ASA Review

CONFIDENTIAL

A GREETING FROM

The Chief

The resumption of publication of the Army Security Agency Review affords a most welcome opportunity for me to extend greetings to each individual member of the Agency and to share with you the benefits gained by closer association in our common interests.

When the review first appeared three years ago, the initial response through the Agency was most enthusiastic, and it was with regret that circumstances beyond our control forced us to discontinue its publication.

The purpose of the ASA Review remains the same as before: to provide the Army Security Agency with a semi-technical bi-monthly publication for articles on the subject matter of the work and activities of the Agency insofar as the classification CONFIDENTIAL will permit.

As Chief, Army Security Agency, I am interested primarily in two objectives: maintaining excellent morale and improving the high technical standards which the Agency has achieved. Morale is a most important factor in all military and technical services, and only through improving our technical skills can we enhance the quality and value of our work.

General Bradley once said, "Good ideas must not be kept secret; let's share them." By putting our ideas together through the medium of the ASA Review, by learning something of the way and manner in which we live, work, and play in the various installations, a further contribution can be made toward the future success of the Agency by the publication of the ASA Review -- our own service journal.

Carter W. Clarke

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Contributions from readers are welcomed. Unclassified contributions from individuals may be sent either as personal mail or through Agency mail channels to the Editor, ASA Review, CSGAS-27, Army Security Agency, The Pentagon, Washington 25, D.C. Personal contributions of a classified nature, and the contributions of ASA units, should be forwarded only as official Agency mail.

Cover

A fair breeze blows in Washington - scene across the treetops of the Capitol grounds from the portico of the Supreme Court Building.
-- Photo by A.H. Feeney, Photographer, ASA

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DEPARTMENTS

Signalman's Odyssey

~~(Confidential)~~

The Story Thus Far:

At the outbreak of the War, Michael Maslak, then a PFC of the 2d Signal Service Company, was stationed at Baguio in north-central Luzon. When Baguio was evacuated, Maslak and the rest managed to make their way south to Corregidor. Late in March, eleven of the original seventeen men were selected to go to Australia as a cadre for the RI organization which was to serve General MacArthur's GHQ.

Flown to Mindanao, the 2d Sig men found only five were to be flown to Australia. The remaining six men were buffeted from one point to another in their fight for a plane out of Mindanao. When the last American plane had come and gone, they were left behind on Delmonte airfield, which even then was preparing to surrender to the Japanese. Rather than be taken prisoner, the remaining members of the group, with the exception of Bradbury, took to the hills, Rhen and Gill leaving first, Maslak, Kapp, and Stein following the next day.

Maslak and his group made their way on foot through the jungle, armed only with pistols, and supplied with meager rations of sardines and rice. In their weeks of travel they met other groups and were joined by a Field Artillery Captain and an Air Corps Sergeant. The five men found Rhen at a jungle village and arranged to rejoin forces at the coastal town of Bislig.

Aided by friendly natives, who taught them to supplement their diet with jungle fare, they pressed on to the coast. Weeks after their departure from Valencia, they arrived at Bislig. There they pooled their resources and bought a banca--a sailing canoe with outriggers. Here they waited for seven days for Rhen and Gill, realizing that with each day their chance for escape grew slimmer. Finally, on 10 June, a month after the surrender of Mindanao, they set sail for Australia.

(Chapters 1 & 2 first appeared in the May-June and July-August issues of the ASA Review in 1947. ED.)

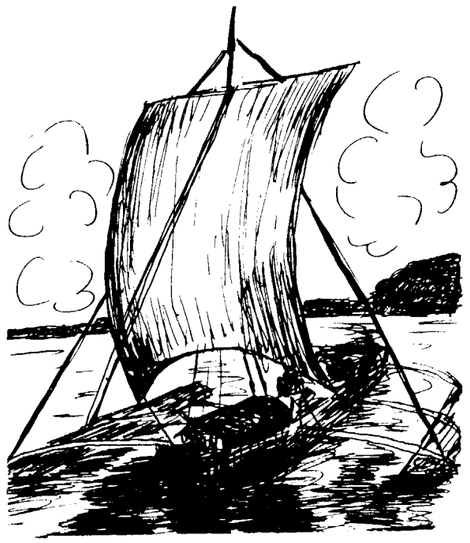
By Michael Maslak

SAILING SOUTHWARD

Our boat was a sailing banca of the type used to transport a load of about 60 bags of rice between neighboring coastal towns. The "Buckwheat", which got its name from the efforts of the Filipinos to pronounce the word "evacuate", now seems too ridiculous to describe. At the end of its voyage, the boat drew a lot of smiles from people who had been used to a more luxurious form of military transportation. You have to be "half-tetched" or superbly determined to ship out on the high seas in a thing like that.

The "Buckwheat"

The hull was a dug-out canoe some thirty or thirty-five feet long, and planked on the sides to give it depth. If one of us were standing on the bottom, he would be able to touch the gunwales at about waist height. If he reached out both arms, he could swing as if on parallel bars, probably four or five feet wide. Having no keel, the "Buckwheat" was kept upright by two heavy balance-poles suspended from the outriggers. A bamboo catwalk three feet wide stretched to the fore-tips of each pole. Fresh rattan rigging served as guy-lines for the wooden mast, which was about fifteen feet high. We braided our own lines from newly harvested hemp. The jib was a triangular section made of cotton material, while the mainsail was quadrilateral in shape, also made from cotton, but a little heavier. Two small pulleys worked the lines for raising and lowering the bamboo boom and the mainsail. A guide line for playing the sail was attached to one end of the lower boom and freely held on a peg at the stern. The rudder, four feet long and two feet wide, had a tiller handle operated by the helmsman.



Flight from Mindanao

The hull was open except for the loose board "deck" forward of the mast, and a small planked area about seven feet to the stern. The only raised part of the boat was an eight-foot section with a "benig" mat over bamboo strips for flooring and the roof. The cabin housed our perishable goods and was a shelter for Kapp and Stein when they fell ill. Four could huddle inside when necessary.

The coconuts and bananas we had squeezed in with the firewood. Tea, salt and a few limes completed our larder. A small bottle of gin, which we radiomen had quietly taken charge of, for medicinal purposes, we were saving for chilly occasions.

On the night of June 9 we had been visited by three young Filipinos who had heard of our trip and wanted to accompany us. Max, Sperry, and Trench were their nicknames. They explained their reasons as a desire for revenge for suffering at Davao; for the death of a brother in the Philippine Army, and a wish to carry on the war with the American forces. Our knowledge of handling a banca was nil, and since they claimed to know how, we took them on. The second night out, however, they nearly caused a catastrophe, when we almost capsized. From then on we relegated them to tasks calling for less judgment. Late on the afternoon of the tenth of June, 1942, we decided to weigh anchor. With our Filipino friends watching, we gave a prayer, raised sail, weighed the ten-pound anchor, and embarked on our journey. God alone knew where we would end--or when.

The First Night

That first night out, with a favorable running tide, and excellent sailing weather, we made good headway under an offshore breeze. During the first four days, everything was in our favor, even to the complete absence of Japanese vessels plying the waters between Surigao and Davao. That was what we feared most.

Before we were aware of it we were sailing through the Nenoesa Islands, a Dutch group southeast of Mindanao. We didn't stop - just surmised the identity of these specks of land from the National Geographic Magazine of the Far East which we were using as one of the navigational aids: the other two being the celestial bodies and a twentyfive cent compass which gave a reading if shaken hard enough. Heading a bit east of south we figured that in four days that port stern breeze had favored us with 250 miles. At this rate we'd be in Australia in no time. But fate enjoyed her tricks with us, and we saw no more land for twenty-three days.

Becalmed

We were nearing the area of the doldrums when a three-day calm beset us. The creaking booms and flapping sails reminded me of Coleridge's The Rime of the Ancient Mariner. Rather than drift aimlessly like a painted ship upon a painted ocean, we decided to ply our two oars and two paddles in the hope of trying to maintain a pace of twenty-five miles a day.

A hot sun beat down on old "Buckwheat". Stein got sunstroke and needed care for a week in the cabin. The watches were lengthened. If Kapp was at the tiller, Lindahl, the Artillery Captain, and I would be pulling the long, heavy oars through rope locks on the forward deck, Biss and Trench would be making line from hemp and repairing the sheet, while Sperry and Max would be out on the catwalk sculling with paddles. We might have been satisfied with only a mile an hour if we had known what was in store for us. For the next twenty days, such weather, terrible as any seafaring man could boast of hit us. Squalls, storms, and high winds buffeted us incessantly. Mountainous waves lifted us, then, as we hovered on the crest, plunged us to the trough to begin the next cycle. The boat shipped water, and each hour of the day saw the bilge can in operation.

For the rest of our trip, there was rain each day, sometimes for a few hours, sometimes all day. There was no shelter for us except the space under our remaining half-shelter stretched from side to side, amidships. Kapp, with an ailing back and kidney, joined Stein in the "Cabin". To Lindahl, Biss and me this loss of another man meant extra hours on watch -- three and a half, to be exact. The man at the tiller must sit on a hard board behind the burlap-covered box which housed the compass and tiny lantern; he must shiver in a huddled position with only a soaked GI blanket for warmth, worrying over the helm answering. He watches the whitecaps ship over the sides, with nothing warm to drink and no one to talk to. It seemed as tho' the end of each watch would never come, nor daylight be born again. Since it was almost always too cloudy to see the Southern Cross, and as the Northern Star was visible only part of each evening, the sight of the Morning Star, Venus, was a welcome sight.

In the daylight, with the soaked and ripped sails hauled down, we had to play the boat around and actually head north rather than south, in order to keep us on an even keel and save the outriggers from the malicious pounding of the waves.

When the sky was clear and the sails were in good repair, we could tack, close-hauled, into the stiff south wind despite the waves; during a storm, with the sails torn and the boom broken, we had to hold on and just ride it out. Once, the broadside waves split an outrigger beam, and if we hadn't tied it with a long piece of carbonera rope salvaged from a drifting Dayak fishing canoe we'd have been goners.

A sudden gust of wind twice caught us unawares, lifted one outrigger balance-pole clean off the water and nearly had us turned turtle. Immediately, four of us dove along the catwalk, threw our hanging weights onto the poles and just in time managed to bring the boat on keel. The one sand-bag we'd brought for ballast apparently wasn't enough.

In dry weather we had slept on top of the deck, on the catwalks, and on top of the cabin, but only snatches of rest could be had when it started to rain continously. Our limbs soon became cramped as we huddled along the windward side of the boat. That was when the gin came in handy -- shades of a bar-room lassie, one bottle was a mighty slim amount!

Menu deLuxe

An empty five-gallon tin can with a sand bottom served as our stove. Usually several precious matches were wasted before we could get a fire going out of the "bolo" split firewood. Breakfast consisted of steamed porridge and milk, sans sugar; the evening meal, of more steamed rice or mungo beans, some corned beef or fish, and tea. Coconuts became our afternoon snacks. Water was rationed a canteenfull a day.

Max would add a fish or two to our diet now and then, by diving from the edge of the catwalk, slashing his prey in two, and retrieving the halves at the stern cross-beam. One lucky day, I was able to make a miraculous addition to our larder. Having tossed a feathered hook and line into a school of fish, I joined the fish-story tellers' club when I caught eight tuna about six pounds each, in less than two minutes!

Twice schools of whales passed near us. Twenty-foot sharks provided us with frightening anxiety. (I estimate them at twenty-feet for they stretched from the catwalk back to the rudder.) These sharks would follow the tuna which in turn were following smaller fish that were following us. Often, when a shark lunged for a tuna, he smacked his huge tail - fins against the stern planks, threatening to spring leaks. The helmsman could have reached down and touched these monsters, if he had been foolish enough to want to. We could stop their antics by shooting a couple, for the others would then lay back at the scent of blood, making short work of the wounded ones. Flying fish frequently sailed alongside and infront of us, but we never bothered each other. Another phenomenon was an enormous waterspout which appeared one day a quarter - mile away. It was now heading straight toward us, when, much to our relief, it suddenly changed directions and spiraled off.

When the boat was making no headway under battened down sails, we often talked and joked especially about our experiences during the long journey across Mindanao. It now seemed far away but we still remembered -- how Maylaybalay looked after the Jap bombings, how Valencia was bombed and strafed after being a "secret" air base so long, and how we nearly drowned in the turbulent Pulangi and other rivers. The cry had been "On to Walo!", where we saw Rhen. We wondered what had become of him and Gill -- had they decided to stay in the hills, or were they prisoners of the Japs?

The mountain ranges had seemed insurmountable, but we had passed them safely. We thought of the rivers we had had to cross, the Cagayan swamps, and knew that we had made it; and though things still looked pretty rugged we said, "We'll get through this too."

Lindahl was the man who kept our hopes high; every time the rest of us fell into despair, he gave forth with a resounding pep-talk. After his enlightening sessions on how the infallible strategy and the fighting heart of the Americans would turn back the enemy on all sides, we could not help but feel there was life and hope for us. We'd soon rejoin our own forces.

"Okay then, Kappy, forget about that pain. And you, Stein, let's get a little move on. How about you and Biss, Mike? If you can't think about anything but worry when you're back there and we're riding sea-anchor, then just dream about the good times we got coming. That's it! Wipe the rain from your face. We got things to do!"

From my glance at his pre-war photo in his personal sack, I would say Captain Lindahl -- he was always "George" to us in the boat -- with his dark mustache, was quite a handsome fellow. Of medium build, he was, although you'd think he should be taller, coming from Danish ancestors. He had plenty of that gift of gab. He learned part of that while getting an M. A. in economics at Stanford, but the rest must have been picked up as a West Coast sales representative for Proctor and Gamble. At times he assumed a most haughty manner but most of the time he was very congenial. At twenty-nine, with dark hair, straight nose and well formed chin, he reminded me a little of Robert Taylor. From his tales of tasty dishes, I gathered that he was a gourmet if ever there was one. It could well be imagined that with a heartier diet he could easily put on superfluous fat, particularly under that chin. His black goatee is what got me; he never ceased stroking it!

J. D. Biss was exactly the opposite in demeanor and disposition. Where George was self-confident and alert to new problems, Biss, the Air Corps Sergeant, was

usually calm, quiet and indifferent, almost to the point of irritation, to the rest of us. He belonged to a New York State family who had come over from the Carpatho-Ukraine. He had a round nose and a fat face which seemed even fatter when he smiled. Although somewhat large-boned he was very adept with his hands--very! As our sailmaker and rigger, Biss patched the sheets, and repaired and made line; we had use of his handy tricks on numerous occasions. Voluminous curls of sandy locks spilled down towards the nape of his neck, and he was the first of us to wind the ends of his long, strange whiskers into spirals -- a la Jerry Colonna. His glistening grin, and ruddy face with that smooth flowing blond beard gave him quite a dashing appearance.

On the other hand, Stein, a lanky Jewish boy from Passaic, New Jersey, gave a very different impression. He was kept in low spirits by his bad ankle which was fast becoming gangrenous. The lack of fresh food lowered our resistance to infection and Stein obviously suffered far more than the rest of us in this respect. He reminded me of some Biblical character in tattered clothes, his long, dark hair, and jet-black whiskers streaming, bravely tugging at a wet sail line.

Robinson Crusoe

If there was anything of the authentic Robinson Crusoe about this rugged crew, Kapp was it. The scenes on the boat ran like a movie. I never doubted who Stan was portraying as I watched his husky form strutting up and down the limits of our space, waving his hands as he spoke. He was of Polish lineage by way of Brooklyn, as we could tell by his speech, but we couldn't understand his beard; it varied in shade from light brown; the color of his hair, to flaming red. Strongest in my memory of him is the pose he struck on the foredeck -- stroking and fondling his beard and happily twirling his whisker tips. Sometimes he was merry; sometimes, despondent; but most of the time, he was just good old Stan. Nevertheless I counted on him for I knew he would be the last man among us to develop any semblance of a yellow streak.

We were all in the same boat, and it was a lot more than a figure of speech. We operated that way -- we Americans, that is. The Filipinos could scarcely converse with us and although they were sharing our adventure we made the decisions. The experience we had had convinced us their judgment could not be relied upon. This was evident from the way in which they handled the canoe. Among the five white men, there was no such thing as rank. We agreed early in the voyage that we should all have an equal voice in any decisions which had to be made; and there were plenty of them. We were frequently not all agreed, but dissenters very willingly went along with the majority's will. We were determined to avoid trouble among ourselves at all costs. In this we were completely successful. I believe that our experience shows that there are means other than the iron-handed leadership of a Captain Bligh of steering through such a voyage.

Thoughts of Home

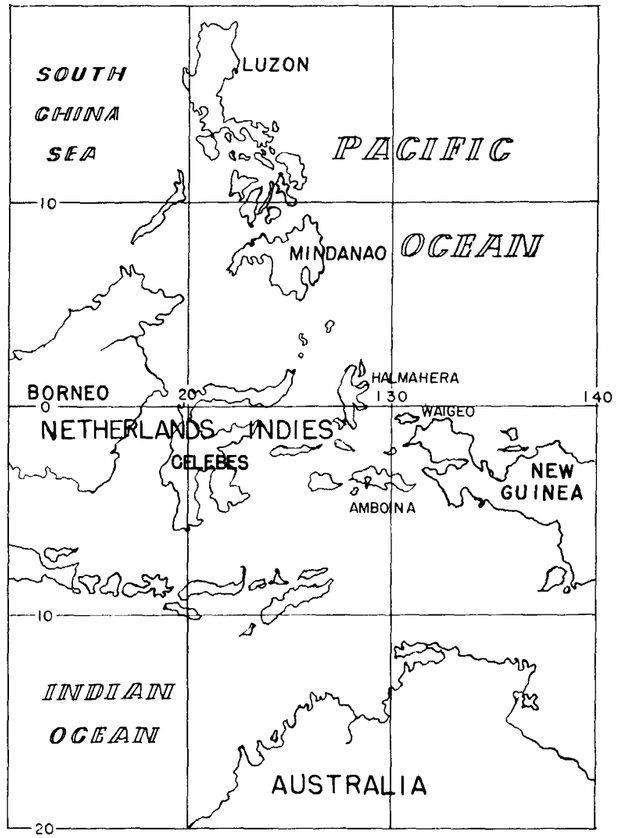
By this time, three weeks out, we were beginning to know each other pretty well, consequently much of our "bull sessions" covered intimate personal affairs. George had been married and divorced; Biss, often self-conscious and reticent, occasionally buzzed forth with boyhood reminiscences. Stein dwelled on his father's delicatessen where he had helped to guzzle the soda fountain profits; Kapp, overseas on account of a girl, often told of unhappiness in his home.

