

# CANDOER News



A quarterly Newsletter dedicated to Communicators AND Others Enjoying Retirement

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Please, **NO** handwritten submissions.

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Welcome to the latest issue of a Newsletter dedicated to the **CANDOERs** (Communicators **AND** Others Enjoying Retirement). This newsletter will be distributed quarterly. New issues will be posted on the Web for viewing on or about, January 15, April 15, July 15, and October 15.

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### Bakers trade bread recipes on a knead to know basis.

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#### Cat's Corner

We have two of our members who are in need of your prayers:

**Bob Lucas** - **Bob** has been diagnosed with leukemia and is undergoing treatments at this time.

**Rey Grammo** - **Rey** has been diagnosed with a cancerous growth in one of his feet.

After considerable deliberation, I have made the decision to move the location of the **CANDOER** luncheons to **Bennigan's** in the Springfield Mall.

We have been holding the luncheons at **TGI Friday's** since their inception in 1995, but the lack of parking and the quality of the food has become so bad that it made the decision to change locations necessary.

After the September luncheon I went to the Springfield area to look for a different restaurant to hold the luncheons. I visited four different restaurants, but after talking with the manager at **Bennigan's** I made the decision to relocate the luncheons there.

I need your help in getting the word out that we have changed locations. In conversations with your **CANDOER** friends who do not have Internet access, **please**, inform them of our new location. After holding the luncheons at TGIF's for the past 12+ years a lot of members who attend luncheons only once a year or so may not be aware of the change of locations.

**Directions:** **Bennigan's** is located on the

Loisdale Road side of the Springfield Mall. When you come down Loisdale Road, either from the exit off of Interstate 95 or off of Franconia Road, go to the Main Mall entrance on Loisdale Road. (There is a traffic light at the entrance.) Turn into the mall and immediately turn left . . . do not go into the large multi-story parking garage.

You will see a big #1 (Entrance Number One) on the side of the mall and then the Sports Authority store. Just after the Sports Authority Store you will see a big #2 on the side of the Mall (Entrance Number Two.) **Bennigan's** is located directly to the right, inside Entrance #2. There is an abundance of regular and handicap parking just outside the entrance.

**Metro Access:** The Springfield Mall is accessible via metro. The Springfield Mall is about three blocks from the Franconia-Springfield Metro station, the last stop on the **BLUE** line. It's about a 20 minute walk to the Mall. For those walking to the Mall, they should exit the station taking the escalator down to the street. At the bottom of the escalator turn left and follow the sidewalk out of the station complex. At the light cross under the Springfield Parkway and proceed one block along Frontier Drive up to Spring Mall Drive. One of the Mall's surface parking lots runs along Spring Mall Drive from Frontier Drive up to Loisdale Road. There are also shuttle buses from the metro station to the Mall. They are the S-80 and S-91 Springfield Circulators. The fare is 25 cents. To catch the bus take the escalator down to street level. There are several bus stop shelters along the sidewalk. I believe the Springfield Circulators' stop is the first on the left.

The S-80 runs about every 15 minutes from 6:00 a.m. to 7:30 p.m. The S-80's trip sign is marked TAGS

(Transportation Association of Greater Springfield.) The first stop is Springfield Mall parking deck A (Macy's Department store.) It is about a 5 minute trip. Get off the bus and cut through Macy's to the Mall's main concourse. There are signs in the main concourse giving directions to stores, restaurants, and exits. The S-91 bus uses the same bus shelter. However the S-91 is marked MALL SHUTTLE. It also goes to parking deck A.

There is also a taxi rank on the ground floor of the parking garage across the street from the station exit. They line up inside the garage at the second entrance from the right, facing the garage. There are usually about 6-8 taxi cabs waiting there. A taxi to the Mall should only cost a couple of bucks.

A big **thank you** to John White for furnishing the Metro Access instructions.

