underlying, basic code. By identifying indicators used to flag the beginning and ending of names and words that lacked code equivalents and had to be spelled out, he was able to recover the portion of the codebook used for the spelling-out of names and phrases in a message. The first message was broken in February 1946. The value of his work was clearly demonstrated in July 1946, when he decoded a message containing encryption procedures for Soviet spies in Mexico.

Gardner realized that merely decrypting VENONA messages was not enough, if the decrypts could be put to use. In the summer of 1947, with relations hardening between the United States and the Soviet Union, he sent a memorandum he titled "Special Report #1" to a small number of seniors in the Army Security Agency (successor to the SIS). In it he described the sort of intelligence information VENONA could provide, and included samples of the contents being recovered. That report led the Army's leadership to recognize the potential of VENONA and to close cooperation between the ASA (and subsequently NSA) and the FBI, resulting in the identification of Soviet espionage agents and sources in the United States.

Meredith Gardner returned to the VENONA project in the mid-1950s, and continued his involvement in the extremely sensitive work until his retirement in 1972. He subsequently became identified with the project and his FBI liaison colleague, Robert Lamphere, when VENONA was declassified and released to the public. He died 9 August 2002 at 89, a victim of Alzheimer's disease. As the National Cryptologic Museum Foundation paid tribute to him at that time (*The Link*, Vol. 5, No. 2, Summer 2002), we noted that this extraordinary man was considered to have been fluent in German, Old and Middle High German, Sanskrit, Latin, Greek, Lithuanian, Slavonic, Spanish, French, Italian, Russian, and Japanese.

BRIGADIER JOHN H. TILTMAN (1894-1982)

Still regarded as a "living legend" at the time of his death, "the Brig" has been hailed as "Bletchley Park's finest cryptanalyst on non-machine ciphers." In his sixty-odd years as a professional cryptologist, he embodied the classical period of late Victorian to modern, Kipling to Cold War, cryptology. And to his many friends and admirers on both sides of the Atlantic, he personified the "special relationship" between the United States and British Commonwealth allies.
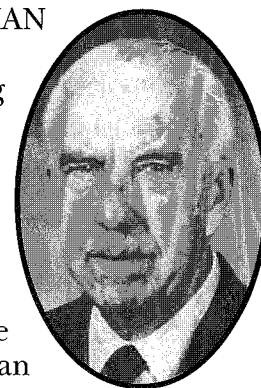
London-born Tiltman left teaching to enter the ranks of the King's Own Scottish Borderers in 1914 and was commissioned shortly thereafter. He served in France 1915-1917, where he was wounded and received the Military Cross. At the end of the war, he served with the British Military Mission in Siberia, then returned to his regiment in England. In 1920 he was sent to study elementary Russian, after which he was seconded for two weeks to assist in translation at the Government Code and Cypher School (GCCS). He was so taken, both with the process of decyption as well as translation, that the War Office decided to extend his stay for a year, and he never returned to his regiment. He served in India, working on Russian diplomatic traffic involving Moscow; Kabul, Afghanistan; and Tashkent (Turkestan). He converted to civilian status in 1925, retiring from the Army as captain, but remaining in India. In 1929 he was recalled to head the Military Section at GCCS. He became closely involved in liaison with French counterparts and worked with Japanese as well as Russian material, concentrating on Germany as war loomed. Recalled to active duty as a lieutenant colonel in 1939, he headed the British military SIGINT organization concerned with Germany, working with French and Finnish counterparts and strongly supporting technical exchange with the United States. Notwithstanding the breadth of his responsibility in liaison matters and supervisory duties, he was a "hands-on" leader, finding time to participate in cipher security as well as cryptanalysis. His 1941 breaking of TUNNY (the on-line teleprinter cipher system using the Lorenz