Now and then, we SIS members of the crew talked about how the 2d Signal Service was started back in 1939. It seemed a long time, but we had come up from raw operators, had seen it grow, and were now in a position to hold key jobs when U. S. Signal Intelligence undertook a mission far bigger than anything it had done up to now -- if we could only get ourselves to one of those large-scale intercept locations we imagined must be springing up in Australia.

Upon questioning by George and Biss, as to what kind of work we did, we hemmed and hawed for a time but eventually let them have a few stories of general incidents in

our work. Biss was as skeptical as the Air Corps itself had been when our detachment told them of the intended bombings over Manila and Cavite. He couldn't understand how it was that by interception of recon plane traffic we were able to warn his own branch of danger. Naturally, we couldn't give them the working details -- it would probably have been over their heads, anyhow. George, too, looked doubtful when we told about the results of SIS work. Perhaps he thought we were exaggerating our exploits maybe he just didn't like our not telling him how we did it. Anyway, he used to say we were the most overconfident, conceited, boastful, and proud soldiers he had ever met. I guess he really didn't mind too much, or he wouldn't have stuck with us the way he did.

We were only three weeks out but our physical health as a group wasn't the best. The situation reminded me of the endowment of cripples that a baseball team receives halfway through the season. Stein was on his feet, but still groggy. Kapp, feeling worse, had only a few drops of gin left in the bottle. The sum total of our medicine kit was a dozen quinine tablets, and of what use were they in an open sea! No mossies yet, thank Heaven! Each of us was still sporting body sores from our Mindanao leech friends. The salt - stinging sores leaked and grew in area. I can't believe we actually had scurvy, but we did have bleeding gums, cracked lips, and dry sores in the mouth. Every scratch or break in the skin soon became infected. Then when our soaked suntans clung stickily to our backs and legs, the sores started spreading. Our eyes were slightly inflamed, probably due to both the lack of vitamins, and the constant glare of the sun. Even our buttocks had sores from sitting on the hard wet planks. Nonetheless, there was one part of our aching and tired bodies that wasn't ailing--the soles of our feet; they were calloused and as hard as leather



Southward We Go

We were glad our shoes had worn out hiking through Mindanao. Thumps on spikes or rubbing on bamboo and rattan edges now didn't bother our feet at all. We would stretch our feet and legs on the catwalk, and compare them, humorously, as to who had the toughest pair of soles.

As far as clothing goes, each of us had a suntan shirt and trousers. I owned an extra tattered and short - sleeved khaki shirt, besides my old orange-trimmed Signal Corps cap. Lindahl had a raincoat but the rainproofing had worn off of it. We each had a billfold or pocketbook holding a few souvenirs, Filipino coins, snapshots of Stateside girl friends, a family picture, and the remaining thirteen pesos of Kapp's winnings from the Corregidor poker

marathon. Stein still sported his high-school ring. Biss contributed to our navigation equipment with a patched-up wrist watch which ran long enough, intermittently, to tell us when the tricks ended. Except for my .45 automatic, my most precious possession was a GI blanket which I had kept with me for almost three-and-a half years.

Well Armed

In Mindanao, and on the sea, our most priceless weapon and tool was the bolo. Smaller and lighter than a machete, our bolo was fabricated from vanadium steel automobile springs. We used it in cutting through the interminable jungle growth, and on the banca, for cleaving cocoanut shells, chopping firewood, and performing many other duties: -- we had two of them, each purchased for ten pesos. Just as we left Managoy we understood that a bolo couldn't be bought for less than a sack of rice -- which in itself was valuable.

As for arms, we were sufficiently well stocked to put them to good use, provided the appropriate opportunity arose. Fifteen extra rounds of ammunition for George's Springfield and Biss's M - 1 were at hand when we put to sea. Unfortunately, one of the rifles was lost overboard, and a few rounds of ammunition got wet. The other rifle was stolen from us later on. Stein had lost a firing pin out of his pistol; so it wouldn't work. Both Kapp and I had our Colt pistols in good shape, each backed up by an extra clip.

Sailing away, except for the times we were back-tracking, "Buckwheat's" prow was pointing, or trying to point, south by a little east. We were aiming to pass just east of Morotai and Halmahera, hoping to sail between the latter island and Waigeo, the sizable island off the northwest tip of New Guinea.

Two times we encountered Jap ships. We Americans hit the deck, leaving only Max, Sperry, and Trench in sight as apparent fishermen. Left gratefully unmolested, we couldn't help wondering whether or not the Japs thought it strange to see such a vessel so far out to sea -- a banca was built for sailing only within sight of land. The first incident occurred ten days and about four hundred miles out, when a large camouflaged and well armed Jap merchant ship crossed our port bow a half-mile away. Two weeks later, an even closer call brought our hearts into our throats. A smaller Jap freighter slowly crawled past our boat less than a quarter-mile across the water. Luckily it was near dusk; so perhaps they didn't see us. We certainly didn't hanker to have our adventure cut short at this stage.

A number of times Biss, always alert for moving objects -- even to scampering up the mast to his imaginary crow's nest, thought he spied submarine periscopes in the distance. Closer observation always revealed they were only drifting deadwood. Biss, a camera fiend in pre-war days, oft remarked how he wished he had a camera, especially a movie camera. He figured he could make a million dollars from shots of Mindanao and Buckwheat."

No Land In Sight

Twenty - two busy but doubtful days had passed without even a glimpse of land. "Buckwheat" was already in terrible shape. With no sea anchors to lie her still, or oil to quiet the seas, the boat had taken a terrific pounding. As happens to inexperienced sailors, keeping it close-hauled and trying to tack in a rough sea, we frequently were caught in irons and missed our stays. Even for two days, when the wind was abaft the beam and we were running free off the wind, Stein miscalculated at the sheets and tiller, causing the sails to jibe a couple of times. The result was a cracked gaff and a ripped sail. During the squalls and storms when we were either gathering sternboard way or drifting aimlessly in unknown currents, our water - logged compass wouldn't work. We were dreary and cold, and it was cloudy and sunless. We had no idea of our position. We were beginning to feel the stress and strain. Speculation among the crew only produced arguments. That we had to avoid.

Land Ho!

It was on the morning of the eighth day of July that Kapp yelled through the mist

"LAND AHEAD" "LAND AHEAD!"

We threatened him with all kind of punishment for this ill - timed joke, but he persisted and pointed to a small, hazy, grayish cone jutting out of the water away off in the distance.

"Hooray! This is land! What is it? Where are we?"

What if it turned out to be Australia? Everyone was elated. Land at last!

The next afternoon a much more wonderful sight rewarded our prayers when we beheld the same cone, but this time we could see its base and even a large expanse of foothills off to the side. It stayed with us all day, and the next morning we made an estimate of the constantly growing mass of land and decided it was about 60 miles away. By nightfall it was easy to distinguish the golden sand of palm-lined shore. The tropical sea was now bluer in color, leading us to expect that we would be sailing right into some crystal-clear lagoon. The main question in our minds was: Had we made a good or a bad landfall?

I took the tiller from Lindahl at nine o'clock. The rain had terminated but the night was pitch dark. The entire crew, exhausted, had stretched out wherever they could and had gone to sleep. Near midnight, the wild cries of jungle birds and the shrieks of monkeys indicated we were very near land, so I eased up on the sails and drifted toward shore on a dying breeze. I couldn't see a thing, but presently the lapping of the waves told me that shore was only a few yards away. I hove to, letting go and getting away the anchor for the first time since we started. By Biss's watch it was exactly midnight of the tenth of July. One month from Mindanao. Land at last! But where we were we knew not. We would have to wait for morning and sunrise. Now it was sleep and rest.

The End

EDITOR'S NOTE:

The disappointed sailors soon learned that they were not in Australia but in New Guinea, not far from Sansapor, to which they went the next morning for supplies.

They spent five weeks on a tiny island owned by a Chinese, which was situated between Waigeo and the southernmost tip of Halmahera where the oriental allowed them to repair their boat and await favorable monsoon winds; a native missionary sent them kasavas, sago, and bananas.

This manuscript was never finished; Maslak (and the other men) were captured on 24 September 1942 on the same unnamed island, which they called Little Pam. They were taken to a prison camp at Amboina, N.E.I., where Maslak spent the next three years until he was freed. He then made his way back to Luzon, arriving there 12 September, 1945. He returned to the United States and was discharged from the Army.

Cpl. Rhen was killed while fighting among the guerillas, in the Philippines. Paul Gill was commissioned a 2d Lieutenant with the guerilla forces with whom he had been fighting. He returned to this country in July 1944 four months after being evacuated from Mindanao to Australia. When he was last heard from (1946) Gill was a civilian, in Thorne, Nevada. Kapp and Stein died while in prison with Maslak. Nothing is known of the fate of Biss or Lindahl.

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Edgar Allan Poe, Cryptographer

By William F. Friedman

(Unclassified)

Since the publication of articles on Poe as a cryptographer by Mr. Friedman a decade ago, new light has been cast on this subject through the discovery of a considerable amount of Poe's cryptographic writings previously unavailable. The original articles* have been amended to include this late information.

The first section appeared in the July-August 1947 issue of the Review. -Editor.

.. .. ..

In the August (1841) number of Graham's Magazine, Poe published a cryptogram composed by a Dr. Frailey, of Washington, and sent to him by his well - known friend, F. W. Thomas.[1] Poe says that the solution was forwarded to its author by return mail and offers "a year's subscription to the Saturday Evening Post, to any person, or rather to the first person, who shall read us this riddle."[2] He goes on to say:

> We have no expectation that it will be read, therefore, should the month pass without an answer forthcoming, we will furnish the key to the cipher, and again offer a year's subscription to the magazine, to any person who shall solve it with the key.

The September number of the magazine is entirely silent on the subject. In the October number, Poe says:

> The cipher submitted through Mr. F.W. Thomas, by Dr. Frailey, of Washington and, deciphered by us, also in return of mail as stated in our August number, has not yet been read by any of our innumerable readers. We now append its solution.

.. .. ..

Poe did not abide by the terms of his August agreement, in which he stated that he would furnish the key and again offer a year's subscription to any person who would solve it with the key. Perhaps his exuberance over his achievement had somewhat died down after the August issue. But an examination of Frailey's cipher should show what there is about it that so excited Poe.

It is unnecessary to illustrate the cryptogram here; one need only indicate that it followed very closely the Berryer type (wherein a key phrase is merely written under the alphabet and each letter of the latter is represented by the letter appearing under it, so that the same cipher letter may have several different plaintext equivalents), with the sole modification that a few words and the terminations SION and TION were represented not by letters, but by single symbols. For example, the pound sign stood for IN, and figure 7 for ON; there were nineteen such symbols, all instances of this sort. That they were not the representatives of individual letters was obvious from a mere ocular examination. Compared with the use made of the ordinary letters of the alphabet, the symbols were relatively insignificant. In fact, the solution can practically be accomplished without an analysis of these symbols, the meanings of which can then be merely inserted from the context. What then made the cryptogram seem so intricate to Poe? Let us take a look at the cleartext, and the matter may become apparent:

> In one of those peripatetic circumrotations I obviated a rustic whom I subjected to catechetical interrogation respecting the nosocomial characteristic of the edifice to which I was approximate. With a volubility uncongealed by the frigorific powers of villatic bashfulness, he ejaculated a voluminous replication from the universal tenor of whose contents I deduce the subsequent amalgamation of heterogeneous facts. Without dubiety incipient pretension is apt to terminate in final vulgarity, as parturient mountains have been fabulated to produce muscupular abortions. The institution the subject of my remarks, has not been without cause the theme of the ephemeral columns of quotidian journalism, and enthusiastic in conversational intercourse.[3]

Despite a long experience with the absured texts that cryptographic "inventors" are prone to employ, this, I confess, is quite a gem. It is a curious thing that persons who offer samples of cryptographic puzzles of their own "invention" almost invariably contrive to produce a monstrosity of diction like the foregoing. Perhaps it tickles their sense of humor - the unreasonableness of their language seems never to occur to them.

Outrageous Diction

If Frailey's cipher was difficult, therefore, it became so not because of an inherent complexity in the method employed but solely because the diction was so outrageous. But after the preliminary stages in solution - that is, after a few of the most important values had been obtained, which certainly should not consume more than one or two hours at the utmost - the completion of the puzzle was merely a matter of patience and the use of an unabridged dictionary. Certainly very little use of the analytical faculties so lauded by Poe was requisite. The Frailey cipher (naturally, without any information) was presented as a simple test to the same four students referred to in the preceding installment of this article. In three hours all had recovered or reconstructed the phrase upon which the cipher alphabet was based, which was "But find this out and I give it up."

The terms in which Poe issued his challenge in regard to the Frailey cipher are startling enough in themselves, but the esteem in which he really held the cryptogram is shown and, in addition an interesting sidelight on his character is revealed by some correspondence which appeared in the November 15, 1925, issue of the Memphis Commercial Appeal. Mr. Richard Bolton, of Pontotoc, Miss., on November 14 1841, addressed a letter to Poe, taking him to task in the following terms:

> The November number of your valuable magazine has just arrived. To my great surprise no notice is taken of my solution of the cryptograph proposed to your readers in the August number. This I can attribute only to accident or oversight. As you had thrown the gauntlet which I took up, I must call upon you as a true man and no craven to render me according to the terms of the defiance the honors of a field worthily contested and fairly won.
>
> A friend lent me for perusal your magazine for that month. On the 9th of September, within a month after the arrival of the magazine, my solution was mailed postage paid, addressed to the editor. Accompanying it were certificates of two subscribers, Messrs. Glokenau and L. C. Draper (the latter assistant postmaster) that I had effected the solution unaided by the key and that the September number in which the key was exposed had not arrived.
>
> My solution fully agrees with your published solution except in two words about which I will soon take occasion to remark. I therefore claim to have fully complied with the terms of the challenge and to be entitled to all the rights, privileges, and honors therein expressed.

.. ..

Poe's prompt reply, couched in the most friendly terms, offered a very clear and

*American Literature, vol. VIII, no. 3, November 1936, and the Signal Corps Bulletin, nos. 97 and 98, July-September 1937 and October-December 1937.

[1]Professor Wimsatt's article ("What Poe knew about Cryptography"; Publications of the Modern Language Association of America, September 1943) notes that Thomas sent not one but two cryptograms composed by Frailey; for a copy of the shorter one see the plate facing page 765 of the Wimsatt paper. Both cryptograms were written in the same system.

[2]Works, XIV, 134. The underlines (originally italics) are Poe's.

[3]Ibid., XIV, 138-139.

unquestionable explanation of what appeared to Bolton as an unwillingness to a division of the honors of victory and a participation in the spoils. The explanation, of course, lay in the fact that the forms of any periodical of fair size must go to press long in advance of issue. Poe then continued as follows:

> Upon this hint you will easily see the possibility of your letter not having come to hand in season for acknowledgement in the November number. Otherwise I should have had high gratification in sharing with you then the reputation of a bottle conjurer - for thus the matter seems to stand. In our December number (which has been ready for 10 days) you will find an unqualified acknowledgment of your claims - without even allusion to the slight discrepancies for which I believe the printer is chargeable.I mean to say that you have (I believe) solved the cipher as printed. My solution follows the MS. - both are correct.
>
> Allow me, Dear Sir, now to say that I was never more astonished in my life than at your solution. Will you honestly tell me? -- did you not owe it to the accident of the repetition of the word "itagi" for "those?" This repetition does not appear in the MS. at least, I am pretty sure that it was interpolated by one of our compositors - a "genius" who takes much interest in these matters - and many unauthorized liberties.
>
> In Dr.Frailey's MS were many errors - the chief of which I corrected for press - but mere blunders do not much affect the difficulty of cypher solution - as you, no doubt, perceive. I had also to encounter the embarrassment of a miserably cramped and confused penmanship.Here you had the advantage of me - a very important advantage.
>
> Be all this as it may - your solution astonished me. You will accuse me of vanity in so saying - but truth is truth. I make no question that it even astonished yourself - and well it might - for from at least 100,000 readers - a great number of whom, to my certain knowledge, busied themselves in the investigation - you and I are the only ones who have succeeded.

It is with some regret that I must place beside this frank acknowledgment an extract from a letter written by Poe to F.W. Thomas dated November 26, 1841 (for which I am indebted to Dr. T. O. Mabbott). Bolton's letter, Poe declared,

> ...was dated at a period long after the reception of our Magazine in Pontotoc ...He pretends not having seen my solution - but his own contains internal evidence of the fact. Three blunders in mine are copied in his own and two or three corrections of Dr. Frailey's original, by myself, are also faithfully repeated. I had the alternative of denying his claim and thus appearing invidious or of sharing with him an honor which in the eyes of the mob at least, is not much above that of a bottle-conjuror. So I chose the last and have put a finale to this business.

Doubtful of Poe

If Poe honestly entertained the suspicion which he directed against Bolton, the course which he followed and the complimentary letter he sent to Bolton, redound to his great credit. But I am sorry to say that after a minute investigation of the whole matter, in which no detail was too insignificant to be overlooked, I must declare that Poe had utterly no foundation for his suspicion. Internal evidence in Bolton's solution, which also appears in the newspaper mentioned, as well as all the attendant circumstances, serve to indicate conclusively that his work was accomplished without the key. Nowhere can one find "three blunders in mine which are copied in his own"; and so far as regards the "two or three corrections of Dr. Frailey's original, by myself", are concerned, who can doubt that Bolton did what every cryptographer does constantly - correct errors from the context? And there were errors - many of them in the cipher text as published by Poe, of which the latter was possibly not aware, though he was aware of the errors in the original. Furthermore, it will be noted that Poe did not, in his letter to Bolton, deny having received the latter's solution mailed on September 9. Now if Bolton mailed his solution on the date indicated,even allowing a whole month for its transit, Poe must have received it by October.

The key to the cryptogram did not appear in the September number, as Bolton inadvertently stated (a slip of the pen which adds weight to his claim), but appeared in the October number, which could not possibly have arrived before September.

In fact, as the matter stands, one could in truth,impute to Poe an unwillingness to share the honors with Bolton, but we may accept in good faith the explanation he offered the latter.[4]

Several inaccurate statements by Poe also occur in connection with his very brief description of a well-known cryptographic method often referred to as the chiffre quarre. In the December article in Graham's, speaking of the difficulty of composing impenetrable cryptograms, Poe said:

> We may say, in addition,that the nearest approach to perfection in this matter, is the chiffre quarre of the French Academy. This consists of a table somewhat in the form of our ordinary multiplication tables, from which the secret to be conveyed is so written that no letter is ever represented twice by the same character. Out of a thousand individuals 999 would at once pronounce this mode inscrutable. It is yet susceptible, under peculiar circumstances, of prompt and certain solution.[5]

In the first place, even in Poe's day to say that the chiffre quarré "is the nearest approach to perfection in this matter" was absurd, for almost any example of it could have been solved within an hour or two by anyone who was worthy of being considered an expert cryptographer. In the second place, the chiffre quarré, which Poe attributed to the French Academy was first illustrated by Vigenère,in 1586. Note that I say described, and not invented, for to all intents and purposes the same method, without actually employing the square table of Vigenere, was occasionally used at least as early as 1560 by certain Italian cryptographers in the employ of the papacy. In the third place, to say of the method that it is one in which "no letter is ever represented twice by the same character" is entirely incorrect. Furthermore, Poe's statement relative to the possibility of solving this type of cryptogram leaves room for doubt as to what he meant to convey by the qualifying phrase "under peculiar circumstances" - if he intended to give the impression that the circumstances are unusual, his statement is erroneous.