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**Those who get too big for their britches  
will be exposed in the end.**

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**25 June 1950 – An unforgettable  
experience**

By Charles Christian

Some of you may have heard this story before but I just can't forget it. The experience is nothing compared to what the boys in Korea experienced that day.

57 years ago today I was working in the Signal Center in Hanger 1 at Elmendorf AFB, AK, for the now defunct Airways and Air Communications Service command. We were about to get off from working the midnight to 8:00 a.m. shift. We had been bored all night (and most of the other time since we arrived there) as we did not really have all that much traffic. What little traffic we received was routine weather reports, NOTAMs, movement of aircraft, etc. For the most part, it pertained to providing

navigational aids to the movement of aircraft.

Suddenly, our main incoming circuit started ringing the five bells placed at the beginning of a message which meant it was a FLASH message, the highest precedence there was. We new people (six weeks before six of us PFC's in the same job and squadron had sailed up there together) had never experienced one before and were more then a little concerned. Then more of the same came behind the first one and they all were from the Far East. The North Koreans had invaded South Korea and battles were going on. Did this mean the Soviets were coming in also and could it be WWII had started? Shortly the morning shift came and we all went back to the squad area for chow. Then we were called to form up in ranks outside our barracks. I and five others were selected to go draw our weapons, get our helmets and combat backpacks down from the rafters above the foot of our bunks, and then form up again at a truck waiting for us nearby. At the time we were told that USAF personnel there were "2nd echelon infantry".

Prior to leaving the barracks area this 17 year old had time to write his last letter home to Mom and mail it.

We were informed that we were going way out in the boonies and guard our direction finder radio site. Ammo and C-rations would follow shortly in another vehicle. Two of us would be at the bottom of the hill where the dirt road met the paved road and stand guard for two hour shifts while the other four would guard the DF site and/or sleep.

We all could see in our minds Soviet fighters and bombers attacking our base and the adjacent army post before too long. They would then follow up with transports and paratroopers.

Elmendorf had only three squadrons of F-80's to protect us and they could only fly in good weather and in daylight. The Army post did have anti aircraft weapons, but the number and location were totally unknown to us on the air base.

We would not last long for sure with the puny carbines we had. We discussed if we would surrender quickly, fight awhile and then surrender, or fight to the last man. Before we voted upon which course to take it was decided in a few hours that the Soviets probably were not coming and it was not yet WWII. We loaded up on a truck and went back to the base.

We now had more interest in our jobs and became very busy as a part of the airlift to and from Korea used the far northern route and would be refueling at our base.

To Mom's credit she never mentioned my letter to her.

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**When you've seen one shopping center  
you've see a mall.**

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### **The Diplomatic Telecommunications Service©**

A copywriten article by Bill Weatherford

#### **Final Part of Two**

By the early 1960's more of our Embassies in Europe had leased circuits to the Department. Most Embassies there and throughout almost all of Central and South America, however, were still dependent on over-the-counter service or a Teletype circuit from the local telegraph office. The Diplomatic Courier Service, via the diplomatic pouch, carried the bulk of our classified communications in the form of airgrams and despatches. These were typed

documents and were not encrypted. Despatches were used for lengthy, in-depth, detailed, reporting and airgrams were used for routine business that did not justify the expense of a telegram.

All classified telegrams were off-line encrypted, with Embassies, Consulates General and some major Consulates using machine systems. Smaller posts depended on the one-time-pad for their classified traffic. This pencil and paper system is slow and tedious to use but is one of the two most secure cryptographic systems ever developed, the other being the one-time-tape. In both cases the "key" portion of the system is used only once, whence the name.

There were some experiments with on-line systems, but none were found suitable.