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SZ/40/42) drew kudos from the U.S. Army's William Friedman, who admiringly wrote to commend "a beautiful piece of work." Tiltman's involvement with the Japanese problem extended to advocacy of a radical six-month course to augment the sparse number of translators. As deputy director of GCCS in 1944, he was promoted brigadier. After the war, he reverted to civilian status in 1946 and served as Assistant Director of Government Communications Headquarters (GCHQ, successor to GCCS). He came to the United States as the Senior UK Liaison Officer in the 1950s, retiring in 1954, but continuing to serve GCHQ for another decade. In 1958 he moved to the United States. Retiring from GCHQ in 1964, he was enlisted by NSA and remained a familiar sight at NSA after its move to Fort Meade, Maryland. (He also found time to indulge a shared interest in the famous Voynich manuscript with Friedman and friends.) His tie with his ally and adopted home took on an additional aspect with the marriage of his only daughter to an NSA analyst. (Read more about Brigadier Tiltman, his accomplishments, his personality, and his honors in Ralph Erskine and Peter Freeman, "Brigadier John Tiltman: One of Britain's Finest Cryptologists," in *Cryptologia*, Vol. XXVII, No. 4, October 2003, from which we have freely drawn.)

KRUH BOOK COLLECTION SOLD

Our fellow member, Lou Kruh, reports that he has (somewhat reluctantly, we perceive) agreed to separate the books from his collection, and that they have now been sold to a private buyer. Mr. Kruh's extensive collection was described in *The Link*, Vol. 5, No. 4 (Winter 2002), and has been advertised on the Internet. It included "more than 3,200 books, magazines, brochures, scrapbooks, and other printed matter on codes and ciphers, one of the largest and finest [collections] in private hands," as well as American and foreign cipher machines and devices, catalogues, technical manuals, etc., representing his many years of collecting. Knowing that, for a bibliophile, this must have been tantamount to giving up a child, we nevertheless extend our congratulations (and our condolences on the empty shelves). ■

BLETCHLEY PARK 2004 ENIGMA REUNION
David Hamer, NCMF-BP Liaison Officer

On Sunday, 19th September 2004, Bletchley Park saw the return of 60 veterans to the place that holds so many memories for them. This emotional reunion was part of the Enigma Festival which every year celebrates the breaking of the famous German enigma cipher.

The veterans, who worked in a variety of roles at the Park, enjoyed a tour of the Park's new facilities including the Block B exhibition centre and the American Garden Trail before returning to the Mansion to reminisce and catch up with old friends.

Many of the veterans are women who, during the war years, made up the majority of the staff at Bletchley Park; in fact they outnumbered the men ten to one. Many of these women were WRNS who worked as Bombe operators while others were involved in the enormous amount of vital administrative work that was carried out in the various codebreaking huts.

The group also included Harry Fensom, an engineer who was part of the original team that developed Colossus, the world's first semi-programmable computer. During the day Harry was able to visit the current Colossus Rebuild Project, which is based at the Park.

As most of the records were destroyed after WWII on Churchill's instructions, there are no records of those who worked at the Park during the war. Bletchley Park is always keen to hear from people who worked there to add to its historical database. U.S. veterans of BP please note [ed.]

(The above article and accompanying photograph appeared originally on the BP website and are reprinted here with permission.)
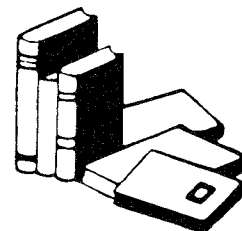
2004 EAGLE ALLIANCE GOLF TOURNAMENT