The Bacon Cipher

Another, almost glaring inaccuracy of Poe's is found in connection with a reference made by him to the Francis Bacon cipher.In the August 1841 number of Graham's Magazine, Poe begins with the following:

> Our remarks on this head [secret writing] in the July number have excited much interest. The subject is unquestionably one of importance, when we regard cryptography as an exercise for the analytical faculties. In this view, men of the finest abilities have given it much of their attention; and the invention of a perfect cipher was a point to which Lord Chancellor Bacon devoted many months - devoted them in vain, for the cryptograph which he thought worthy of a place in his De Augmentis, is one which can be solved.[6]

Again, in the December number in connection with the question of the so-called indecipherable cipher, Poe writes:

> Perhaps no good cipher was ever invented which its originator did not conceive insoluble; yet, so far, no impenetrable cryptograph has been discovered. Our correspondent will be less startled at this, our assertion, when he bears in mind that he who has been termed "the wisest of mankind"-we mean Lord Verulam -was so confident of the absolute insolubility of his own mode as our present cryptographist is of his. What he said upon the subject in his De Augmentis was at the day of its publication, considered unanswerable. Yet his cipher has been repeatedly unriddled.[7]

[4] Wimsatt is a bit more severe in his analysis of this incident, concluding that Poe offered Bolton "an explanation which is open to the most serious suspicion".

[5] Ibid., XIV, 148.

[6] Ibid., XIV, 133.

[7] Ibid., XIV, 147-148.

It is rather a late day to take up the cudgel for the Lord Chancellor, but to do him justice I will say in the first place, that he certainly did not present his mode of secret writing accompanied by any assertion relative to its indecipherability; he merely said that he had invented it while a youth in Paris, and that (forty-five years afterward) he still thought it worthy of preservation. In the second place, the cryptogram he presented as an example was accompanied not only by a full explanation of the system, but also by the key. Poe's remarks lead one, indeed, to believe that he could not himself have examined Bacon's cipher in the De Augmentis, but was writing upon the matter merely from hearsay.

In the course of this discussion only casual reference has been made to The Gold Bug. It is fairly certain that Poe identified himself with its principal character Legrand, whose very name is significant. Regarding the cryptogram in this tale Poe says that it "was of a simple species", that he solved it "readily", and that he had also "solved others of an abstruseness 10,000 times greater".

The Frailey Cipher

We have seen that so far as the actual record goes it is doubtful whether Poe ever solved any cryptogram that can properly be said to fall outside the class of simple substitution. The Frailey cipher, which was the most difficult of those shown by the record, and about which Poe wrote so enthusiastically, was only a little more complicated than that in The Gold Bug, of which he himself made light. Therefore, to say that he had "solved others of an abstruseness 10,000 times greater" is a considerable exaggeration, even in a tale of pure fancy.

It cannot be denied that Poe was greatly given to exaggeration. It was this foible which led him to make his most famous, and, for him, a most unwarranted, dictum on cryptography, namely, that relative to the impossibility of devising the socalled indecipherable cipher. It will be well to give the exact form in which he made the assertion. In "A Few Words on Secret Writing", published in Graham's Magazine for July 1841, he states:

> Few persons can be made to believe that it is not quite an easy thing to invent a method of secret writing which shall baffle investigation. Yet it may be roundly asserted that human ingenuity cannot concoct a cipher which human ingenuity cannot resolve.[8]

He repeated the declaration in one of his supplementary articles, and, again, in almost the same form, in The Gold Bug. Even to critical[9] readers without cryptographic training it is apparent that his dictum goes far beyond what he actually demonstrated in any of his cryptographic writings; and to the professional cryptographer it appears about time that Poe's assertion be challenged.[10]

> So far as the professional cryptographer is concerned, there has never been any question about the theoretical possibility of constructing at least one or two cipher systems which are mathematically demonstrable as being absolutely indecipherable.[11]

[8] Ibid., XIV, 116.

[9] For example, Joseph Wood Krutch, in "A Study in Genius" (New York, 1926), p. 107, says: "In the course of the articles on cryptography his speculations went far beyond the concrete demonstrations which he affords. 'Human ingenuity', he declared triumphantly, 'could not devise a cypher which human ingenuity could not solve'...".

[10] It is interesting to note the wording Poe employed in the earliest statement of his famous dictum, and I am indebted to Professor Wimsatt for quoting it as it appeared in one of the Alexander's articles: "We assert roundly, and in general terms, that human ingenuity can not concoct a proper cypher which we cannot resolve." In the letter to Thomas after Poe had solved the Frailey cipher he said: "Nothing intelligible can be written, which, with time, I cannot decipher." I feel sure Poe hardly realized his immodesty in presenting a claim of such remarkable breadth and he had occasion soon to retreat a fair distance from the untenable position into which his enthusiasm had led him, for later he stated: "To be sure, we said, in our last number, that 'human ingenuity could not construct a cipher which human ingenuity could not resolve' -- but then we do not propose, just now, to make ourselves individually the test of 'human ingenuity' in general. We do not propose to so solve all ciphers. Whether we can or cannot do this is a question for another day - a day when we have more leisure than at present we have any hope of enjoying. The most simple cryptograph requires, in its solution, labor, patience, and much time."

[11] What I had in mind at the time this statement was written is that a truly holocryptic system such as a one-time (literal or numerical) pad or a one-time tape system when correctly employed is absolutely indecipherable without possession of the key, that is, not susceptible to cryptanalysis. I also had in mind the possibility of employing non-repeating, unintelligible, unsystematically - constructed keying sequences for accomplishing transposition of lengthy texts, but today I am not so sure of the absolute indecipherability of the latter system; certainly its indecipherability cannot be demonstrated mathematically. It is an interesting point on which to speculate--how many "good solutions" could one obtain by assuming n! transposition keys, where n = t, the length of the text? One and only one of the n! transpositions is the correct one and theoretically it can be established, but how many of the remaining transpositions might give "valid" texts or at least texts that might, with a "correction" here and there, appear to be correct?

It is far from being the case that the invention of such ciphers had to wait modern advances in cryptographic science; their devising was possible from the very earliest days of secret writing. The difficulty has been to make such systems practicable for regular usage by persons having a need for the highest degree of cryptographic security.[12]

Thomas Jefferson - Inventor

A system which is now considered to be one of the very best for practical usage was discovered recently to have been invented by the amazing American genius Thomas Jefferson.[13] There can be no question that had Poe been cognizant of the method proposed by Jefferson he would have pronounced it absolutely inscrutable, for, as compared with the chiffre quarre (of which it will be remembered he said that it was the nearest approach to perfection) Jefferson's system is of a very much greater security. In fact, some of the American patriots of Revolutionary days were far better informed on secure methods of secret writing than was Poe.

It may perhaps be charged that it is unfair to expect of Poe a knowledge of the modern intricacies of a science which, like other sciences, must have undergone rapid development in the past half-century. On the contrary, although it is true that the state of the science is greatly in advance of what it was in Poe's day, long before his time it was much beyond what his remarks lead one to assume. As has already been intimated, four hundred years before Poe lived, professional cryptographers were daily employing and solving ciphers of much greater complexity than any which Poe illustrates and terms intricate. The basic principles for solving the type of ciphers Poe discusses were described in detail in papers written by Italian cryptographers before the dawn of the sixteenth century.[14]

The serious student of cryptography can, if he takes the trouble, see in Poe's essay and in his other writings on this subject many things which are not apparent to the layman. Against his will he is driven to the conclusion that Poe was only a dabbler in cryptography. At the same time it is only fair to say that as compared with the vast majority of other persons of his time in this country or abroad, his knowledge of the subject, as an amateur, was sufficient to warrant notice. Had he had opportunity to make cryptography a vocation, there is no reason to doubt that he would have gone far in the profession.[15]

- The End -

[12] Since 1936, when this was first published, we have developed the know-how, but at the time the difficulties appeared almost insurmountable considering the size of our organization and the paucity of funds for machinery --we had but four pieces of IBM equipment and no tape-making machinery whatever!

[13] Jefferson's Papers, vol. CCXXXII, item 41575. Library of Congress, Washington.

[14] Aloys Meister, Die Anfange der Modernen diplomatischen Geheimschriften (Paderborn, 1902).

[15] Possibly the reader will be interested in additional light on Poe's knowledge of cryptography, especially as regards the sources thereof, and if so, I feel sure he will derive pleasure and benefit from reading what Professor Wimsatt has to say on this score. I can here but summarize: Poe must, of course, be credited with a high degree of native ability, and he began his writings on cryptography with little besides that inborn talent for "ratiocination". It was only after he found, as an editor, that he had hit upon a good source of publicity and an excellent vein for prospecting for additional reader-interest that he began to look into the subject more carefully. And then he sought light only in the standard works of reference - the various encyclopedias available to him. It is very doubtful if he read a single foreign work devoted to the subject. William Blair's excellent article on ciphers in Rees' Cyclopaedia, the most complete treatise in English on the subject up to its appearance (1819) and for almost one-hundred years thereafter, was used by Poe as a source -- he copied liberally therefrom on the envelope which brought the Thomas letter (with the Frailey cryptograms) to him and which is still extant. It is interesting also to note the errors Poe made in that copying and how he carried them over into The Gold Bug. The reader will also derive some interesting sidelights on that story by reading the introductory remarks concerning it by Raymond T Bond, the editor of a very recent book, Famous Stories of Code and Cipher (Rhinehart & Co., New York, 1947). Mr. Bond might have profited from a careful perusal of Professor Wimsatt's article, especially in connection with the origin of the order of frequency given in the Gold Bug.

Authentication Systems

By Vernon E. Cooley

~~(Restricted)~~

When the Germans suddenly sailed two cruisers and several destroyers escorting troop transports and supply ships into the harbor at Bergen in 1940, much wonder was felt at the lack and futility of Norwegian resistance. How were the Nazis able to accomplish the occupation and insure a minimun of opposition? Largely by means of a communications swindle in the course of which Norwegian officers in command of harbor defenses received orders from Nazis in control of communications to abandon the fortifications several hours before the Germans arrived. Similar tactics were employed all through the campaign and were highly effective in preventing the mobilization of Norwegian troops.

Numerous other incidents of World War II can be cited wherein military commanders were deceived into accepting and acting upon fraudulent communications. Likewise, there were times when the true addressee of a bona fide, important message remained ignorant of its contents because an enemy station succeeded in posing as the intended recipient.

All such incidents point to the necessity for a rapid, reliable means of establishing the origin and authenticity of messages by whatever means transmitted, and a means whereby the various members of a communications net can mutually identify themselves. Such security measures are commonly referred to as authentication systems.

Under normal conditions an authentication consists of a two or three letter challenge, each letter being referred to as an "element" and the reply as an "authenticator". Since radio transmissions may be intercepted, or wire lines tapped, each challenge and subsequent reply must differ as much as possible from any preceding challenge and reply. There are two types of authentication: Message and Station. In message authentication the elements or letters challenged are selected from the message being authenticated according to some predetermined arrangement, and the Authenticator character or group is included in the preamble or at the end of the message. Station authentication is used to establish the identities of two or more stations which are in communication with each other. The "elements" in station authentication are selected at random and a "challenge" and reply procedure is employed. Usually, but not always the time of transmission enters into the situation as an element of the authentication procedure.

The most elementary type of authentication system is one in which a series of numbers from 1 through 26 is set down beneath the letters of a normal alphabet. The challenge consists of any three letters and the reply is the normal addition sum of the numbers assigned to those letters. The security of such a system is of a very low order. It is only necessary to group those challenges having two letters in common, and by subtracting one from the other, to determine the space between the remaining two letters on an arbitrary number scale. The process is continued until a complete chain of relative positions is built up. As soon as a challenge is received whose three letters have already been placed in the chain, alsolute identities are established. With an average of 30 authentications available for study the complete alphabet can usually be reconstructed in 20 minutes or less.

A variation of the foregoing is the system in which the figures 1 through 9 are repeated at random beneath the normal alphabet. The method of analysis is very similar to the other case and the increase in security, if any, is negligible.

The principles of the well-known Playfair Cipher have been utilized in certain cases with varying degrees of success. In one instance no modification of the principles was made at all. The challenge consisted of any two letters within the Playfair square and the reply the equivalent two letters taken out in the normal Playfair manner. Solution of such a system requires only as much time as is needed to reconstruct a regular Playfair square with the plain and cipher text values given. The process may be completed in approximately ten minutes with less than 15 messages.

Modified Playfair

A second method of authentication based on a Playfair square has exhibited a reasonable degree of security when limited in its use. The Playfair square of 25 letters is employed, and each letter is assigned a number from Ø to 9. The repetitions of the numbers assigned should be random and about equal. The challenge consists of any two letter combination within the square, but the reply is the normal addition sum of the numbers assigned to the letters which would ordinarily be the response in normal Playfair operation. An illustration of such a square follows, with examples of challenge and reply.

Q^{1}	H^{7}	I^{5}	W^{3}	E^{8}
F^{3}	Z^{4}	$A^{Ø}$	U^{5}	K^{4}
$S^{Ø}$	B^{6}	P^{2}	G^{5}	T^{3}
Y^{2}	M^{9}	O^{8}	$C^{Ø}$	R^{7}
L^{4}	V^{6}	X^{1}	D^{2}	N^{9}

Challenge	Reply
ZP	6
EO	12
NB	9
FY	4

Successful solution in this case depends entirely upon the repetitions of letters as they occur accidentally in the challenges, and upon the number of challenges having either high or low replies. By the nature of the system the range of replies is limited to values from Ø to 18. If all the possible challenges are arranged in numerical order according to their replies and recorded on a graph, a parabola shaped curve will be generated. The replies Ø, 1, 17, and 18 will be at the low extremities of the curve and the replies 8, 9, and 1Ø will be at the peak. This is true because there is only one combination in each case which would yield Ø, 1, 17, or 18, while there are five combinations respectively yielding 8, 9, or 1Ø. Moreover, only the sum 9 can be formed by combinations invoving all of the ten digits. All other sums are limited in some manner with respect to the number of digits entering into their formation. Use is made of these facts as the entering wedge to solution of the problem. Reconstruction may be long and tedious in some cases, but with certain repetitions available, solution can often be accomplished within a reasonable time with only a small amount of traffic.

These examples are by no means inclusive of all varieties of authentication systems examined by ASA. They are merely representative of types which were found to be least secure. Some have been tested which exhibited a high degree of security but for reasons of impracticability in use or preparation of materials have not proved acceptable. What is desired is a system in which the combined requirements of security, speed, and practicability are present in a degree which will meet the standards set by ASA. These standards are:

1. Impregnable security for not less than 500 authentications per cryptographic period.
2. Operating speed of not more than three seconds per authentication.
3. A small, wristwatch or pocket watch size, mechanical device rather than a pencil and paper device.

A good many types of systems have been used from time to time under various conditions but for one reason of another have been found unsatisfactory for general use.

It is hoped that this brief article, with the problems appended, may stimulate an interest in the subject to the end that new ideas for authentication systems or devices may be forthcoming.

The following problems will afford a little practice in the solution of the simple types of authentication systems just described. Answers will appear in a subsequent issue of the ASA REVIEW.

1. The numbers 1 through 26 are placed at random under a normal alphabet.

Problem: Reconstruct the random numerical sequence:

Challenge-Reply:	Challenge-Reply:
1. AJY - 54	16. QXJ - 39
2. UHI - 30	17. QVW - 64
3. TGF - 34	18. FMO - 26
4. NAH - 54	19. ROV - 48
5. DIB - 35	20. VPQ - 52
6. SBC - 42	21. MRP - 31
7. EKZ - 35	22. QWS - 50
8. BLD - 22	23. FBC - 20
9. HSA - 59	24. BCD - 24
10. KWU - 31	25. KDS - 42
11. XQM - 58	26. GAH - 52
12. YUS - 47	27. JHT - 32
13. JCT - 30	28. CKB - 30
14. CDK - 25	29. AVS - 75
15. LER - 40	30. QWX - 47

2. The numbers 1 through 9 are repeated at random under a normal alphabet.

Problem: Reconstruct the random numerical sequence:

Challenge-Reply:			Challenge-Reply:		
1.	PAS	- 22	16.	GRP	- 17
2.	OPA	- 19	17.	IXM	- 26
3.	WPB	- 16	18.	FPB	- 21
4.	COT	- 11	19.	LGY	- 6
5.	MZB	- 12	20.	ZAT	- 18
6.	FHA	- 20	21.	ESN	- 12
7.	WMC	- 12	22.	CMQ	- 15
8.	RFC	- 14	23.	FPM	- 25
9.	IPZ	- 22	24.	RAU	- 19
10.	CQK	- 9	25.	ASM	- 21
11.	ANL	- 12	26.	WAL	- 11
12.	SJC	- 9	27.	JAP	- 18
13.	DKM	- 16	28.	HIT	- 21
14.	JVO	- 13	29.	LER	- 8
15.	FWH	- 16	30.	MAD	- 21

3. Playfair Square, 5 x 5. Letter U omitted.

Problem: Reconstruct square:

Challenge		Reply
HC	-	KF
LW	-	NT
HJ	-	CP
LA	-	SJ
AX	-	PY
IQ	-	ZN
BR	-	RD
LG	-	NC
YA	-	AB
EI	-	OD
HV	-	FX
CM	-	FL
DP	-	ZE
GB	-	KI

4. Playfair Square. Numbers Ø to 9 distributed at random within the Square. Letter J omitted.

Problem: Reconstruct the square, placing numbers and letters in proper cells:

Reply

Ø-YI MI
1-MP QI YS
2-CG AR UK MQ
3-MC VC YK AT CZ
4-PT CU YU RT KZ ES
5-YQ YZ MZ LH RP KI KS
6-DL AI WI IH UI UZ MT QZ
7-DQ XA MU PQ AN WN CT CI AS
8-SL XI FI LY EA FU MA QU XU WT
9-HQ YG FW SQ EN RN FP XS VI FA VU
10-FM QG YR RC NC RS OP SP VD VY
11-HM HW DG NV BC SN XP OS FS
12-YW HR FG EC RE RB SI VO
13-RK RV NK DR FR QF OD
14-HY HF BQ BV SD OI
15-DW HG SC BN XD
16-HD QW EQ WQ
17-DF SV YF
18-RQ

.. ..