The few major posts with direct circuits to the Department did have one-time-tape systems, teleprinter-based systems which could encrypt and decrypt messages at 66 words per minute and allowed direct reproduction of the message text. These systems were in limited use because of the requirement for a direct circuit to the posts concerned. Telegraph companies could not accept scrambled tape with its use of non-printing characters (bells, line feeds, carriage returns, et cetera) and uppercase symbols. There was also the problem of keeping the posts supplied with key tape, which could only be used once and was then destroyed. Key lists for rotor systems, on the other hand, were easy to devise, print, and distribute and machine-generated five-letter-group texts could be given to the local telegraph office for transmission via commercial means. Consequently, the one-time-tape system, although by far the fastest, most secure, system in its

inventory was not the Department's system of choice for the bulk of its traffic. The World War II-vintage rotor systems continued to be the primary system used to protect our diplomatic communications.

Of course, telegrams were still reserved for only the most urgent of communications. Those of us who were in the Foreign Service during this period will remember the phrase "details follow by pouch." It was not unusual at the time for young officers to be called on the carpet for sending messages that were too long (something that would be unheard of today). And what constituted "too long"? Anything over three typed, double-spaced, pages!

Upon receipt in the "code room", an incoming message was decrypted if it was classified and, if it was in one of the five-letter-group systems, edited to restore all abbreviations and punctuation to their more familiar forms before being typed up for distribution. One of the jobs of a code clerk in a large post was working in the typing pool. The typing pool retyped every incoming message, regardless of classification, in upper and lower case, as required, to restore the text to a facsimile of its original form. This was a slow, messy, process and a major cause of delays in getting messages to the readers.<sup>1</sup> For reproduction and distribution multiple-copy carbon snap-outs were used at small posts, Ditto masters at large posts, and lithograph plates in the Department.

At smaller posts one individual served as code clerk, editor, and typist while at larger posts different people would rotate through the three jobs. At

large posts, such as London or Paris, with extensive distribution requirements completed copies of incoming telegrams were handed from the typing pool to the "routing desk", where distribution was assigned to ensure all interested offices received a copy, before they were reproduced. Only letter perfect copy was considered good enough for distribution and the code room supervisor kept an eagle eye on every telegram going out the door to make sure it met that criteria.

Outgoing telegrams delivered to the code room were checked against a list of authorized releasing officers to ensure they bore the proper signatures or initials and were therefore approved for transmission. The telegram was logged and the appropriate numbers assigned. In Paris, unclassified telegrams were sent directly to the "wire room", the actual transmission facility, for processing and transmission, while classified telegrams were encrypted in various systems, as determined by their classification, content, and addressees. After being rendered into five-letter groups, or scrambled tape depending on circumstances, outgoing classified telegrams were also sent to the wire room for further processing and transmission. The wire room was equipped with Teletype machines for reception and transmission of telegrams and was staffed by French employees of the Embassy known as Foreign Service Locals (now known as Foreign Service Nationals [FSN's]) who manually prepared the necessary perforated tapes used to transmit the messages. The scrambled tapes could be immediately transmitted but the five-letter groups had to be once again "poked" - manually typed into perforated tape for transmission. When I was in Paris we

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<sup>1</sup> In Paris, for example, it was considered a significant breakthrough when we got management to agree to permit direct reproduction of decrypted one-time-tape and unclassified messages without retyping them.

did have some five-letter-group machines that could produce perforated tape but they were so cumbersome and difficult to use that we seldom bothered.

The Paris code room used a pneumatic tube system to move messages between the "front room" and the logging desk in the "back room" and from the "back room" to the "wire room" one floor below, a situation which led to more than one frantic dash out the code room door to retrieve a classified message inadvertently stuffed into the wrong carrier.

Into this genteel world of relaxed diplomacy came the Kennedy presidency and, in 1962, Cuba and Russian missiles.

The Secretary of State is the senior advisor to the President on matters of foreign policy. The American Ambassador, as the personal representative of the President, is charged with informing foreign governments of proposed U.S. initiatives; explaining, negotiating, and winning support for those proposals and advising Washington policy makers of pitfalls, host country reactions, and any impact on U.S. relations that may result. For this to happen there must be a continuous exchange of information, almost in real-time. The Department of State's capability to provide this did not exist in 1962.