The 2004 Eagle Alliance Golf Tournament, benefiting the Foundation and the Museum it supports, was played on 25 June, and was, by all accounts, deemed highly successful–especially for the winning team...and the Foundation. Repeating their win of the previous year, the First Prize team comprised Tim Sheahan (VP, CSC), Bruce Klein (then Hewlett-Packard, now with Sun), and the Powderly brothers, John and Kevin, both with Cyber Corporation. Runners-up, receiving the Second Prize, were the IDI team (Harry Martin, President and CEO of IDI; Patrick McGowan; Gino "Tony" Antonelli; and Walt Vieser).
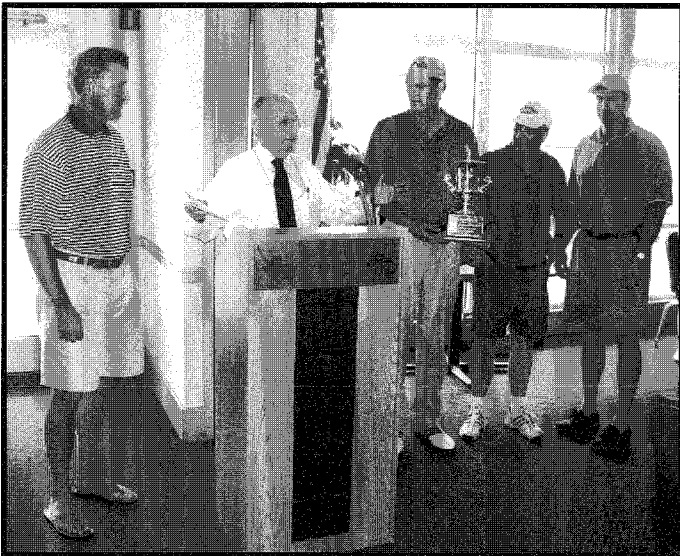
SECURITY: THE NEW ENIGMAS
18-20 MAY 2005
David Hamer, NCMF-BP Liaison Officer

This three-day conference will take place at Bletchley Park, UK home of the Enigma codebreakers during WWII, the site where the world's first semi-programmable digital computer, Colossus, was introduced and the foundation of the UK-US Special Relationship arising from the 1943 BRUSA accords on intelligence collaboration. Bletchley Park was the heat of the world's first global SIGINT network and scene of the world's first electro-mechanical and electronic codebreaking.

The conference will capitalize on The Open University's resources and on Bletchley Park's reputation for problem solving and as a 'university of universities'.

The aim of the three-day event is to explore the implications of 9/11 and subsequent events for society as a whole, drawing parallels with topical subjects and lessons from Bletchley Park's WWII history. The conference will seek to improve public understanding of everyday security issues, in particular choices surrounding use of the Internet and 'cyber-responsibility', and to provide practical ways of assessing security risks.

Included in the list of eminent speakers who have agreed to take part are Professor Christopher Andrew (Cambridge University), Professor Richard Aldrich (Nottingham University), distinguished author Michael Herman, Professor Fred Piper (Royal Holloway University of London) and Sir David Omand, Head of Security & Intelligence at the Cabinet Office.

To register your interest please contact Merryl Jenkins at Bletchley Park on +44 (0)1908 640404: email <majenkins@bletchleypark.org.uk>. Informal inquiries may be directed to BPLO via the Foundation office or to <dhamer@eclipse.net>.

THE GENERAL'S "MAGIC CARPET"

Many of General Morrison's old band recall the lovely circular carpet kept in his office years ago, when he headed Production at NSA, and the U.S. Air Force seal it proudly displayed. Some may even have dared stand upon it–or have been "called" to face him on it. Perhaps only a handful know the story behind that symbol.

The carpet was the work of a talented colleague of yesteryear, Col. Harry Blacksten, USAF, who had shared some of the same experiences as the General– an Army radio intercept unit specializing in enemy air force communications, which became a "radio squadron mobile" and an element of the post-war U.S. Air Force, created in 1947 as a separate service. In the 1960s, Col. Blacksten suffered a heart attack. To occupy the time in recuperation, he began a special project: he would make a carpet embodying the beloved Air Force emblem he and John Morrison had proudly served. After his death from cancer, in 1967, Mrs. Blacksten (Joyce) decided that the best home for the carpet would be with the General, so she "loaned it" to him for use in his office. She died in a tragic auto accident five years after the death of her husband, and joined him in Arlington Cemetery.