DID YOU KNOW THAT:

When the United States entered World War I, the Signal Corps had at its disposal only the 1915 War Department Telegraph Code, the old Army Cipher Disk with running key, and the official British Playfair Cipher.

The War in the Ether

~~(RESTRICTED)~~

EDITOR'S NOTE:

THE WAR IN THE ETHER is the title of a book written since the War by a former official of the German Intercept Service. The manuscript of the book was obtained by the United States Army. Selected sections of interest will appear from time to time in the REVIEW.

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THE WINIKER CASE

In 1906 in the vicinity of Berlin, there occurred an episode under the title "The Captain of Koepenick" which formed a favorite subject of conversation for many years and in a sense even became part of German history.

On a beautiful summer Sunday morning a small detachment of German soldiers under a non-commissioned officer was marching through the little old city of Koepenick, southeast of Berlin. Near the city hall a man in a captain's uniform met them. The Captain ordered the detail to march with him to the Koepenick City Hall, since he had the mission of arresting the mayor because of serious malfeasance in office.

The non-com saluted snappily, had his formation about-face, and marched his little force under the command of the Captain to the city hall. The entrances were occupied, and the Captain, together with the non-com and two privates, went to the office of the mayor. The Captain told the mayor he was under arrest because of serious irregularities, and to turn over his keys, particularly the one to the city strong box, at once. This was done, whereupon the mayor was led away; the detachment of troops departed; the Captain remained in the building.

On the following day, it turned out the whole affair was a hoax. The supposed Captain had been a shoemaker, William Voigt He had procured a Captain's uniform, and relying correctly enough on the absolute obedience in the German Army to the insignia of a higher rank, had used this occasion to appropriate, with the aid of the small detachment of soldiers, all the money he could lay hands on in the city hall, and then had vanished with it. He was finally caught after some months. There was a great deal of laughter about the affair later on, and it was called typically Prussian, although people were inclined to admit that it probably could happen but once.

The event described above has been mentioned here because an event which took place in the summer of 1919 in the Border Guard Command South in Breslau reminds one vividly of the Captain of Koepenick, save that in Breslau matters were far more serious.

One forenoon in March 1919 there appeared in "St. Petersburg Court" in the Teichstrasse in Breslau, where the Army High Command (South) was stationed, a gentleman in army uniform, having the insignia of a high technical officer with the rank of major, to see the head of the intercept service. He introduced himself as Dr. Winiker, private scholar and teacher at the Institute of Technology in Berlin, and declared that he, along with all the students of the institution, had placed himself at the disposal of the Border Defense against

The Winiker Case

Poland. He himself had been ordered to the Army High Command (South)in Breslau by the head of the communication system in the Defense Ministry because of his linguistic ability,and was now placing himself at its disposal.

Winiker gave the impression of a man well versed in the ways of the world and in a short time was known all over the place. He was not a friend of much work, in contrast to this, however, a friend of long drawn-out conversations and gossip. Since he possessed a complete command of the Polish language, he was employed in the translations of Polish documents. He telephoned to Berlin almost daily, especially to the Defense Ministry, and made a great showing of his far-reaching connections. Since his family -- as he declared -- was living in Berlin, he sometimes traveled from Breslau to Berlin over the week end, and as a rule, did not return until sometime on the following Monday. These trips always furnished him with more material for chats in his circle of comrades in Breslau. It was rather remarkable that on his journeys between Berlin and Breslau he nearly always met someone who was very well informed on the situation in Poland.

At that time no one in Breslau attached significance to this circumstance, but on the contrary, they were only interested in Winiker's stories.

A few weeks after Winiker's arrival various secret papers began to disappear from the main office of the intercept service, as well as from the office of the head of the communications system,to which the intercept service was subordinate; these, however, generally reappeared elsewhere. As a rule, it so happened that they disappeared toward the weekend, and reappeared on one of the first days of the following week.

It was a very long time before one began to pay attention to the legality of these happenings. After some time it was established that the Poles at different times had information at their disposal which they could have gotten only through treachery. In the meantime, Winiker lived in Breslau in a good hotel,complained that his salary was insufficient, boasted about his good connections in Berlin and his private wealth,and, wherever possible, incurred debts.

The months passed until the beginning of August 1919. Then on a Saturday forenoon, there vanished from the private office of the head of the communications system a strictly secret map,on which were minutely drawn the complete wire connections of the southern army. This disappearance was immediately discovered and created great excitement. Not until Monday, when Dr. Winiker failed to report for duty, did they become suspicious and make inquiries at his hotel, only to discover that Dr. Winiker had vanished, leaving behind him nothing but an unpaid hotel bill.

Now an investigation was begun which showed that Winiker was neither a doctor nor a professor at the Institute of Technology in Berlin, but an excellent spy who had brazened his way into the Defense Ministry in Berlin by his personality and reference to his outside connections in Breslau. They now found out that Winiker had undertaken, while in Breslau,to obtain for himself knowledge of the most secret matters, which he then delivered on his journeys between Breslau and Berlin to liaison men of the Polish Secret Service.

The incident was hushed up as much as possible in the office of the Army High Command (South) because the affair was too shameful. All inquiries as to what had become of Dr. Winiker yielded no results.The episode has been related here because it is,on the one hand,symbolic of German conditions, and also because the results of this incident in regard to the German Intercept Service were very far-reaching.Winiker had communicated to the Poles every result of the German Intercept Service,and had given them valuable pointers on what not to do in radio traffic. This gave the Poles their first lesson in regard to camouflage and one must admit that they learned to adapt themselves to these instructions in a comparatively short time.

Have YOU checked your Security procedures lately? Remember YOU can be fooled just as easily! YOU may be next! MAKE SURE!

Radio Position Finding

~~(Restricted)~~

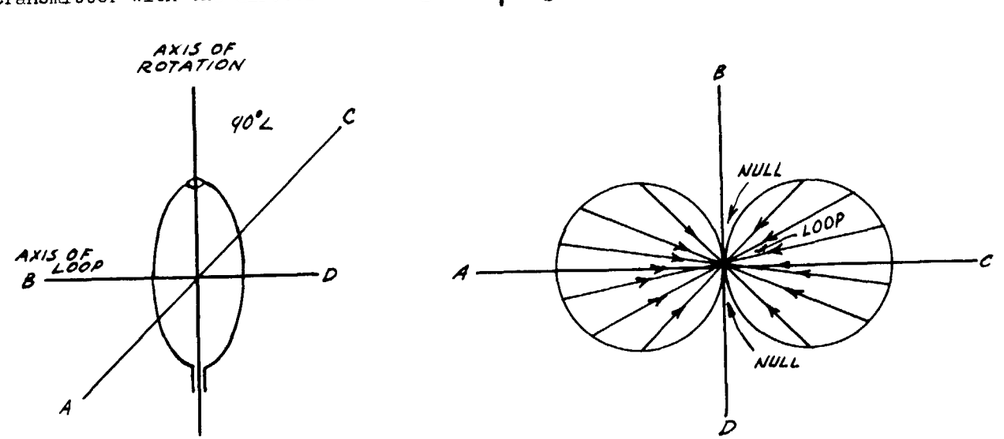
When the average person (a beginner in the mysteries of radio position finding), comes face to face with a textbook on the subject of radio position finding, he is, to put it mildly,"slightly confused". This confusion is the greater if the person is not a radio operator. The confusion is due to the fact that the majority, if not all, of the available texts, pamphlets, etc., on this subject are highly technical; hence, "too deep" for the average student. With this in mind, the subject as presented here will be made as non-technical as possible.

I. BASIC PRINCIPLES OF DIRECTION FINDING

Direction Finding: It is possible to design and construct antennas which respond differently to radio waves arriving from different directions; that is directional antennas. It is also established that radio waves generally travel in great circle paths about the earth's surface. These two characteristics are employed in radio direction finding to determine the azimuth (or arc of the horizon) of the great circle arc joining the transmitter with the direction finding receiver. By the use of azimuths from two or more receivers located at known positions and at some distance from each other, the location of a transmitter can be found.

Antennas: Military direction finding receivers may employ a combination of a loop and vertical antenna, crossed loops, Adcock antennas, and other special types, depending upon the frequency range to be covered, and the type of indicating system used in the equipment.

Signal voltages induced in a properly balanced loop antenna by a passing radio wave are cancelled out when the plane of the loop is perpendicular to the direction of approach of the wave. Figure 1 shows the directional response pattern of a properly balanced loop. The lengths of the vectors (light arrowed lines) indicate the relative response of the loop to waves arriving from the directions indicated. With the loop in the position shown in the figure, a wave of given strength will cause the greatest response when approaching from B or D. If, therefore, a wave approaches from a given direction, and the signal in the receiver to which the loop



In Plane of the Loop

Response Pattern of a Loop Antenna Properly Balanced (top view)

Figure 1 - Loop Antenna

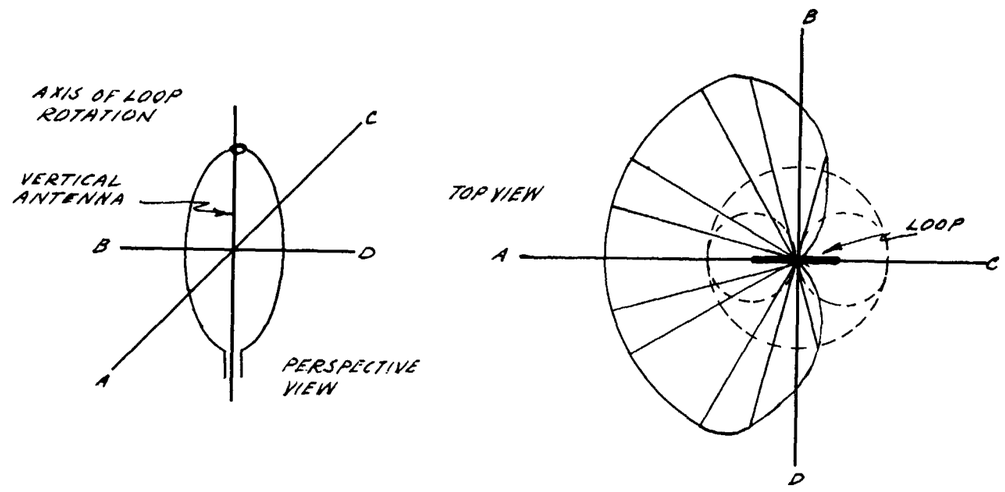


Figure 2 - Combination Loop & Vertical Antenna

is connected will become very weak or disappear. The loop is then said to be in the "null" position with respect to that wave. With a loop alone, the use of the null, due to its sharpness, is a much more precise method of direction determination than use of the points of minimum response, and is used almost exclusively in aural direction finders.

It can be seen from Figure 1 that there are two null positions in the loop directional response characteristic and that it is impossible to determine whether the wave is approaching from B or D, using the loop alone. Through the use of a vertical antenna in combination with a loop it is possible to determine, or "sense", whether the wave is approaching from B or D by combining in proper phase relation the response characteristics of a loop and a vertical antenna so that the resultant characteristic has but one null. As usually employed in signal radio intelligence equipment, the vertical antenna is mounted in the axis of rotation of the loop, as is shown in Figure 2. By means of proper design of the antennas and the receiving circuits to which they are connected, the response pattern of the combination becomes a cardioid. It will be noted that the null position is 90 degrees away from those of the loop alone. Thus, with this combination, the loop may be rotated and a single null obtained for a given wave which will indicate its direction. In practice, after the direction of the wave has been sensed the vertical antenna is disconnected from the circuit, and the loop is rotated to the position at which the azimuth is then read. This azimuth (determined from the use of the loop alone) is employed because a more precise null indication can be obtained by using the combination of loop and vertical antennas. In the practical application of the loop to military direction finding equipment, provision is made for careful orientation of the loop to true north for azimuth readings or a given base line. Provision for reception of all types of transmission, properly balancing the loop, obtaining nulls, sensing, and interconnecting with other direction finding stations for a comparison of signals being received are all included.

Adcock antennas, one type of which is illustrated in Figure 3, are designed so that only the vertical members (or dipoles) of the antennas are effective in receiving radio waves, as the horizontal members are rendered ineffective either by shielding or by neutralizing them electrically. This type of antenna, when perfectly balanced, has a figure-eight response pattern similar to that of the loop antenna, and may be operated for direction finding in a manner similar to the loop. The Adcock antenna has particular usefulness for direction finding of radio waves about 2,000 kilocycles in frequency in that it is responsive only to the radio waves of a single Polarization, in contrast to a loop antenna, which is responsive to radio waves polarized in all directions. This equipment markedly reduces the night-effect error. Antennas of this type may also have a third vertical member that is located between the outer di-poles. This setup provides a cardioid directional response characteristic in the azimuthal plane the same as for the loop and vertical antenna; however, unlike the loop antenna, the Adcock and vertical antenna combination is still responsive only to waves of a single polarization, as mentioned above.

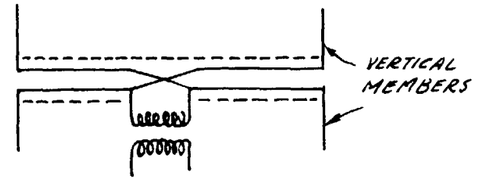


Figure 3 - One Type of Adcock Antenna

A different version of this type of antenna is the "U" Adcock, in which the lower sections of the vertical members of the antenna are absent.

Other types of antennas used for direction finding are crossed loops, spaced loops, directional arrays, and combinations thereof. For some applications, a continually rotating loop is also used.

All radio direction finders necessarily must include an indicating device. The aural - null is the most common method of indicating the measured bearing of a received station when using a loop antenna receiver with an azimuth scale. Other types of indicators include cathode - ray devices, crosses or single pointer instruments, and direction - reading devices.

In the next issue the factors affecting the accuracy of direction finding will be discussed.

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WITH ASA HAMS

~~(Restricted)~~

The 5th Detachment, 2d Signal Service Batallion, Hawaii, is represented in KH6 land by Lt. Richard Ferrell (KH6VV) heard nightly on ten and twenty phone. Dick is VFO, running 500 watts input to a BC 610 with a three element rotary on ten. Lt. John R. Bell (KH6VO) has a new rig running about 250 watts to a single ended 813, modulated by a pair of 807's in Cl AB.

The MARS network for the Hawaiian Islands is all set up with two nets known as Oahu Net No. 1 and Oahu Net No. 2. AB USA is currently rebroadcasting traffic from WAR every Wednesday night and works regular skeds with 5USA, 6USA, Al3AB, and AIlAH.

50th Signal Service Detachment Active In Tokyo Arsenal Amateur Radio Club

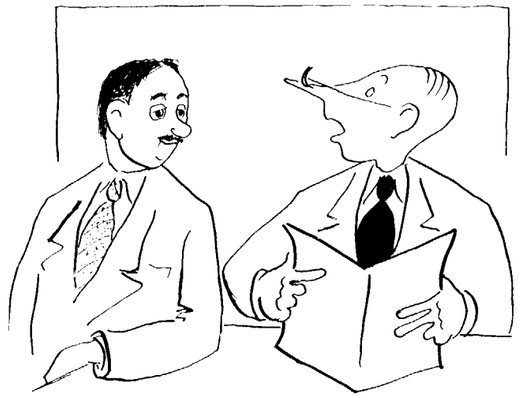
Fiftieth Signal Service Detachment personnel are showing great interest in the operation and maintenance of the Tokyo Arsenal Amateur Radio Club. The club was organized 1 September 49 with 28 charter members.

The Amateur Radio Club station operates on 40, 20, and 10 meter phone or CW using a 3-element beam and a sloping vee. The equipment is a BC-610 with two home-made rigs. Handling traffic to and from stateside, the station is a great morale builder, the men find.

~~(RESTRICTED)~~

Gather 'round the fireplace, ye votaries of the unholy art, and prepare to commune with Esoterica, the goddess of nonmatching distributions. The initiation of this regular department in ASA Review has been undertaken to satisfy the gnawing feeling in the pit of the medulla experienced by the student of cryptanalytics - namely, the craving for extra problems upon which to test his swordsmanship. He will have the opportunity of parrying the non-casual phemomena of accidental abberrations, and of thrusting his intellectual rapier into the heart of the valid manifestations to draw the blood of consecutive plain-textual elements.

The analytic boor is the savage who beats a cryptogram into submission with mace and bludgeon; whereas the lofty artist is an aesthete who handles his foil with such grace and dexterity that the cipher letters are transformed into their plain-text equivalents with the minimum butchery in the minimum of time. Volume of blood drawn or maiming of sections is not the goal of the true artist: his honor is satisfied with a cut on the cheek (i.e., reconstruction of the first hundred letters of plain text), and the surgeon's decision (recovery of all components, keywords and enciphering diagrams) terminating the duel. Therefore, in the solution of these problems, delicacy of entering wedge and Gallic finesse in subsequent methodology are the primary desiderata of analytic criteria.



"Sometimes I think Lambros is full of Demetrios".

Would-be devotees with the thirst (sic) of Dr. Faustus who have not yet been inoculated with the fanatic fervor peculiar to habitués in our voluntary enslavement, are counseled to apply for the Army Security Agency's series of subcourses in cryptography and cryptanalysis. These courses are progressive in nature, and have recently been undergoing a complete revision to bring them up-to-date through an expansion of subject matter and sophistication of methods and techniques. Satiation, and not saturation, will be the reward of the communicant in our mystic order.

Several problems will appear in each issue of the Review, allocated into cryptologic strata of varying degrees of difficulty, and thus will reach the neophyte as well as the more advanced student of cryptanalytics. Problems 1, 2, and 3 below are at the level of Military Cryptanalysis, Part I; Problems 4, 5, and 6 are in the realm of Military Cryptanalysis Part II.

Clues to the solution of the problems will be published in this feature the month following their initial appearance. En garde!