I was a code clerk in Paris from 1961 until 1963. At that time we had two 50-baud (66 words per minute) Teletype circuits to the Department. Paris was a relay station so these circuits handled traffic for us and a number of other European posts. The circuits, and the relay facility, were operated by FSN's. The Embassy Code Room was staffed by about 35 people and operated around the clock, 365 days a year. All our classified message traffic was typed

manually and off-line encrypted prior to transmission. We had very few one-time tape systems, primarily with the Department, London, Bonn, and the U.S. military in Europe, and depended almost entirely on the MEC, a rotor-based machine system. These machines were cumbersome, noisy, slow, and prone to failure if not properly maintained. At the height of the Cuban missile crisis, when President John F. Kennedy was trying to inform foreign governments of proposed U.S. actions and elicit their support, we were running between six and eight hours behind in the processing of FLASH traffic; roughly 18 hours behind on IMMEDIATE; 24 to 36 hours behind on PRIORITY; and just piled the ROUTINES in the corner.

Our Embassies in Central and South America, being at the mercy of their local telegraph office, were in even worse shape and the U.S. military had its own set of problems. The Army, Navy, and Air Force, for example, had no common communications system and could not talk to each other.

As a direct result of this failure in communications, a government panel known as the Orrick Committee, after its chairman, Judge William Orrick, was established to study what was wrong and how to fix it. One result of this committee was the creation of the Defense Communications Agency which began the task of solving the incompatibility problems of the various armed services communications systems. Another outcome was the creation of the Office of Communications (OC) within the Department of State and the establishment of the Diplomatic Telecommunications Service (DTS). This strengthened the Department's diplomatic communications infrastructure by centralizing a number of previously

scattered groups and providing funding for leased lines and installation of USG-owned facilities.

Moving quickly during the mid to late 1960's, the DTS established on-line communications at most of our Embassies using a mix of U.S. Government-owned facilities at some, and commercially leased circuits at others. Operating these on-line circuits at 75 baud (100 WPM), using Model 28 Teletype equipment, we found that by the mid-1970's we were losing ground. Although traffic was being handled via on-line encryption/decryption equipment, it remained heavily dependent on manual processing. Communicators were still "poking tape" for the outgoing and duplicating copies on the incoming. Traffic volumes were growing faster than manual processing could cope and some form of relief was needed. More circuits and more people were not the answer.

In 1977 we introduced our first computerized terminal, based on Teletype Model 40 equipment and known as TERP - for Terminal Equipment Replacement Program (the term has since become synonymous with the equipment.) TERP-I used audio tape cassettes as a storage medium and gave us automated message handling and processing. (The US military had a somewhat similar system known as "Project Streamliner".)

Equipped with an optical character reader (OCR), TERP took over all the labor-intensive message preparation and logging functions. By using multi-copy paper in its two Model 40 printers, TERP allowed us to deliver traffic to the reader in a timely fashion. The OCR relieved the operator of the typing tasks and the computer did almost everything else. It broke long outgoing messages into sections, assigned routing indicators,

date/time groups, station serial numbers and file times, and permitted us to institute unattended operations at selected posts. It also had an unexpected side effect - we found that when we installed TERP at a post, we almost always guaranteed that post a minimum of a 10% increase in their message traffic.

In 1979, we began installing TERP-II. This version used eight-inch floppy disks, had greatly increased message storage capability, and permitted circuit speeds of up to 1200 baud. Later, as resources permitted, we began retrofitting TERP-I sites with conversion kits to upgrade them to TERP-II.

Also in 1979 came the takeover of our Embassy in Teheran, with the compromise of a large number of classified documents. One result was the development of TERP-III with electronic file storage, file management, and the provision of future expansion capability to include end-user automation.

TERP-IIIB, introduced in 1983, was designed to mate with a Wang 7550T classified word processor. Together, these became a Classified Information Handling System (CIHS). Using fiber optic cables, CIHS could support up to 32 ports. It permitted work stations at the office level to have classified word processing, electronic mail, electronic file cabinets, preparation and release of outgoing message traffic electronically, and maintained a central data base for message retrieval. This retrieval process could key on any one or a combination of approximately 12 items - date/time group, originator, DE line, channel number, message reference number, message continuity number, TAGS, subject, date range, key words of text, etc.