On 14 July 2004, Gen. Morrison received a letter from Col. Blacksten's son, H. Ric Blacksten. (The odd spelling, Ric, is not a typo–he was named to commemorate his father's 123rd "Radio Intelligence Company.") Ric and his sister, Janice Blacksten Cooper, are proud parents of two children each, grandchildren who never knew their grandfather. In a recent visit, Janice had recalled the carpet and wondered whatever became of it. Their feeling was that any memento of their father, and any unclassified information about his military service ("counting pencils," his usual explanation, didn't seem to accord with a colonel's rank), would be a cherished heritage to pass on in the family.

Gen. Morrison quickly responded in the affirmative– yes, the carpet was safe; yes, he would be happy to return it to the family of his old friend. And from that exchange came the visit of Col. Harry Blacksten's family to the National Cryptologic Museum for a meeting with Gen. Morrison.

At a simple ceremony, Gen. Morrison met with the family for the formal return of the carpet entrusted to him those years ago. He said, "Today is a special occasion for me–one in which I take enormous delight. I believe that my friend and co-worker of long ago–your Dad– and your Mother are looking down on this reunion. And I believe that they are pleased to see that one of your Dad's magnificent art works–left by your Mother in my keeping many years ago, has now been returned to where it rightfully belongs. I believe that you and I share that joy. My stewardship has now come to its rightful end. I am truly, deeply grateful for the opportunity I have had to care for this cherished memento and the spirit it evoked."

(L-R)JohnBlacksten(Ric'sSon),RicBlackston, Gen. Morrison, Harry Cooper (Ric's Nephew)

FROM TUSKEGEE AIRMAN TO CRYPTOLOGIST:
JAMES WELLINGTON PRYDE
NCMF Board of Directors

(Each individual serving on the Board of Directors of the National Cryptologic Museum Foundation brings a unique background and contributes to the collective wisdom of the Board. The following article represents the recollections and experiences of one Board member, Jim Pryde.—ed.)

The Editor of *The Link* asked me to write a few words about how my service as part of the Tuskegee Experience during WWII helped my subsequent career at the National Security Agency.

I enjoyed an exceptional career at NSA, and I believe that, in addition to working hard and being able to learn and utilize new skills, there were three things in my early and teen life which led to that success: first, my parents and extended family; second, my education in the segregated school system of the District of Columbia; and, third, my training during WW II in the Tuskegee Experience as a pre-aviation cadet and a radio operator mechanic (ROM)/gunner to be a B-25 aircrew member of the 477th Medium Bombardment Group (Colored), hereafter referred to as the 477th.

My parents were loving, stern, and insisted that my younger sister, brother and I get a good education. We were poor, but unaffected by our economic status because our neighbors were also poor and we did not want for food or clothing. Our parents were very active in the local citizens' organizations (my father was the chief air raid warden for our two-block area) and my mother was very active in the school activities. In addition, there were aunts and uncles who took my siblings and my cousins to plays and movies for children. They also provided books of all kinds and insisted that we read them. I was an avid reader then and continue to be one to this day.

We all went to the Colored DC public schools, identified as Division Ten to Thirteen with its own Superintendent, who could not go into a white school. The division had about twenty elementary schools, seven junior high, three senior high, and male and female vocational schools. The building dated from the late 1890s and early 1900s, but the instructional staff made the difference.

With the exception of the medical and dental fields, there were few jobs available for

FROM TUSKEGEE AIRMAN TO CRYPTOLOGIST: JAMES WILLINGTON PRYDE

highly educated Colored people–the Colored division was full of people who should have been teaching at the college or university level. These educators were more than degree-holders; they insisted that every student who left the system be fully educated. As an example, by the time I left junior high school (middle-school today) I had read many of the classics, had some trigonometry and had been introduced to calculus.