Problem 1

BCVWQ BTXYS VWHSW LIAHH BWHLS
GXSCP CYSDL VSCZI IHBVC YVLII
UCYVQ BTHMD HGQVQ CBIQB HBHPN
VHSSQ VCSNI VCDSH UCPPH BGVWL
VLQSD LVSCZ IAHIH BVVCZ CULVH
VWHPQ IIQBT HMDHG QVQCB ILBGK
LSBVW HPCXQ PDHBG QBTWC IVQZH
LGJLB UHCBC YSSQT WVXZL BRXXX

Problem 2

ZUCKO YMPCQ USVOO DNVFW TUYUM
FHBEY YFPBS ONTLK MPKTM PVQCO
SMVYY UKSQU ODTVM PQODP PDBOP
DBTJT POTSV QSTFM PVVMR QCAAO
NXDPP DTMPS HPETF NKTFB CNVMD
BKTJK AQOCA OQOPK PYKZM OTKXU
QKSMD ZYEDZ SEQAA YFTTM POTSD
SOKVQ AOVTF QQOAO OPVTV MRGST
PDFTT MPOXX

Problem 3

FRBSF OLNGS EPKZE QITFZ CYFWB
THXLS CTLQI ZGTKY CQIOF UHNIS
LTLYA TIXDP BTLSD NLYAQ ESHUA
SIXDZ GPIOH ULTHR LXATH PGSET
GTISC OCNCY KSFNB SDZCX CQLUH
NBSCO ESFUI TBRCS APLOG SISKT
ASEZC YCXMU LQCQM PDPLY DUFNG
TFZCY EXDTK XEOBT BOLXA ZFWIS
MZKQI TFPLQ KTFUI TBWIZ CQBXL
NMRLY GPHNE ZCYFR

Problem 4

OBELQ LTEPD ELDME OPJEE WIRPK
AOUUL NJTXK ZCPXC HMQGC MATUX
MVIAY BUREW DSFEH GOEEF YTTXV
SZWET ZMORD TQCOO OCDAS THREX
AOFKP DNVQL TEPGJ LDZKO PGEMX
WRSOU FQHMB HQFVV JVAHK GVIEZ
ITPBM KOAFF UDELD MGHRE ZBHXE
UKACE WWXRK AFXDS FMSGO GCMRU
ZEEFC XFKTO YMHMF OBBYY JPKOP
OSZDS YJPFV VJVAH KGDEZ MBXXX

Problem 5

XPQPL GQBML DREFO YLLWA JVOFE
REFOY RIVQQ PVZHR EFOMI VQGXD
MEPBQ GINWN DKOQO XTWLW DXQRZ
LDWQP IRNZC MFHQE PYCLR BKDZH
BOXIW IPLDR EFOYM IVQBL IQPVE
OQHCM IQBLS QOIVV GECTK LCSAQ
EFWKD YJIEK FBHLD REFOY OOEHL
BMJEB DQDEC TKVIX NWRBS SDYJI
EKFBM SCLYL VPGXX

Problem 6

EMRZU EMMSF EMMSJ AEAWG FUMDA
EMMSS AUMDA ANTRX PCSPG KYDPG
TUMDA GWLUQ FCSXS VRMSX RZEZZ
FCSUJ BEQFJ AWNIX IPHRK ATWUA
KMRUA XVHFJ QNFZT XNNZF VAYPV
FCKAX JRFDN KMRUA KMRUA KMRUA
XVHFJ QNFZT XNISF WXMFD SPQXS
KCTUS SRQMW DMNRV XWTRO XGRRX
PCSMF QTNZF VCSUJ BHHRS IJQXS
VRMSX RVQEV LOPBV KWSZJ AEAWG
FUMDD XJFZT XNNPG RWSPG KYDPG
TZHZI FTEXX

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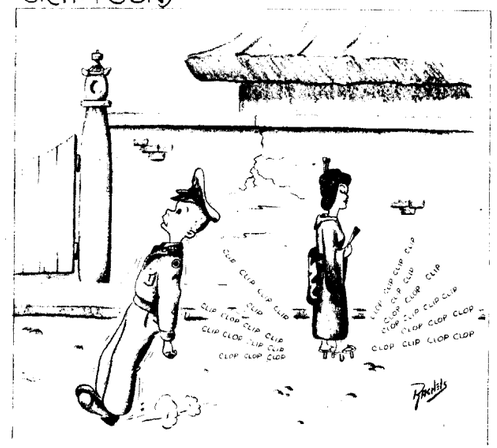
The Army Signal Corps has developed a miniature magnetron radio tube that will operate on less than 100 volts from dry batteries, as compared with 20,000 to 30,000 volts normally required by commercial - type magnetrons. The new tube is said to offer possibilities of important improvements in radio and radar operation. The basic theory was derived from a captured German magnetron, and greatly improved by Signal Corps technicians.

(AFPS)

CRYPTOON -



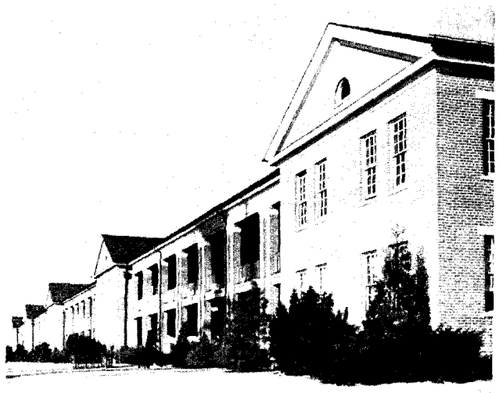
~~(Confidential)~~

The A S A School

The Army Security Agency School is located at Carlisle Barracks, Pennsylvania, on the former site of the famous Carlisle Indian School. The school is situated approximately one mile east of the center of the picturesque old town of Carlisle which dates back to pre-revolutionary days. Harrisburg, the state capital, is some nineteen miles to the east of Carlisle.

It is here that the School has been located since 1949 when the Chief, Army Security Agency, on 18 March ordered it moved to Carlisle Barracks. In compliance with this order the Headquarters of the Commandant, Army Security Agency School, was established at Carlisle on 21 April 1949. By 21 August the entire move was completed.

One large building now houses the entire academic section of the School, the Commandant and staff, the supply section including the carpentry shop, training aids, radio and equipment repair or maintenance shops, reproduction department and the remaining agencies of the School concerned with academic training.



Carlisle Barracks

Mission Of School

The mission of the Army Security Agency School is to train selected Army and Air Force officers in the execution of the command, staff, and technical functions of communications intelligence and security activities, and to train enlisted personnel as specialists and technicians in Army and Air Force security, communications security and intelligence. The School includes three main divisions:

1. The Officers' Training Division
2. The Enlisted Training Division
   a. "A" Branch
   b. "B" Branch
   c. "C" Branch
3. The Extension Training Division

The School functions under the command of the Commandant, who is directly responsible to the Chief of the Army Security Agency.

The Staff

The instructional staff is composed of officers, enlisted men, and a few civilians who are specialists in their field. Most of the faculty members have been with the Agency for years. Many of the instructors, including the civilians, have had overseas duty, serving for the most part in their specialties.

Recreational facilities on the Post are shared jointly by the School personnel and the various other service units stationed at Carlisle Barracks. Outstanding baseball and basketball teams, on which ASA School provides most of the personnel, help round out the excellent recreational program which is adequately supplemented by the efforts of local civilian agencies.

For those inclined to continue their education, Dickinson College, located in Carlisle, offers a number of off duty courses on the Post. Some 35 persons from the ASA School permanent party are enrolled in this program.

The bringing together of the various divisions and necessary functions concerned with training of Agency personnel, greatly facilitated the instructional program of the School, since it enabled joint utilization of training facilities, equipment, and personnel.

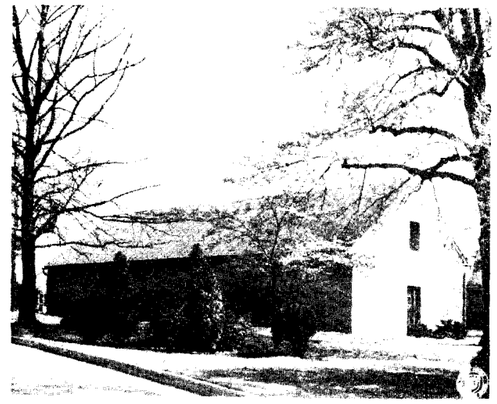
The Hessian Guardhouse

If you were to visit Carlisle Barracks, home of the Army Security Agency School, one of the more familiar landmarks to capture your interest would be the Hessian Guardhouse, which dates back to 1777 and the Continental Army of General Washington

History tells that Hessian prisoners, captured by General Washington at Trenton the day after Christmas, 1776, built the structure. An order of Congress shows that 40 Hessian prisoners of war were detailed to Carlisle and it is assumed that work on the "guard house" was done by these prisoners.

Through its 172 years of service, the "guard house" has served as a powder magazine, warehouse, post office and photographic laboratory. During the era of the Carlisle Indian School, 1879 to 1918, the building was used as a guard house for the Indian students. When Carlisle Barracks became the Medical Field Service School in 1920, the structure was used as a quartermaster and medical supply storehouse, and as a film laboratory.

Many changes have been made in recent years to accommodate the building to uses other than the storing of powder or prisoners -- openings have been made in the walls and glass windows set in the solid plank doors; the chimney and ventilators



that adorned the roof in Indian School days, and a covered porch on the west side are gone. Today it serves as a museum for early American relics.

ASA School Extension

The Army Security Agency School for the month of February 1950 had a total enrollment of 1483 non-resident students in its Extension Training Division.

Throughout the whole year many officers, enlisted men and specially authorized civilians continue to avail themselves of the opportunity of keeping up with their fields through the media of extension subjects. It is much more interesting than cross-word puzzles and less hazardous than bridge playing or canasta.

In order to enroll in the ASA Extension School subcourses:

(1) If you are in the Regular Army, National Guard or organized Reserve (on active duty or in a regularly organized unit) and desire to enroll in any course offered by the Agency, application may be made through channels to the Commandant, Army Security Agency School, Carlisle Barracks, Pennsylvania, ATTN: Director, Extension Training Division.

(2) Members of the Organized Reserve Corps not assigned to any organized unit should apply to the Commandant, Army Security Agency School, through the Senior Army Instructor of the State in which their records are located.

(3) Civilian employees of the Armed Forces, should make application to the Commandant, Army Security Agency School through channels beginning with their immediate section or branch chief.

(4) Members of all components of the Armed Forces are eligible for enrollment in Extension Training courses upon approval of appropriate authorities.

Nine Graduate From Carlisle

Six Army officers and three Air Force officers were graduated from the Army Security Agency School at Carlisle Barracks, Pennsylvania, on 1 February and were given assignments. They constituted Class IV, Part II, Advanced Officers General Course. One was assigned to the Armed Forces Security Agency, three went to the Army Security Agency, two to the Air Force Security Service, and three were placed on duty at the ASA School. They started their 41-week course on 4 April 1949 at Arlington Hall.

Approximately midway in the course, along with the wholesale movement of the Army Security Agency School, Class IV was transferred to Carlisle Barracks, to complete the course of instruction.

The curriculum of the Advanced Course, although emphasizing those subjects which are directly related to the operation of Army Security Agency, included extensive studies in Administration, Tactics, and Logistics. All instruction was conducted to reflect actual responsibilities, duties, and operations which officers would normally encounter in the field.

After graduation on 1 February, the following assignments were made:

Major Blacksten - Armed Forces Security Agency
Captain Dann - Army Security Agency
Captain Diamond - Army Security Agency
Captain Gale - Army Security Agency
Captain Ivey - Air Force Security Service
Captain Odonovich - ASA School, Carlisle
Lieutenant Burke - ASA School, Carlisle
Lieutenant Fields - Air Force Security Service
Lieutenant Head - ASA School, Carlisle

The Commandant of the School, Col. B. F. Hurless, gave the Graduation address and presented diplomas.

Summer Camp

Army Security Agency - Reserve Officers Training Corps

A summer camp for ROTC cadets who are training for service with the Army Security Agency, Reserve, is part of the overall program for training personnel for the duties they will normally assume in the event of a national emergency.

Colonel B. F. Hurless, Commandant of the Army Security Agency School, has been designated as Camp Commander of the six-week training program to be conducted at Carlisle Barracks, Pa., from 17 June to 29 July 1950.

The 53d Signal Service Company from Vint Hill Farms, Virginia, will furnish a detachment of approximately two officers and 25 enlisted men, to assist with the training for a period of about 3 weeks, beginning in early July.

Some 57 cadets will attend the camp. Texas Agricultural and Mechanical College of College Station, will head the list with 22 students, followed by Massachusetts Institute of Technology with 18 and the University of Illinois with 7. There will be a contingent of 10 students from other institutions.

The faculty for the training period consists of a cadre of approximately 3 officers and 3 enlisted men from the above named institutions, working jointly with certain members of the staff and faculty from the Army Security Agency School, the contingent from Vint Hill Farms, and certain selected reserve officers.

A total of 240 hours of instruction will be given during the 6 weeks camp. Emphasis will be placed primarily upon:

Field operations of Signal Service Company (RI)	61 hours
International Morse Code	40 hours
Weapons and Marksmanship (Carbine M 2)	30 hours
Marches and Bivouacs	16 hours
Physical Training	12 hours
Drills, Parades and Ceremonies	12 hours

A number of other subjects are to be included in the course of instruction, to round out a well balanced program.

This 240 hour program is designed to give the cadets the practical experience of both the production of Communications Intelligence and the Maintenance of Communications Security in the field. The cadets will receive instruction and practical experience in the use of particular items of intercept equipment, such as receivers, recorders, frequency meters, several types of D/F equipment, etc. They will also receive 40 hours of instruction in Morse Code. The cadets will then be formed into a provisional Radio Intercept Company, with a small cadre of RA personnel and the necessary mobile equipment, and will move into the field for a period of about six days. While in the field, the cadets will perform one simulated intercept mission. This mission involves the use of a carefully planned "canned" problem. The aggressor force has successfully air landed on Harrisburg. The cadet Provisional Company is assigned to an American Army Corps Headquarters, which is part of the force opposing the Aggressor Force. This Company has the mission of producing Communications Intelligence for the Corps G-2. This will include the functions of Intercept, D/F, T/A, and Cryptanalysis. The cadets will rotate through each function in order to gain the practical experience which is so necessary to the successful production of Communication Intelligence in time of war.

The various recreational, housing and messing facilities of the Post, such as Officers Club, Mess, Athletic Fields, Gymnasium, Swimming Pool, Post Theater, etc., will be available to the visiting officers and the visiting student officers (cadets) as well as training sites, ranges and other necessary facilities.

Two Rock Ranch Station

NO HUNTING

Perhaps some members of ASA have been to Fort Sill, Oklahoma, and recall seeing in the Headquarters there, copies of old Orders, issued in the 1800's, wherein personnel were prohibited from shooting game or Indians from the windows of the barracks.

Well, here at Two Rock we don't go that far - but, forgetting the Indians, Colonel Laux could issue an order prohibiting the shooting of game from windows.

This writer has seen from the windows of his quarters and office all sorts of game such as: deer, rabbits, quail, pheasant and ducks. Too bad that Post Regulations prohibit the keeping of firearms in our offices or we could have great sport during our coffee breaks. Then too, we could invite you all to a duck dinner, and we would not have to say, as Herb Penner used to, "you bring the duck".

SECURITY

As a new arrival at this station, the writer was privileged to witness a fine example of discipline and training of children. Recently a total stranger stopped two children residing on the post, on their way home from school, and started to ask a lot of questions as to what goes on here, etc. The children gave him no information, just walked off, and then ran all the way to Post Hq to report the incident to their dad.

Perhaps the stranger was perfectly innocent and just curious, but even so, the kids had been trained as all members of ASA are - to quote: "What you see here, What you do here, What you hear while here, Leave it here when you leave here".

IMPROVEMENTS

It might be of interest to some of the men who have passed through our pipeline here, especially in the winter, to know that their old tar-paper covered quarters are being improved. They are having their

poor old "black-sides" (there is an "L" in that word) covered by outside shiplap siding, as well as other improvements, in the way of painting,etc. So next time you pass through here we will be able to make your stay a bit more comfortable.

NEW NCO QUARTERS

The S & Q Construction Co. of San Francisco, on 24 March 50, turned over to the Post Engineers and the Commanding Officer of TRRS, as completed, our new permanent type NCO family quarters.

The new quarters consist of four units. were to be occupied by four lucky NCO's and their families around 1 April 1950.

This occasion marked completion of another of the Post War Building Projects here at TRRS.

BIG PARTY

Maison Marin Restaurant in Novato was the scene of a Gala Anniversary and St. Patrick's Day party given by the TRRS NCO Club for all members and their guests, on the 17th of March. Music was furnished by Ray Hacket and his orchestra direct from the Cocoanut Grove of the Ambassador Hotel in Los Angeles. Others on the program included such guest stars as Jack Marshall of the Biltmore Bowl in LA, Patricia Lynn, Cocoanut Grove,John Molinari of the Wedgewood Room-Waldorf Astoria in New York, and Paul Desmond-Venetian Room,Fairmont Hotel, in San Francisco.

This affair was the one which you could write home about,and all those responsible for arranging it are due for, and are receiving congratulations.

BOWLING

To some of the "Old Men" on the post,the news that our new Bowling Alley will open soon is very welcome.The opening will give these "Old Men" a chance to show some of the youngsters here that age is no handicap to participation in some forms of sport. It is contemplated that the alleys will be open in time to roll off at least one tournament.

CONGRATULATIONS
(Or Balance of Power)

The following members of TRRS have been receiving congratulations during the past month or so on the arrival of their new offspring:

1st Lt.Griffith	- A Daughter
SFC Sickman	- A Daughter
SFC Hedlund	- A Son
Sgt Frappier	- A Son
Cpl Baxtresser	- A Son
2d Lt Zikowitz	- A Son
Sgt Conrad	- A Son
SFC Canady	- A Son
Cpl Smith	- A Son
Mr Orsborn	- A Son

It looks like TRRS is trying to upset the balance of power between the male and female in California, at a rate of 4 to 1. (Not bad odds at that).

CITY LEAGUE BOWLING

The TRRS "A" and "B" teams that have been bowling in the Petaluma City Bowling League for the past few months ended the season with a very good record. The "A" team took Second Place, and the "B" team also took Second Place in their division. Several of the team members also won individual honors, for such items as high games, high averages, high doubles, etc. All in all, it would appear that once our own alleys are ready for use we should turn out even better teams to represent TRRS.

BASEBALL

The coming of spring has brought a gleam to the eyes of M Sgt Ross, Post Sgt Major. The gleam is due to the excellent response he has received to his request for ball players. To date, over 60 men have signed up for tryouts, and the greater majority of them look mighty good. Sgt Ross, who is our player (pitcher) coach, admits he may have difficulty in selecting his first string, but feels sure he will be able to field a winning team from the start.

The Review NEEDS cartoons. Make them with ink, please, if possible. Send them in.

7th Detachment

Since this is Spring, it seems only natural that residents of Fairbanks, of Alaska and we of the Seventh Detachment are looking forward to tne winter carnival. Everyone comes out to play during the carnival, and, since there is plenty to see and do, a gala time is had by all. A brief history will help you to understand why all of us look forward to this event.