Until 1984 the DTS was an

organization without a charter. We existed, as a result of the Orrick Committee, and we did what we were supposed to - provide the means by which American foreign policy was carried out. There were various inter-agency agreements which provided a mechanism for us to support them, but no real hook we could hang our hat on and say "This is why we exist." Executive Order 12472, signed by the President on April 3, 1984, changed all that. It created the National Communications System and, as part of its implementation, directed the Secretary of State, within the Diplomatic Telecommunications System, to "...plan for and provide, operate and maintain rapid reliable and secure telecommunications services to those Federal entities represented at United States Diplomatic Missions and Consular Offices overseas."

From the days of Thomas Morrison and his two Morse telegraph lines linking the Department of State with Western Union in Washington, D.C., the DTS is the only U.S. Government communications entity that is truly worldwide in scope. We serve at more than 250 Diplomatic and Consular posts and support over 50 different agencies of the U.S. Government.

We have moved from our first CW stations in the late 1940's to fully secured high-speed data circuits operating at rates up to T-1 (1.544 megabits [1,544,000 bits per second]). Direct-dial telephone access to the Department is in place and classified and unclassified e-mail is provided. Where necessary, we are using small International Telecommunications Satellite Consortium (INTELSAT) terminals on Embassy premises for direct

access to commercial satellites.<sup>2</sup> This eliminates the normal terrestrial links to satellite earth stations operated by commercial carriers. Video teleconferencing is being considered. CW, the mode that started it all, is no longer in our inventory.

In addition to our role as supplier of command and control communications for the foreign affairs community, we provide tactical satellite communications for crisis reaction teams, transportable record communications facilities for the Secretary of State to maintain contact with the Department of State and the President from any location, and participate with the other members of the NCS in emergency communications planning. We may be one of the smallest members of the NCS, but we make an important contribution to it.

#### Additional Background Information

1. It should be noted that the ECM/SIGABA remained in US military service until the late 1950's. The US Army began replacing it in 1952 and the US Navy phased it out in 1959. They replaced it for the same reasons we did. It just could not keep up with traffic volumes.
2. The ECM/SIGABA used by the US Navy and US Army in World War II is considered to be the only major machine-based cryptographic system that was never broken (See: Big Machines). An excellent source of information about the ECM is found here: <http://www.maratime.org/ecm2.html>.
3. In the mid 1960's a proposal was

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<sup>2</sup> In Geneva, the US Mission had the only "private" satellite terminal in Switzerland, providing a T-1 link to the Department.



made to combine the Department's data processing organization, ISO (Information Systems Office), with the Office of Communications (OC). This was declined by OC senior management because of the problems related to getting OC into shape. It was apparently felt that one set of headaches at that time was enough. The merger did take place some 20 years later when, much to the dismay and consternation of some ISO personnel, OC and ISO were combined to form IM (the Office of Information Management).

On a personal note:

I joined the Foreign Service in November, 1960. My first posting was as a code clerk in Paris (1961-63). After Paris, I had a tour as a code clerk in Seoul (1963-65). That was followed by tours as CPO Seoul (1965-68), CPO Kabul (1968-72), CPO Conakry (1972-75), CPO Rio de Janeiro (1975-78), a Communications Center Watch Officer in OC/T, the Department of State Communications Center (1978-81), East Asia Operations Officer in OC (1981-83), CPO Manila (1983-86), Associate Director of Communications, West Africa (ADOC-AF/W) in Abidjan (1986-88), CPO Geneva (1988-92), and IMO (Information Management Officer) Bangkok (1992-95). I retired in September, 1995.

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Thieves who steal corn from a garden  
could be charged with stalking.

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See you next  
quarter!  
Be well, be safe!