Segregation was the law of the land during WW II. There were no Negroes (or Coloreds, as we were known then) in any but the most servile jobs in the American military. There was a War Department document that stated, "Negroes are incapable of using highly technical equipment and even if they could learn to fly they wouldn't fight." It wasn't until 1941 that the first technical training was available to Negroes. It was cadre training for enlisted men at Tuskegee Army Air Field (Moton Field, not far from Montgomery, Alabama), where construction was begun in June 1941. During the course of WW II, of 926 pilots trained at Tuskegee's Moton Field, 630 served in combat. The first unit to serve in combat was the 99th Pursuit Squadron, which deployed to North Africa and performed reconnaissance and ground support missions. The 99th supported the invasion of Anzio and was an important factor in giving the Allies air superiority over Italy. Three additional units joined the 99th Squadron to forge the 332nd Fighter Group. The Tuskegee Airmen flew all WW II fighters except the P-38. They are most famous for their accomplishments in the Red-Tailed P-51 "Mustangs," flying bomber protection out of Italy. It was in 1963

that an Air Force researcher discovered that the Tuskegee Airmen had never lost a bomber to enemy fighters in 200 sorties. As a result of the success of the fighters in Europe and the anticipated need for bombers to support the Pacific operations, the bomber group for which I was being trained was being readied for deployment to the Pacific Theater.

My Tuskegee experience began when I enlisted in the Army Air Corps at seventeen and a half years of age and passed the written test with the highest score to that date, but it took four attempts to pass the physical because of a purported blood pressure problem. I was inducted into the Army Air Corps as a pre-aviation cadet shortly after my eighteenth birthday and was sent to Keesler Field, Mississippi, for basic training and testing. The 477th was being activated and needed combat crew members, not pilots. I was selected to attend radio operator school where the requirements to graduate were to send and receive Morse code at 25 words per minute and prove an ability to perform first echelon maintenance on the electronic equipment of multi-engine aircraft. The radio operator graduates went to airborne gunnery school at Tyndall Field near Panama City, Florida. We had just completed school and were awaiting orders to join the 477th when the war ended.

There was an incident in Panama City connected with the celebration of the war's end. The next morning, all of the Negro students were formed up, divided into groups of four, and sent to other bases. I was sent to Chanute Field in southern Illinois. For reasons unknown to me to this date, I was assigned to work on the flight line as both a radio mechanic and an aircraft radio operator. In those days all of the flight line personnel were white and

FROM TUSKEGEE AIRMAN TO CRYPTOLOGIST: JAMES WILLINGTON PRYDE

were assigned to Squadron C. I was assigned to Squadron Q, the nominal Negro Squadron housed under the water tower. I slept and ate with my Negro comrades. The base aircraft had to be pre-flighted at 0600 and there was no transportation to the line from Squadron Q. I was issued a jeep to travel for duty and return to the squadron for mess and sleeping. Neither Squadron Q nor the line rated me during this period. I did receive an Army Commendation medal. (Two white soldiers who shared the medal were awarded their medals on the post parade ground. My medal came to Squadron Q in a plain brown bag.)

All of the men in the Tuskegee program were aware that the U.S. government considered the program an experiment that was expected to fail, and we were all determined that failure was not an option. We all worked hard to ensure that all phases of the program succeeded. That desire to succeed, developed as an Airman, carried over into the rest of my life, particularly in my AFSA/NSA career.

I had been given a Confidential clearance in gunnery school to use and work on the electronic gun sight and was given some sort of secret clearance to work on a transient P-63 "Kingcobra" night fighter's radar. When, in 1950, I sought employment at the Armed Forces security Agency (AFSA, fore-runner of NSA), my clearance and operator training as a Tuskegee Airman did much to prepare me for a job better than that of a code clerk in the infamous all-Negro AFSA 213.