The Fairbanks winter carnival was originated by a local housewife, Mrs. Kay Huffman. One February morning in 1934, as she was hurrying about downtown making various purchases, she stopped to talk with Mr. Gordon, a Fairbanks business man, and remarked that after the monotony of five months of winter it would be nice to stage a carnival as a means of relaxation. All that was needed for Mr. Gordon to make the idea a reality was a little encouragement. A ski jump and a toboggan slide were built a King and Queen contest was initiated,and a local louge elected a King and Queen regent to reign over the carnival until the first King and Queen could be crowned. Since that time the carnival has become the most popular event of the year.

The annual Queen contest attracts more attention than any other phase of the carnival activities. Each year, except for the war years when no carnival was held, a Queen is crowned and has a throne made entirely of ice blocks. This year three of the eight Queen candidates are being sponsored by various organizations from Ladd Air Force Base. Incidentally, a Ladd sponsored girl was elected last year's Queen.

Besides the Queen contest, there are other events which comprise the carnival. These are such things as dog racing, skiing, hockey, parades, Eskimo dances, and others too numerous to mention.

Fairbanks is geographically the center of the territory, and, since the communities of interior Alaska are very dog-minded, it is only natural that the North American championship dog races are held here. The races have become a tradition in Alaska, and as the capabilities of the dogs have developed and the skill of the drivers increased, the interest has grown to make the races the greatest event of the year.

We who are stationed here in Fairbanks are urged to participate in any and all events as much as the civilians, and we enjoy the carnival as a welcome form of diversion after a long, cold Alaskan winter indoors.

SNOWMEN

Bon Voyage - and Welcome

We, the members of the 7th Detachment, are very sorry to lose our Commanding Officer, Capt. Irving P. Payne, and his able assistant Lt. John Leech. We wish them the best of luck in their new assignments and hope that their new commands will appreciate them as much as we did.

We wish to welcome our new Commanding Officer, Capt. Melvin L. Maxson. We wish him the best of luck and offer our fullest cooperation toward making this a pleasant assignment.

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Editors Note:

In each issue it is planned to feature either one of the Agency's installations or one of its activities. If possible, depending on the availability of copy, it is hoped that the stations can be featured in order. The Editors would like to have several pictures of general interest to the rest of the Agency, together with a brief descriptive and historical write-up.

Caribbean Detachment

(Our Newest Unit)

Since the Security Monitoring Detachment (Caribbean) is a fairly new ASA Unit, it is best that we more or less introduce ourselves before digging into the finer points of our existence.

Kneeling left to right: Sgt. Carl L. Justice, 1st Lt. Herbert A. Kriske, Capt. Bernard E. Williams, SFC. Kenneth G. McKinney. 2d Row, left to right: Cpl. Kenneth R. Bloise, Pfc. Cran L. Hull, Pfc. William F. Rigo, Pfc. Edward T. Rittel, Pfc. Nunzio J. Capriotti. 3d Row, left to right: Cpl. Lewie H. Ogburn, Cpl. Thomas D. Fitzgerald, Pfc. William F. Sietman, Jr., Pfc. Charles J. Grindstaff, Pfc. Isham Langdon, Jr., Pfc. Gene B. Sullivan, Cpl. Frederick A. Rasmussen.

The Detachment was activated on 26 July 1949 by T/D 32-1022, and by General Orders Number 8, Headquarters, Army Security Agency. The assigned strength is 2 Officers and 14 Enlisted Men.

The Detachment departed from New Orleans Port of Embarkation, New Orleans, Louisiana, on 9 December 1949, and arrived at Cristobal, Canal Zone, on 13 December. The transport was greeted at the dock by a troop of native girls who danced up and down the dock to the accompaniment of a native "Jibaro" quartet. After a 52-mile train trip across the Isthmus, we were finally bedded down at Quarry Heights, which is located on the side of Ancon Hill overlooking the Panama Canal.

The Detachment was assigned an operating site atop Ancon Hill at an altitude of 550 feet. It has already been nicknamed "Buzzard's Roost" because it is believed that every buzzard in the Republic of Panama makes his home there. There are many other occupants of the "Hill" besides buzzards, including such playmates as Boa-Constrictors, Bushmasters, Coral Snakes, Black Panthers, Monkeys, Honey-bears, "Iguanas" (a species of large lizzard which looks somewhat like an alligator), and Deer. One thing is for sure - we won't be lonesome. It's not bad-if you pack enough artillery around.

Inasmuch as the Detachment has only just begun operations in this area, we have had very little technical difficulty with equipment. However, we have learned one thing - brass corrodes and tarnishes overnight, and must be continually cleaned and polished. Extreme care must be taken with all metals, as everything rusts if not checked and oiled frequently. Tools and similar equipment must be kept in "dry closets" to prevent rust and corrosion. All winter uniforms must also be kept in dry closets to prevent deterioration. Shoes must be polished every day for the same reason. The climate is almost ideal for the individual, but is extremely hard on equipment.

It is hoped that in future editions of the Review, we will be able to render a more informative and detailed account of our activities in the Caribbean. At the present time, we are just completing our "spade" work, and when we get into full operation, which will be in the very near future, there will be many interesting topics to discuss. Until next time then, Adios Amigos.

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Know Your Cryptography

Ordinarily, in normal English it is unusual to find two or three consonants in succession, each of high frequency. If in a cryptogram a succession of three or four letters of high-frequency appear in succession, it is practically certain that at least one of these represents a vowel. However, sequences of seven consonants are not impossible. Can you name one?

HQ ASA Europe

52d SIGNAL SERVICE DETACHMENT IN GERMANY WINS MANEUVER COMMENDATION FROM CHIEF

Maneuvers in the field and sports events at home have provided variety for the members of the 52d Signal Service Detachment at Herzo Base in Germany. A game attempt was made to give all units at the base a taste of athletic competition. Although the basketball team had not won a single game, all takers were much aware of their presence. On the bowling side of the ledger a better balance was shown with 12 games played and half of them won.

During January, the Unit carried on normal operational duties, and in addition participated in two maneuvers with a successful outcome in both.

The Unit has participated in six maneuvers in the past year, three of which were of EUCOM level, being labeled as follows:

SNOWDROP, January; SHOWERS, April; and HARVEST, September. Also there were three EUCOM Constabulary maneuvers in which the Organization was present, they were: CPX, November; PARKA, December; and SHOEPAC, January 1950.

In all the Unit has performed in a very efficient manner, and Unit commendations from the Chief were received for all EUCOM maneuver participation.

PASSES OR PX GOODS PRIZES FOR 6TH DET. RECREATION HALL TOURNAMENT SERIES

A three-day pass was considered equal to $5 in Post Exchange merchandise by the men of the 6th Detachment, Second Signal Service Battalion at Herzo Base, Germany, at Christmas time. Personnel competed in various recreation hall tournaments with this choice of prizes. Holiday season contests included Pinochle, Pool, Chess, and Ping Pong. Officers participated in the events for competition, but were not eligible for prizes. The winner of the Pool tournament was Madden; of Ping Pong, Wolfe; and of Chess, Decaire.

ENTIRE 114TH SIGNAL SERVICE COMPANY PLANS TO PARTICIPATE IN MARCH EXERCISES

The 114th Signal Service Company of Herzo Base, Germany was represented in the 1949 maneuvers which were known as "OPERATION HARVEST", and in early 1950 completed plans for the entire unit's participation in the EUCOM exercises which are known as CpX-50 scheduled for sometime in March. A citation was received from the Commanding General, US Constabulary, for the successful completion of the unit's assigned "HARVEST" mission.

Since returning from HARVEST a training program was inaugurated in order to familiarize each man in the unit with the field type equipment.

As for sports the 114th is well represented on the Herzo Base Basketball Team (5 members), the Herzo Base Bowling League (5 members -2d place), and the Company level Basketball team, also ending up in 2d place. Nurnberg Post Football Team claims a few men from the unit as members.

Many men are taking advantage of the resident college course being offered by the University of Maryland and also of the many and varied courses provided by the USAFI at the Herzo Base Education Center.

HUNTING LODGE TYPE MESS HALL AT HERZO FURNISHED FOR MEN OF THE 6th DETACHMENT

A new, decorative, hunting lodge type dining hall is being provided at the Herzo Base, Germany, for the mess of the 6th Detachment of the Second Signal Service Battalion. Plans by 1st Lieutenant John B. Simmons, Mess Officer, for creating a home atmosphere were already being carried out while the empty shell of the building was being transformed in line with the hunting lodge motif under the supervision of SFC. Huggler and Sgt. Dinardo.

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DID YOU KNOW THAT:

In World War I cryptological activities were divided among the Signal Corps, The Adjutant General's Office, and the Military Intelligence Division.

The first of the field codes used by the U.S. Army in World War I was called the Potomac Code.

HQ ASA Hawaii

ASA, HAWAII, CHIEF DEPARTS FOR ADVANCED OFFICERS' COURSE AT MONMOUTH SIGNAL SCHOOL

In January, Major Thomas J. Sawyer relieved Captain Wilfred C.Washcoe as Chief, Army Security Agency, Hawaii.

Major Sawyer enlisted in the United States National Guard in June 1936, was commissioned a 2d Lieutenant (NG) November 1936. He served in the Asiatic - Pacific Theater, was a Prisoner of War of Japan from April 1942 to September 1945. A July 1949 graduate of the Army Security Agency, Officer General Course, Part II, Sawyer served the interim period at Headquarters, Army Security Agency, Washington, where he performed duties in MOS 9600.

Captain Washcoe has been Chief, Army Security Agency, Hawaii for the past three years. He is scheduled to attend the Signal Corps Advanced Officers Course at Fort Monmouth, New Jersey.

Captain Washcoe

Major Sawyer

Major and Mrs. Sawyer and daughter, Dianne, arrived on 21 December. On 6 January a dinner party was given by the personnel of Headquarters, ASA, Hawaii, for Major and Mrs. Sawyer and Captain Washcoe. It was referred to as an "Aloha" occasion for the guests of honor. This gathering was the second of its kind. A few days before twenty-two guests representing the 5th Detachment, Second Signal Service Battalion, and Headquarters, ASA, Hawaii, were present at the home of Captain and Mrs. Gilbert D. Zensen in Schofield Barracks.

"Mudpacs" of 5th Detachment, Hawaii
Take U.S. Army Pacific Cage Title

The ASA "Mudpacs" (basketball team of 5th Detachment, 2d Signal Service Battalion, Hawaii), mentored by Lt. Ed Woody won the National League Basketball Championship of the U. S. Army, Pacific by defeating the 2d Battalion cagers of the 5th Infantry Regiment 44 to 43 in a thrill packed play-off game before 3,000 fans at the Schofield Bowl on 12 January. The "Mudpacs" were trailing in the first three quarters of the game but rallied in the final quarter and won with the deciding basket being made by the "Mudpacs" center, Dick Wille,in the last few seconds of play.

This season an outstanding forward appeared on the ASA team in Cpl. Roger E. Mac Bain, who averaged 25 points per game in 31 contests.

Last year the "Mudpacs", coached by Lt. Ross Taylor, won the Schofield basketball Championship.

At ASA Hawaii, sixteen of the twenty-four men assigned went out for baseball which has an early season in Hawaii. Quite a team is being developed from this squad in practice after working hours.

NEWCOMERS

We are pleased to announce that Capt. Charles R. Rambo,Capt. James Openshaw, and 2d Lt. Glenn U. Kent,are scheduled for assignment to this Agency.We here in Hawaii will be pleased to welcome these officers and their families among us. Coporal John J. Glode arrived in Hawaii on 29 February.

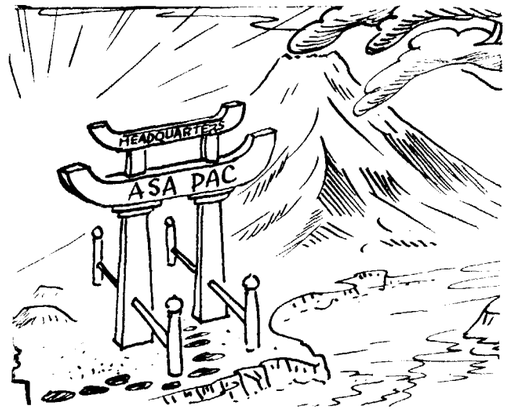
PROMOTIONS!
TO CPL.: PFC.'s Martin W. Agger,
Arthur Williams, Jr.
TO PFC.: PVT. Rief.

.. :: ..

FLASH! .....

We are pleased to announce the birth of an eight pound one ounce baby boy born to Major and Mrs. Tom J. Sawyer on the 9th of March. Both doing mighty fine too! Major Sawyer is the new Chief of Army Security Agency, Hawaii.

HQ ASA Pacific



"MUSHY!! MUSHY!!
(Translated)
"HELLO!! HELLO!!

Mushy! Mushy! is a daily greeting around Headquarters, Army Security Agency, Pacific. A simple way of saying "Hello!" in the Japanese language.

Many miles and lots of water separates us here in the Orient, from Arlington Hall Station and other Army Security Agency Units, so we are interested in news from our people around the globe.

We do want to take this oportunity to extend our "Well Wishes" for the future success of the forthcoming publication of the ASA Review.

PERSONAL NOTES

Sgt and Mrs. H.R. Rumery became the parents of a son, on the 10th of January 1950 at the Tokyo General Hospital.

A Farewell Party was given at the Washington Heights Club, Saturday, 21 January 1950, in honor of the following officers returning to stateside in February, Captain J. G. O'Neal, Lt. W. H. Mason, Lt. G. V. Connellan and Lt. H. Porter.

Captain and Mrs. R. G. Ligon were proud parents of a son, James Madison Ligon, on 4 March 1950.

NEWS AND VIEWS

Special Services Hobby Shop is busily turning out some beautiful model airplanes and stagecoaches.

The Enlisted Mens' Club now has a new Snack Bar in full swing.

Headquarters, Army Security Agency, Pacific, was fortunate enough to be entertained by two very good Special Service Road shows with top stars filling the bill One entitled "RHYTHM REVUE", was presented to us on 13 February 1950, and the other, "LAUGHS AND LYRICS" on 4 March 1950. Both met with huge success and we hope to have more in the near future.Some of the stars, including JAD PAUL, famous guitar player, were impressed enough so that they came back on their own free time and entertained one night at the Enlisted Mens Club.

SPORTS

Headquarters, ASAPAC, Volleyball Team #1 went undefeated for the season to cop the league title, but went down in two successive losses in the finals of the Headquarters and Service Group Championship playoffs. We still consider it an excellent accomplishment.

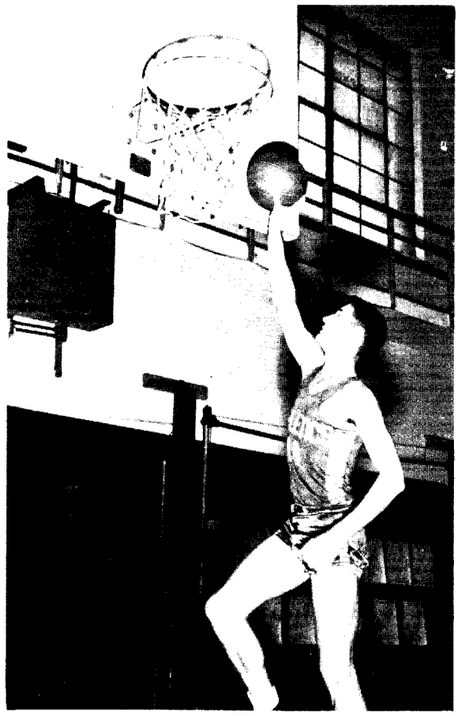
All the athletic competitors in the Tokyo, Japan, area have learned to respect the Headquarters, ASAPAC "ARSENAL" Basketball team. After walking off with their

Left to right,seated: F. Brown, J. H.Vail, E. F. Patton, W. F. Hoese, E.C. Osburn, R. L. Peet, and I. M. Guiles. Standing: W. G. Nechanicky, Coach, H.B.Hansen, A.D.Miller, M. E. Olson, J. H. Lafferty, J. R. LaDove, T. J. Newman, and W. L. Kline.

company league softball championship, the "ARSENAL" found itself promoted into the Tokyo Battalion level basketball league, which is the fastest league in the Tokyo area. This statement is borne out by the fact that all members of the GHQ "Athletics", All Far East Armed Forces Champions, and FEC Army representatives at the All Army Championship playoffs at Ft. Belvoir, Virginia, were members of the top four teams of this league.

The following men, not shown in the picture, also played with the Arsenal Basketball Team: F. G. Lormand; R. L. Lang; J.P. Mauldin; R. J. Scott; C. E. Adkins and R. D. Clouse. Cpl. Patton and Pfc. Lafferty were elected captains, Sgt. R. J. Banaszek manager, with Captain W. G. Nechanicky as coach.

The Arsenal finished fourth in the league with the seasons record standing of eleven (11) victories as against six (6) defeats.



J. H. Lafferty

Cpls. Kline and Olson, Pfcs. Brown, Lafferty and Miller attended try-outs for the GHQ "Athletics" 1950 Far East Champs, but only Lafferty (inset picture) won a berth for the trip to the United States, striving to help the Far East "Athletics"attain the All Army Basketball Championship.

Games of special interest were Arsenals 37-24 victory over our Johnson Field counterparts, the 1st Radio Squadron Mobile, and the Arsenals 56-54 victory over the 126th Signal Service Company of Kyoto, Japan. The "SHARP" 126th Signal Service Company Team had romped unmercifully over all opposition in the Kyoto area and was selected as the First Corps representative in the 8th Army playoffs held at Sendai. In administering them one of their few defeats, the Arsenal didn't exactly play the part of a perfect host to the First Corps representatives during their Tokyo stopover, enroute to Sendai.

The 126th

Personnel of the 126th Signal Service Company in Kyoto, Japan, have won a special place for themselves in the family of Army Security Agency organizations through the honors they have gained in ball games, tournament play, and in USAFI scholastics. Second Lieutenant Thomas B. Rachels, Jr., ASA Review representative, gives the story in his own words:

In sports we won the championship for the Kyoto Post Command(including I Corps Headquarters) Softball League, and captured first place in the I Corps Horseshoe Tournament.

In our scholastic improvement we have, unofficially, the highest educational level in the Far East Command. This was made possible by the initiative that enabled a half-hundred of our men to gain high school diplomas during 1949, and an additional nine to complete the First Year College tests. USAFI enrollments are high, with one man successfully completing three end-of-course tests in one day.

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HQ ASA

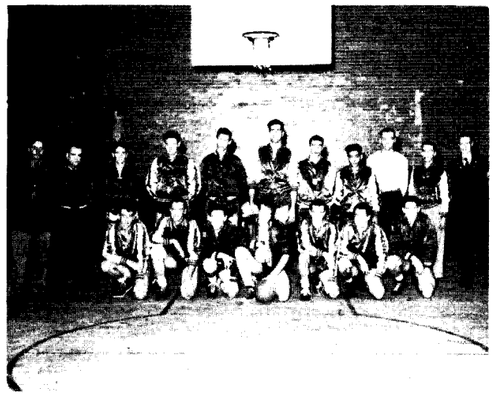
Coached by Captain Vernon E. Robbins and 1st Lieutenant Samuel Brown, who took over in mid-season, the Headquarters basketball team has more than equalled the showing of all of the squads of the past few years.