My first assignment outside of the segregated AFSA 213 turned out not to be a fully integrated one. I was assigned to another building wing, but my job kept me in a separately locked room for security reason. I was reading automatic Morse undulator tape, selecting and transcribing materials for a special project that required perfect copy. After several weeks, I was asked if I were willing to work overtime in another area; of course I said YES! My arrival integrated that area and I eventually supervised the operation. From those assignments I went to the Collection organization where it was discovered that I was a speed-reader with an encyclopedic memory. As an intelligence analyst, I researched, wrote, and the late Ed Fishel published the first NSA "TEL" [telecommunications] report; the subject was the Soviet communications equipment nicknamed MERCURY GRASS. Shortly after that, we were in the throes of the Cuban missile crisis and I was sent on overtime to the Dodge Building at Sixth and New York Avenue which was the location of NPIC (the National Photographic Interpretation Center–now part of the National Geospatial-intelligence Agency, NGA). My instructions were to identify any communications equipment observed in the photography. I identified the MERCURY GRASS (MG) communications van and was able to provide estimates for additional locations based on truck and antenna orientation. It was duly reported to the chain of command, but it was after I retired that the division chief stated at a Phoenix Society luncheon that I had identified the MG in photography.* There were lots of Cuban crisis awards given, but I did not get one.

The rest of my career was in fully integrated organizations and temporary assignments working electronic and signals analysis, including serving as an alternate NSA member of the Intelligence Community's Scientific Intelligence Committee's Electronic Subcommittee and as senior analyst assigned TDY to support the SIOP (Single Integrated

NCMF ACQUIRES TWO HEBERN CIPHER MACHINES

In September 2004, the NCMF acquired from Dr. David Kahn two original Hebern cipher machines, circa 1920's, for donation to the collection of the National Cryptologic Museum. Purchase of the rare machines, with their jewel-like brass finish, was made possible through the generosity of an anonymous supporter. Dr. Kahn had recently had the machines cleaned and in working order.

Edward Hugh Hebern (1869-1952) was the American inventor of the wired electrical rotor, which became an essential component in the design of the World War II Enigma and other Twentieth Century cipher machines, although his work is not widely appreciated. While his crypto inventions failed to pass the rigid examination of Friedman and others for U.S. government adoption, they make a milestone worthy of note and remembrance.

Here Dr. Kahn (center) receives a check, flanked by Gen. Morrison and Dave D'Auria, NCMF Acquisitions Committee chairman.
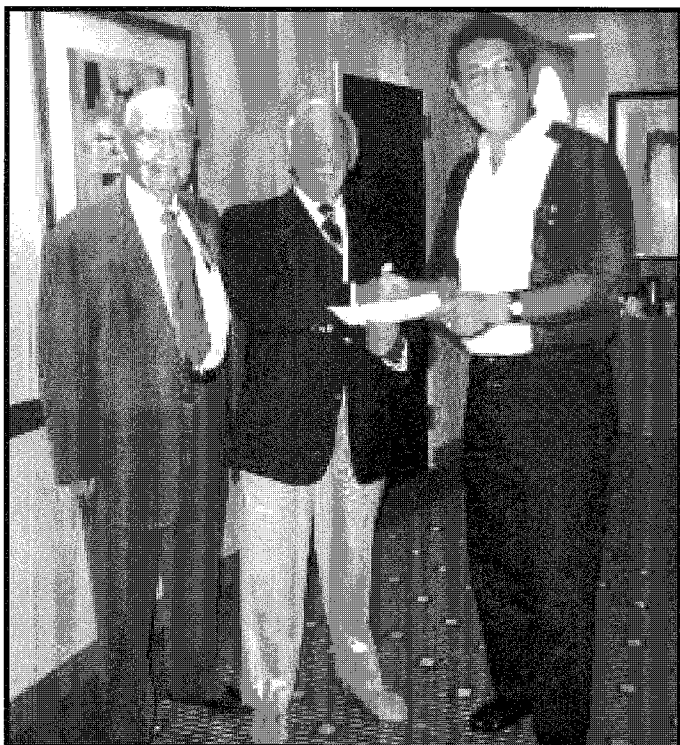
OUR "CORPS" OF RECEPTIONISTS

"The Link" (Fall 2003 and Winter 2003-2004) introduced the NCMF's "Corps of Receptionists" (so-named in the spirit of Lewis and Clark), organized by Pat Clements to serve as receptionists and auxiliary guides for the NCM. Here they are: Nancy Arteche (Miss Tuesdays), Joyce Jacobs (Thursdays), Barbara Mills (Mondays), Pat Clements (who also serves on Wednesdays), and, sitting, Bonnie Hohenberger (Wednesdays). In the insert, Janice Winston (Miss Fridays) occupies her accustomed seat at the Receptionists' desk in the NCMF area at the entrance to the Museum.

ANOTHER MILESTONE

A surprise birthday observance for Museum Curator Jack Ingram was celebrated by an appropriately designed and executed "Enigma" cake, provided by Pat Clements. The occasion was Jack's entry into his sixth decade and his fortieth year in the service of the National Security Agency.

FROM TUSKEGEE AIRMAN TO CRYPTOLOGIST: JAMES WILLINGTON PRYDE

Operations Plan) Bomb Damage Assessment program, then into my real life's work in missiles and space activities. These activities began with an assignment as the NSA member of GMAIC, the Community's Guided Missiles and Astronautics Intelligence Committee, continued as deputy to the telemetry analysis division, then chief of the trajectory and ephemeris division, culminating as Director of the joint NSA/DIA Defense Special Missile and Astronautics Center (DEFSMAC) and as director of a special program, retiring as a Senior Executive, or "super-grade," in 1980. (* *To clarify the significance of Mr. Pryde's discovery, the presence of the truck-mounted MERCURY GRASS was the "signature" not only of a Soviet military presence in Cuba, but also of the presence of the Soviet V.75 SA-2 SAM nicknamed GUIDELINE by NATO, refuting Soviet claims to the contrary. See www.taos-inc.com/airdef.htm and www.fas. org/nuke/guide/russia/airdefense/v-75.htm on the Internet. These surface-to-air missiles played a key role in the confrontation between the U.S. and the Soviet Union known to history as "the Cuban Missile Crisis." –ed.)*

MRS. RICE AND HER FATHER'S CIPHER DEVICE

Readers were introduced to Mrs. Eunice Willson Rice, a delightful nonagenarian, in the Winter 2003-2004 issue of The Link. Widow of a WW II submariner and herself a veteran of cryptologic work with the Navy, Mrs. Rice was the daughter of VADM Russell Willson, who had invented the U.S. Navy's first mechanical cipher device during WW I. Through contact with NCMF stalwart, Ray Schmidt (CAPT USNR Ret.), her story was brought to our attention, and, through Ray's contacts among the U.S. Naval Cryptologic Association, he learned that one survived since that time. Ray had been working on a meeting of Mrs. Rice with her father's device. In cooperation with the Navy and the NCVA, arrangements were made to have the device removed from its exhibit home in Pensacola and brought to the Washington area by Jack Gustafson as its guardian. Working with the NCMF and NCM staff, Ray set up a visit by Mrs. Rice, as recorded in these photographs of the occasion.
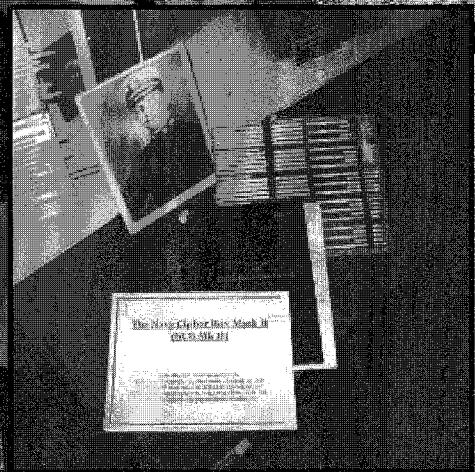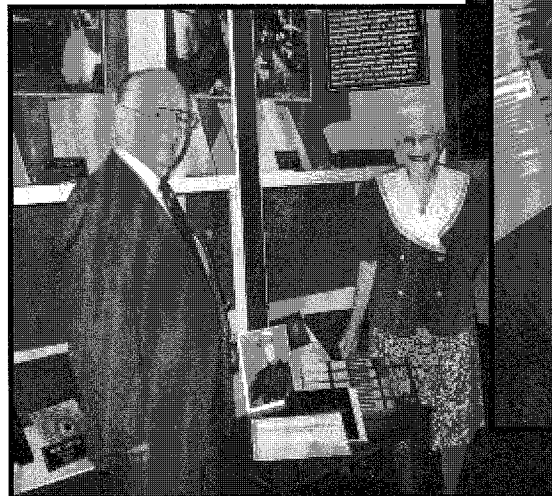