As a member of the Military District of Washington Basketball League,the team ended up in second place in a playoff with Fort Myer. In the Travers Trophy League the team nosed out NCS in a three - game playoff by taking the first two games for 1st place.

The Bowling team entered the playoffs at Fort Belvoir and placed 4th in the M.D.W. League. The Volley Ball 3d place was taken by the team at the tournament playoffs at the Army Medical Center on the 5th, 6th, and 7th of April.

Under the able guidance of Captain Riley the baseball squad has shaped up to be a real threat in the M.D.W. League. Approximately 80 men came out for tryouts and of these the 22 best have been selected to 'play ball'. In their practice games the team has shown real spirit and Capt. G.I. Kealey, the Special Services Officer has expressed great hopes for the season.

Mr. Linehan is the civilian Manager of the Inner Post Softball League which has 15 teams, 4 Navy, 2 Army (1 Air Corps) and 9 Civilian. Practice games are well under way.



Kneeling, Lt - Rt, Russell Meyers, Marliss Hawkinson, James Gannon, Donald Demonge, Ronald Peterson, Richard Carpenter, Sherwood Lory; Standing, George Kealey, SSO, Vernon Robbins, Coach, James Hurst, George Cave, Richard Satterlee, James Wright, Don McGreagor, David Sam, John Dempster, Robert Vrablic, William Wolfendale.

Lt. Col. Charles H. Hiser, Deputy Chief ASA,and Mrs. Sue M. Hiser left the Post in January for Fort Monmouth, N. J., where he will be on duty with the Signal Corps. He served as Assistant Chief in the old"C" or Cryptographic Branch when he first came to the Agency,later in Europe, and on his return to this country was assigned to Plans and Operations in Staff,and ultimately became Deputy Chief. Mrs. Hiser (nee Murphy) has been with the Agency since May 1943, most of the time in the Fiscal Office (AS-17). Before they left,the Hisers were honored by a reception at the Officers Club.

MARRIED

Fort Myer Chapel was the scene of the afternoon wedding of Miss Mildred Virginia Racey, daughter of Mr. and Mrs. Raymond M. Racey and 1st Lt. John Francis Georger,son of Mr. and Mrs. Walter Joseph Georger of Fayetteville, N.Y. on Saturday, April 15.

Walter Joseph Georger,Jr., was best man for his brother and ushers were: Major Clair Keena, Major Kenneth Barnaby,1st Lt. George Smith,and 1st Lt. Shellace Calhoun.

Following a reception at the Officers Club,the newly - weds departed on a Southern wedding trip and upon their return, will make their home in North Arlington.

The bride has for sometime been employed by the Agency, where she met her husband, who is the aide-de-camp to General Carter W. Clarke.

We need about two and a half months to get out each issue of the ASA REVIEW. Even though some of the news is a little outdated by the time the REVIEW reaches you,remember that the other readers are interested in what your outfit has to say and what it does. So, keep the news coming.

REF ID:A66161

Diurnal and Seasonal Changes

In The Ionosphere

~~(Restricted)~~

The ionosphere is the term which is applied to the heavily ionized region of the upper atmosphere extending in height from approximately 80 to 300 kilometers above the earth. The ionosphere is the one reason why long distance H/F communication is possible, for this ionized region reflects or bends the radio waves back to earth.

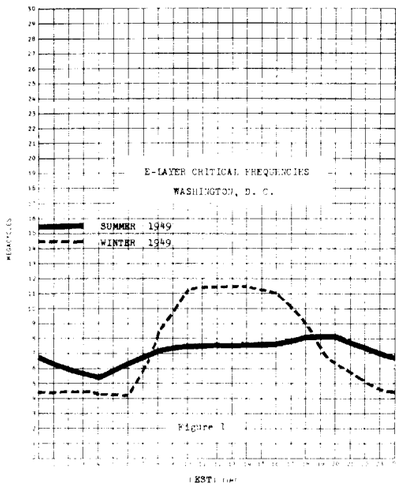
This ionized region in the upper atmosphere can be examined or explored by various radio techniques, probably the most common being the pulse method first conceived by Briet and Tuve. In this method a very short pulse is sent vertically upward, and the height at which the pulse is reflected is determined by the time interval before the return of the echo pulse. At the same time one can calculate the density of the ionization reflecting the pulse, for the ionization density (i. e. , the number of free electrons) necessary for reflection is simply dependent upon the frequency employed. Since the electron density, and hence the height necessary for reflection, differs with frequency we can get a complete record either of height vs. frequency or density vs. frequency if we merely vary the frequency of our pulse. This is now done automatically by means of pulse equipment which sweeps the frequency band 1-20 megacycles in approximately thirty seconds.

From examination of such pulse records, which are now taken at least hourly at various stations all over the world, we get a clear picture of the structure and behavior of the ionosphere. Instead of existing as one single region of ionization, we find the ionosphere divided into two and in some cases three regions of ionization called the E-layer, the F_1-layer, and the F_2-layer. The term layer is used because each region has a maximum density at the center, the ionization falling off fairly rapidly both above and below.

During daylight hours all three layers exist, the E-layer at about 100 kilometers, the F_1-layer at about 140 kms. and the F_2- anywhere from 250-300 kms. above the earth. At night, and in the regions where the angle of the sun's altitude never gets very high, the F_1 and F_2 layers merge into one layer whose height ranges from 200-300 kms.

The E Layer

During the night the E-layer ionization is very low; seldom can it reflect at vertical incidence signals in excess of 1 to 1.5 megacycles. However, E ionization is built up very rapidly after sunrise and, in general, follows the zenethal angle of the sun, reaching a maximum at local noon. Typical diurnal curves of E-layer ionization, here expressed as critical or penetration frequencies, appear in Figure 1. As can be seen, there is a slight change in critical frequencies from winter to summer seasons. The layer height, however, is fairly constant, showing only slight diurnal and seasonal fluctuation.



The F-1 & F-2 Layers

The F_1-layer is similar in structure and behavior to the E-layer, the maximum density of ionization occurs when the sun is at its highest, falling off as does the E ionization with the sun's altitude until it finally is merged at night with the rapidly descending F_2-layer.

The F_2-layer is by day the most complicated and least dependable layer of all. Whereas the E- and F_1-layers reveal daily fluctuations of only a few percent, F_2-layer heights and densities may vary as much as 30 percent from one day to the next.

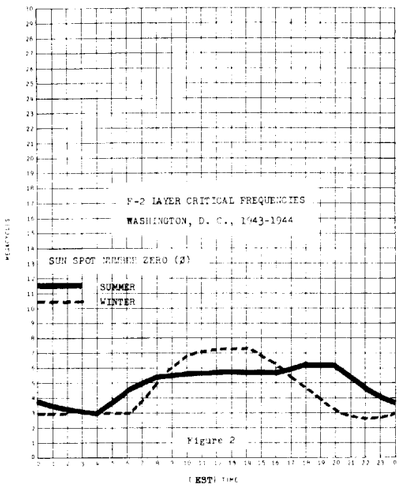
As most of us have noticed, one can usually employ a higher frequency on a given circuit during winter day than is possible during summer day. Contrary to what one would expect, this condition is due to a greater density of ionization during winter daytime than in summer daytime. This can be explained by a so-called expansion effect, i.e., the ionosphere expands under the increased heat of the summer sun so that although the total ionization is much greater than that existing during the winter, the density of any specific unit volume will be less.

Winter Night Ionization

Winter night ionization, on the other hand, is much less than during the summer night, for due to longer hours of darkness, recombination (i. e., the recombination of free electrons with positive ions to form neutral atoms) is more complete.

Curves of F_2-layer critical frequencies for January and June, 1944, for the city of Washington are shown in Figure 2. During winter day ionization peaks up to a fairly well - defined maximum near local noon, but during the equinox periods and summer the peaks of maximum density occur slightly after noon and near sunset time, respectively.

F_2-layer heights are greater in summer day than winter day, but show no appreciable difference in height between summer and winter night.



For a given local time, the amount of ionization changes considerably with latitude and longitude. Maximum ionization occurs in tropical latitudes, decreasing with increasing latitude, while for the same latitude ionization is greater in East longitude regions than in West.

Finally, a long - term variation in ionosphere conditions is that due to the 11-year solar cycle, called the sunspot cycle. In general, intensity of the sun's radiation varies with the number and size of the sunspots. Hence it is to be expected that high levels of ionization will occur during the sunspot minimum. In fact, during 1948-49, the sunspot number curve has been at its peak and is now slowly declining. It is expected to reach a minimum during the year 1953. A comparison of the frequencies in Figures 2 and 3 will show the changes in frequencies between the minimum and maximum sunspot number.

.. ..

In order to enable a clear line of demarkation to be drawn between the intelligence interests and activities of the Army Security Agency on the one hand and of the Signal Corps on the other, the term "signal intelligence" has been redefined so that it can no longer be used interchangeably with "communication intelligence". The use of "signal intelligence" in reference to ASA activities is discontinued, this agency being concerned rather with communication intelligence.

Military Intelligence Before G-2

(Unclassified)

Occasionally an embarrassing incident has stimulated progressive accomplishment. Such an incident occurred one day in 1885, when Brigadier General Drum, then Adjutant General, was unable to satisfy an urgent request from the Secretary of War for information regarding a particular foreign army. The information was needed at once, but the General had no recourse to information files for then there was no General Staff as we know it, and no consideration had been given to the collection of military information by any division of the War Department.

Stung into action by the incident, General Drum moved to correct the weakness in the Department. He directed Major William J. Volkmar, chief of the Military Reservation Division of the Miscellaneous Branch, Adjutant General's Office, to submit an organizational plan for a Division of Military Information within the Office of the Adjutant General. Major Volkmar, who had been sent by the Secretary of War to attend French Cavalry maneuvers, appeared a logical choice. In excellent official reports, he had advocated an exchange of views with high officers of other nations, comparing our service with that of foreign countries.

Forerunner of General Staff

In this way, some of the most important functions of the present General staff organization, which is in close command relations with ASA, were started. Assisted by several clerks of his Military Reservation Division, Major Volkmar began the tedious work of collecting items of military interest from all available sources. For many years, however, not more than one or two officers were detailed to the Division in Washington. To obtain results with this small staff, commanders of military departments and chiefs of War Department bureaus were requested to send in reports concerning resources and transportation systems of neighboring foreign nations. All officers were requested to report on anything which it might be desirable for the Government to know in case of a sudden war.

The Office of Naval Intelligence, established in 1882, extended its cooperation in acquiring information and a study was made of its procedures. The card system used by ONI was adopted, with modifications, for making the growing mass of information accessible for use. Captain Daniel Taylor, Ordnance Department, was placed on special duty with the Division in 1886.

First Military Attaches

A new source of military information concerning foreign countries was added by an Act of Congress of 22 September 1888 which provided for a system of military attaches. The first military Attaches were detailed to the London and Berlin legations on 11 March 1889 with instructions to report to the Secretary of War at least once a month. During the fiscal year 1891, $1,500 was appropriated to pay a clerk for collecting and classifying military information from abroad. The Military Information Division, previously under the Miscellaneous Branch, became a separate unit directly under the Adjutant General; Captain Taylor was placed in charge.

In 1891, in response to an Act of Congress of the previous year, an officers' lyceum was established at every post garrisoned by troops of the line, providing an examination system in connection with the promotion of officers below Lieutenant Colonel. The Military Information Division assembled much of the data and sources used for the courses and the Adjutant General received copies of the studies developed in these schools.

By 1892, office space was still limited to a single room in the State, War, and Navy Building; the clerical force consisted of three clerks and a messenger. Four thousand items, mostly concerning military matters abroad, had been processed. Following a reorganization of 1892, indicated duties were the collection and classification of both foreign and domestic military data, particularly in regard to materiel and manpower, preparation of guidance instructions for Army officers serving or traveling abroad, and digests of military attache reports. Maps, monographs, publications, and other information were to be issued to the Army. Some of the functions then provided, including liaison with the states and territories regarding strength and mobilization, were outside the scope of G-2 as it is known today. In a sense, Military Information Division was something of a whole general staff in itself, its similarity to European General Staffs being noted. In it the modern general staff was foreshadowed.

With the reorganization of 1892, Colonel Robert Williams, assisted by Major Arthur MacArthur, headed the Division until Colonel Williams became Adjutant General in July of that year. Of particular interest in the area of foreign activities was the seven months tour of Germany by Maj. Theodore Schwan in 1892-93, at the initiation of the Military Information Division. His mission resulted in a publication entitled Organization of the German Army. Another mission, made widely known by Elbert Hubbard's essay, was that of Lieutenant Andrew S. Rowan in Cuba to establish contact with Garcia, the leader of the insurgent forces.

Many Use Material

In 1895 the Secretary of War pointed out in his annual report that civil officers of government and members of Congress were among the many users of the material from the files of the Military Information Division. He reported that frivolous inquiries were exceptional!

Colonel Thomas M. Vincent, author of "Staff Organizations -- a Plea for Staff" and a Civil War staff officer with long experience in AGO, served as chief of the Division for a little more than a year in 1895-96, being succeeded by Major Arthur L. Wagner, author of a book on the Service of Security and a former instructor in the Cavalry School at Leavenworth.

The alertness of the Division was demonstrated by its activities in connection with the war of 1898. Anticipating possible military operations, the Division issued maps of Cuba and Puerto Rico and later of the Philippines. When war broke out, staff personnel included 12 officers, 10 clerks, and 2 messengers. The extent of Spanish strength in Cuba was estimated from the reports of the military attache in Madrid, from reports of information division officers in the United States, and from data disclosed by the message to Garcia. The estimated total, running into large numbers for those days, was correct to within less than 2,000 men. Other aid was from an officer dispatched to Spanish-held Puerto Rico ahead of U. S. troops.

Due to the fact that the Military Information Division had been busy collecting this data, it had not issued any new publications. It had to justify its existence to Congress, satisfying Congressional impatience by a collection of papers on "Pioneer Tools in Foreign Armies". During the war, all but two officers and five attaches were relieved for field duty without replacement.

By 1903, appropriations for the contingent expenses of the Military Information Division had been raised to only $10,000, of which $3,000 went to the Manila Office of the Division.

When the War Department General Staff was organized under the Act of 14 February 1903, the Military Information Division was transferred to the Office of the Chief of Staff, the change taking place by order of the Secretary of War of 8 August 1903, linking this forerunner of G-2 with the continuing organization of today.

.. ..

Daniel, of Biblical fame, was apparently the first cryptanalyst in history (as well as one of the earliest interpreters of dreams), for he solved the cryptogram in the "handwriting on the wall", obtaining as his decipherment words which he interpreted as predicting the downfall of Belshazzar and his dynasty.

According to an article in the Jewish Encyclopedia, the words MENE, MENE, TEKEL, UPHARSIN were meaningless to everyone except Daniel because a type of transposition had been employed. Scholars have two opinions: either each word was written backwards, or the first two letters of each word were transposed.

Puzzle Corner

Conducted by PAT PENDING
(Unclassified)

ANAGRAM ANTICS

One form of anagrams consists in capturing your opponent's word by adding another letter, then rearranging the letters to form a new word.

For example, the word DARE can be captured with the letter T by reshuffling to spell TRADE.

How long will it take you to capture the combinations below?

1. Capture STAMINA with Y
2. Capture GIRLS with Y
3. Capture LOADING with A
4. Capture COUPLE with S
5. Capture BUTTER with I
6. Capture ORGANDIE with S
7. Capture VARIES with C
8. Capture SCYTHE with K
9. Capture RADISH with G
10. Capture CURTAIN with T
11. Capture HARMONICA with S
12. Capture MECHANIZE with P

.. ..

SECRET STUFF

Great excitement reigned in the Black Chamber of Sotamia. The master spy of Quintopia had been captured. Within the hollow of his wisdom tooth, a cryptogram had been found. Now the great minds of Sotamia were poring over the secret characters.

"Very peculiar", muttered Brain No. 1.

"Odd", uttered Brain No. 2.

Miss Frobish, secretary to both of them, was the first to notice the break - in.

"Gentlemen", she said. "This is plain text from which the same vowel has been removed throughout. Replace it at the proper intervals and you will have no difficulty reading the message".

"Odd", uttered Brain No. 1.

"Very peculiar", muttered Brain No. 2.

And forthwith they accomplished solution.

Here is the message:

RFRNC LTTRS PTMBR LVNTH RMSSN GRSSL CTDLS

WHRXW RJCTT HSMNX WPRFR RSRVS SLCTD HRXSS

VNTHS NTNCR CNTSC RTLTT RXBST LTMMB RSFLW

XPCTL SSXPN SSXRG RTSVR NSSXW STRSS RTRNC

HMNTN DXPTR

.. ..

DELIVERING THE MILK

A farmer one morning was driving into town with two 10-gallon cans full of milk, when he was stopped by two neighbors, who asked him to sell them a quart of milk each. Mrs. Jones had a jug holding exactly 5 pints, and Mrs. Brown a jug holding exactly 4 pints, but the farmer had no measure whatever. How did he manage to put an exact quart into each of the jugs? It was the second quart that gave him all the difficulty. But he managed to do it in as few as nine transactions-and by "transaction" we mean the pouring from a can into a jug, or from one jug to another, or from a jug back to the can. How did he do it?

.. ..

Answers to these problems will appear in the next issue.
Contributions are welcomed.

WORD FILL-IN

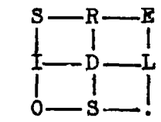
1. A _ _ S _ _ _ _ A _
2. _ _ A S _ _ A _ _ _
3. _ _ _ A _ S A _ _ _
4. _ A S _ _ _ _ A _ _
5. _ _ A _ S _ A _ _ _
6. _ A _ S _ A _ _ _ _
7. A _ _ _ S _ A _ _ _
8. _ A _ S _ _ _ A _ _
9. _ _ A _ S _ _ A _ _
10. _ A S _ A _ _ _ _ _
11. A _ _ _ _ S A _ _ _
12. _ A _ _ S _ _ A _ _
13. _ _ _ A _ _ S _ A _
14. _ _ _ _ A _ _ S _ A

Definitions

1. A noble.
2. Sensible.
3. Diplomatic agent.
4. Disguise.
5. Interpreter.
6. Rickety.
7. Help.
8. Ardent.
9. Settle in another place.
10. War personnel losses.
11. Appetizing dish.
12. Judicial officer.
13. French colony.
14. Mercy-killing.