Mrs. Rice, 92 years young
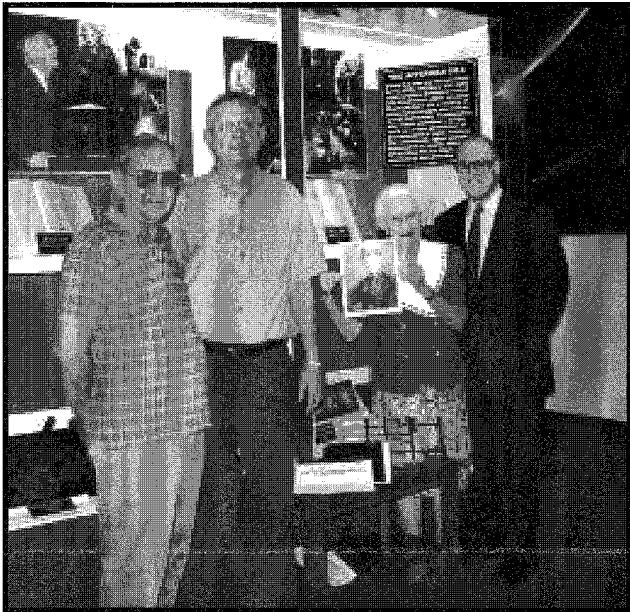
(Left to right) Jack Gustafson; NCM Curator Jack Ingram; Mrs. Rice; CAPT Schmidt.
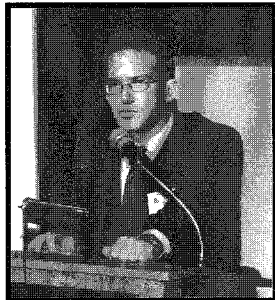
New Naval Security Group Command Historian (and former member of NSA's Center for Cryptologic History) Jack Schindler also attended the gathering.

THE GENERAL'S OLD GANG

After 50+ years, the 3rd Radio Squadron Mobile (RSM) held its first reunion at the Museum and afforded a rare opportunity to renew old acquaintances. Evidently the former commanding officer can still fit into his later uniform as an Air Force flag officer, and one of his former colleagues still proudly fits his olive drab blouse of the World War II era.

(Left to right) Royce Renfro; Arnold Franco; Joe Amato; David Grey, son of Joe Grey (dark glasses, behind the sign); Bob Anderson; Robert Reynold; Sabas DeLasantos (dark glasses); Daniel Grimsley(?); Ray Kellogg; David Chansky (left of Gen. Morrison, and who did all the work pulling the reunion together); and, on the General's right, Bill Armstrong. Another attendee recalled by many at NSA was of Bob Dukes, who had departed prior to the picture-taking.

Arnold Franco was with the original 3rd RSM from D-Day.

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