To inform Air Force communications personnel of trends, new developments, and procedural changes, a Communications Security Information Letter is published by The United States Air Force Security Service. It is an 8-page, offset, magazine-type issue carrying the classification of CONFIDENTIAL. The first number was for March 1950.

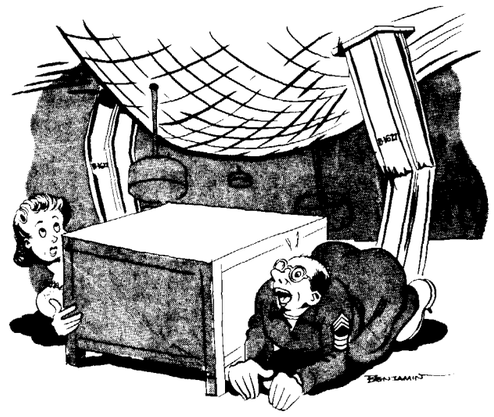
THE SOLDIERS PUZZLE



Here is a challenging little puzzle. Draw a square with three lines in both directions and place eight lettered counters on the intersecting points, as shown in the illustration. The puzzle is to move the counters, one at a time, following the lines from point to vacant point until you get them in the order SOLDIERS thus:

S O L
D I E
R S .

There is a solution possible in just 36 moves. It is easy to record your moves, as you merely have to write the letters thus, as an example: S D I O, etc.



"THEY'D BETTER EITHER BUILD A NEW BUILDING OR MOVE BROWN AND HIS FILES..."

A Crypto-bibliography:

An Historical and Analytical Bibliography of the Literature of Cryptography

By Joseph S. Galland. "Northwestern University Studies in the Humanities." No. 10, Evanston, Ill., 1945, ix plus 200 pp., $5.

~~(Restricted)~~

(For centuries, cryptography has had a fairly extensive literature but no comprehensive bibliography of that literature. The publication of a book filling this gap is a significant contribution to the field of knowledge with which ASA is concerned. Since the ASA Review is one the few journals able to make a professional evaluation of Dr. Galland's work, it is given a thorough review in these pages. However, it has been impossible to list here any appreciable number of the many cryptologic works covered by Dr. Galland. These suggest a wide field of supplementary reading for the professional worker in cryptology; those interested in such reading may refer to Dr. Galland's bibliography in the ASA Library. -- Editor.)

.. ..

Dr. Galland's bibliography is the first serious attempt to bring together in a single list all the works dealing with cryptography and cryptanalysis available to the scholar outside the profession. As such, the professional worker may be inclined to regard it with the same kind of suspicion that a medical specialist might regard a man who had no access to case histories and no modern laboratory data. Though the list of Mr. Friedman's works runs to thirty - one items occupying over three pages, it includes none of his writings classified higher than Restricted (e. g., The Analysis of a Mechanical-Electrical Cryptograph; Field Codes Used by the German Army During the World War; The Principles of Indirect Symmetry). The book does not pretend to list works which modern cryptanalysts demand: frequency lists, rhyming dictionaries, glossaries of abbreviations, gazetteers, and mathematical and electrical studies.

Even though the purpose of the bibliography is not that of a technical paper prepared within an operating branch of one of the cryptologic services, it is not without considerable value to the professional worker. In some ways it is unexcelled. Nowhere else is such a guide available to the documents in the history of cryptology. Moreover, the author has generously analyzed the contents of the more important works he lists, indicating the significant portions of works not exclusively devoted to the subject and commenting on the scope and plan of some of the more important monuments, and he has reviewed problems of bibliography and bibliography in connection with many of the works. Thus, he has an excellent little essay on Friderici's Cryptographia, oder Geheime Schrift- Mund- und Würkliche Correspondentz of 1685 presenting the several opinions concerning the date and place of publication and evaluating its significance. His thumbnail sketches of Herodotus and Polybius, his discussions of Dominicus de Hottinga and of the problems of the several translations of Trithemius, and his short biography of Wallis are all noteworthy.

In addition, he has not feared to tread in byways which the professional may well overlook, for example, the language of the flowers, alphabets for the blind, and those popular seventeenth - century novels with characters whom Society of the time were supposed to recognize, the romans a clef. Although he has missed some useful bibliographies of shorthand systems (for example, a List of foreign books in the shorthand library of John R. Gregg and The catalogue of the Phonetic Institute Library), Galland's book has a good collection of the earlier inventors of systems, especially those around Shakespeare's time. We also find titles like Fact Spy Stories Magazine, "Chain of Death" from Shadow Magazine, and "The Sacred Number" from the Ladies' Repository of April 1856. Other titles are equally engaging.

First Work on Cryptanalysis

Another point of interest is the evaluations which Galland occasionally makes. It is heart-warming to the professional worker to read (p. 69) that Mr. Friedman's Elements of Cryptanalysis of 1923 is "the first official publication on cryptanalysis of the U. S. Government and the first book in any language to employ the word cryptanalysis", which Mr. Friedman coined. Galland goes on to say that the work "is important because it is the first book in any language which brought some semblance of order in a chaos of confusion in terminology, organization of systems, etc. Its classification of methods and its terminology are still the standard in modern practice". He concludes by saying that "it is the first scientifically-organized, practically - useful book on cryptanalysis in any language".

Despite its virtues, Galland's list is far from perfect. For one thing his bibliographical form is not always consistent and for some strange reason each page is headed by the name of some author on the page but not always the first or the last (could there be a hidden message?). One of the dangers of the loose terminology of those who are not used to thinking in abstract terms about the science is apparent in this book. For example, when Galland talks of "decipherment", we cannot tell whether he means "decipherment", "decodement", "decryptment", or "cryptanalysis". He also speaks of "crypts" and "cryptographs" (apparently the same as cryptograms) and "cipher codes", whatever they may be.

Sometimes he seems to go far afield in specialized works, and there one questions his choice. One of the best sources of cryptologic information - patents - he has failed to tap. Another is newspaper stories; these are especially important for Poe material. Another is the Jefferson papers in the Library of Congress. To be sure, works on cryptology published under official auspices are hard to come by in libraries, even when they are not classified for security reasons, but it does seem strange that he did not get the English translations printed by the Government Printing Office of the works of Gylden, Sacco, and Lange and Soudart. Nor does he record the translation to Japanese of Yardley's book published as the Buratsuku Chiemba.

Galland's bibliography is an excellent book and one which we will be far richer for having. Had we had it in the early stages of our lexicographical work at ASA we might have had a better selection of nonprofessional works to read as sources of terms. And it is a stimulating book. Though it is after all only a list, it is fun to page through it, for it suggests many studies.

--Albert Howard Carter

Science In World War II:

Scientists Against Time. By James Phinney Baxter III. An Atlantic Monthly Press Book. Little, Brown and Company, Boston, 1946; 450 pp., with foreword by Vannevar Bush.

(Unclassified)

.. ..

This book by President Baxter of Williams College,is according to the foreword, "the brief official history of the Office of Scientific Research and Development". As such, it is the forerunner of a series of volumes dealing with the activities of that office, published under the title of Science in World War II. The Office of Scientific Research and Development,headed by Dr.Vannevar Bush,sought to organize and correlate scientific effort for the armed services.

The book is the very human and fascinating story of democracy and science at work. The old saw that democracy is slow and inefficient compared to dictatorship is effectively disproved. Starting in 1940 with the establishment of the National Defense Research Committee,the author traces the story of democracy and science through the fateful days when the events at Hiroshima and Nagasaki inaugurated a new age.

Contributions by scientists of the Army Security Agency and its equivalent agency in the Navy are overlooked by Dr. Baxter, who may have chosen not to include reference to the subject for security reasons. He makes brief references to radiogoniometry and the jamming of enemy circuits. The breaking of Japanese communication security,however,though widely publicized in the press, remains unchronicled in his pages. Indications of the accomplishments in the communications field are few and scanty. There is a brief discussion of the Radio Coordination Division of the OSRD and its Radio Research Laboratory, to which sole credit seems to be given. The author in one instance refers to the use of Signal Corps personnel by this laboratory. There is scarcely a hint of the vast progress in cryptographic science through the development of new mechanical devices.

In spite of these defects, the book contains much of interest. As Dr. Baxter indicates, warfare before 1939 was a matter of strategy in maneuvering large groups of armed men; World War II made it a matter also of technology--of the proximity fuse, radar, guided missiles, and atomic bombs.

The Damoclean sword was time. The race to develop the proximity fuze was against Japanese bombers who scored nineteen torpedo hits on our fleet at Pearl Harbor and sank the Prince of Wales and the Repulse. Could we maintain a defensive and offensive scientific developmental program to the extent that we would not fall helpless before the dictators? Would German scientists be able to produce an atomic bomb first? Even after we had defeated Germany, the fateful question was: "Could success with the atomic bomb tests be achieved before the scheduled invasion of Japan?"

The desperate race of the scientists against time involved efforts not only to keep ahead of the enemy but also to anticipate and evaluate any new developments he might make in technological warfare.A case in point described by the author was that of the buzz bomb V-1. In the Fall of 1943 the Allies learned through secret intelligence that Germany was engaged on a huge program for large robot bombs. Such weapons would threaten southern English ports and the concentration of Normandy invasion forces. Whether the missile would contain gas,high explosives, or a biological toxin was a matter of conjecture to both scientists and intelligence officers. It was hoped that it would be radio-controlled and thus subject to jamming but, as later events proved, this was not the case. Six months, however, before the first robot bomb was launched at England, our scientists had made full-scale tests on a complete mock-up of the missile. Three months later, a shipment of VT (proximity) fuzes to be used in combination with SCR-584 radar and M-9 electrical predictor reached England. When the first V-1 bombs arrived over Britain in June 1944, they met with effective resistance from these devices.

The success of the VT-fuze was not without attendant difficulties, however, which can serve as typical of similar problems in other instances. For example, it was apparent that the VT-fuze would give our ground forces devastating advantages when used with artillery fire. Nevertheless, other considerations had led to the decision that its general use over land areas could not be permitted at this time. It was feared that duds might reveal the secret of the fuse to the Germans and thus imperil the 8th Air Force and the R.A.F. If the recovery were relayed to the Japanese, we might lose one of our greatest advantages in that area. However,the VT-fuze was later released for use during the Battle of the Bulge. At that time it was, as the author puts it, "as timely as the arrival of the Monitor at Hampton Roads".

It is impossible within the scope of this review to touch upon all the subjects discussed by the author. The peculiar problems of amphibious warfare,the development of Radar and Loran, the role of chemistry, the amazing advances in medicine, poison gas(and why it wasn't used),rockets, proximity fuzes, and the development of the atomic bomb have received a well-balanced treatment within the limits of space imposed upon the author. The book is directed largely to the general reader. Technical aspects are illuminated by concrete examples which are a part of the average person's experience. Clearly brought to light throughout the story is the teamwork and cooperation of the military men, the scientists and engineers, and in between the two, the industrialists. This cooperation was achieved in a democratic manner and indeed it was probably this very factor which permitted Allied scientists to achieve supremacy over those of the Axis powers.

The author concludes the book with a bit of advice concerning the future. In World War II we had a better organization of science for war than our enemies and we had time to mobilize. We may not have that valuable time in the future, for time in this scientific age is measured by hours and days, not months or years. Dr. Baxter declares that America must keep her powder dry and, most important of all, maintain a well-organized scientific research program of high quality.

.... John D. Frost

Scanning the Shelves:

All the books reviewed in the following thumb-nail summaries have been added to the Library.

(Unclassified)

Russian Methods and Mentality

FISCHER, RUTH. Stalin and German Communism. Harvard University Press, 1948.

Writing from direct personal experience and from documented sources, the author traces the history of world Communism from 1917 to 1929 with chief emphasis on means used by Stalin to gain control of the Russian and German Communist Parties.

DEUTSCHER, ISAAC. Stalin. Oxford University Press, 1949.

A "political biography" of Stalin by a man who lived in Poland from 1907 to 1939 and traveled in Russia.

WERTH, ALEXANDER. Year of Stalingrad. Knopf, 1947.

"An historical record and a study of Russian mentality, methods and policies" which is largely an eye-witness account of life and thought in Russia, particularly Moscow, during the crisis.

For Scientists and Lay Scientists

CHEVALLEY, CLAUDE. Theory of Lie Groups. Princeton University Press, 1946.

An attempt to state and prove the main basic principles of Lie groups. Chapter titles include: Classical Linear Groups; Topological groups; Manifolds; Analytic Groups-Lie Groups; Differential Calculus of Cartan; Compact Lie Groups and Their Representations.

KNEDLER, JOHN W. (Editor). Masterworks of Science. Doubleday, 1947.

"Digests of 13 great classics" which have influenced the course of science. Included are Euclid's "Elements", Dalton's "Atomic Theory", and Einstein's "Relativity: The Special and General Theory".

CONANT, JAMES B. On Understanding Science. Yale University Press, 1947.

The author concludes that the best way for a non-scientific scholar to gain an understanding of pure or basic science is to study the historical development of science itself.

GUILLEMIN, ERNST A. Mathematics of Circuit Analysis. Wiley, 1949.

Volume four of the Principles of Electrical Engineering series, a cooperative staff project of M.I.T.'s Department of Electrical Engineering. Subjects treated include vector analysis, linear transformations, matrices, and Fourier series and integrals.

The World and Its Problems

JONES, FRANCIS C. Manchuria Since 1931. Oxford, 1949.

"This is a survey of Japanese activities in Manchuria since September 1931, with a concluding chapter on the situation during 1945-47. It is concerned primarily with internal developments..."

BYNG, EDWARD J. The World of the Arabs. Little, Brown and Company, 1944.

The book's principal aim is to appraise the contemporary life, historical significance, culture and future importance of the Arabic-speaking world.

MIDDLETON, DREW. The Struggle for Germany. Bobbs-Merrill, 1949.

Middleton, chief of The New York Times bureau in Berlin, maintains that the fate of the world may depend upon whether Germany "faces east or west."

Looking Backward

CHURCHILL, WINSTON S. Their Finest Hour. Houghton Mifflin, 1949.

The second volume of Churchill's memoirs; it covers the course of the war from mid-May 1940 to early January 1941.

GIBSON, HUGH (Editor). The Ciano Diaries (1939-1943). With introduction by Sumner Welles. Doubleday, 1946.

"The complete, unabridged diaries" of Count Galeazzo Ciano/Mussolini's son-in-law/who was Italian Minister for Foreign Affairs, 1936-43.

MARTIENSSEN, ANTHONY. Hitler and his Admirals. Dutton, 1949.

Based on the minutes of the so-called "Fuehrer Conferences on Naval Affairs" captured near Coburg and on evidence given at Nuremburg.

Review Readers:

You can extract individual items from this journal provided you handle each according to its own classification.

In each issue every article, puzzle, cartoon, etc., will be classified individually. This will enable you, by making extracts, to take unclassified and Restricted items off the military reservation where local regulations permit.

Some items having several distinct parts carry a separate classification for each part. Others are given a single classification applying to the entire article.

To any item or portion of an item not clearly marked as to classification, the REVIEW'S overall classification of CONFIDENTIAL applies, and in all cases the security regulations of AR 380-5 must be followed.

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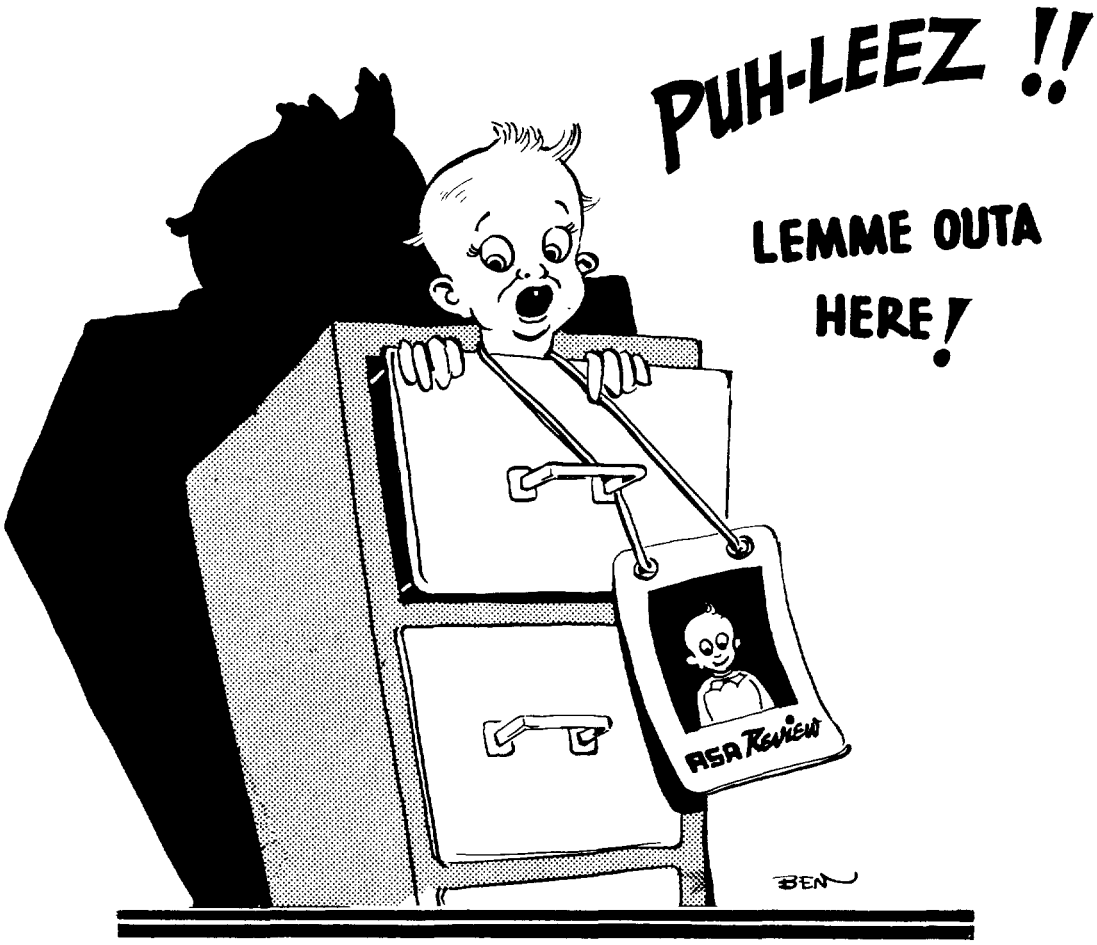

I'm just a youngster, but I like to get around

And I don't like to be locked up in file-cabinets except when necessary.

I'm not supposed to stay in the file-cabinets.

During working hours I'm supposed to be left around on tables and desks so that people can spend their coffee breaks and their other odd moments with me.

I won't take up much of anybody's time -- just an hour or so in two months. Besides, I'm supposed to be read while you're working.

So please .....

LET ME GET AROUND!