

SUBJECT NAME TOP SECRET		NO. AS-14 284028		
FROM WDGAS-14		DATE 11 Feb 47		
SUSPENSE DATE		TYPE	FILE DESIGNATION	
SUBJECT Series of Lectures <i>Mr. Friedman's Copy</i>				
<i>Friedman</i>				
TO Capt. J. N. Wenger,	TO N. Wenger,	TO Naval Communication's	TO Annex	TO Annex
DATE 11 Feb 47	DATE Hand	DATE carried	DATE	DATE
WD AGO FORM 734 1 JAN 1946		MAIL CONTROL RECORD		

Declassified and approved for release by NSA on
05-27-2014 pursuant to E.O. 13526

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SIGNAL INTELLIGENCE
and
COMMUNICATION SECURITY

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A SPECIAL COURSE OF LECTURES

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Prepared under the Direction

of the

Chief, Army Security Agency
15 August 1946

Army Security Agency
(WDGAS-14)
War Department
Washington

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without having the keys to them. Now, why all the secrecy about what we did in this field during the war? Isn't the war over? Why can't the full story be told?

It's true that when V-J Day came in August 1945, the necessity for keeping secret many technological advances made by the Army the Navy, and the Air Force during the war no longer existed, and as a result rather extensive publicity could be given to them. But, in the communications intelligence field no such publicity is possible, for by its very nature the hope of future success in this field depends to a large degree upon secrecy with regard to past achievements. I want to emphasize that our success throughout the war hung by a very, very slender thread which could have been cut easily and would have denied us extremely important intelligence directly contributing to the successful outcome of the war.

The most important and most disastrous publicity leak of the war occurred in early June 1942, right after the Battle of Midway, when an article appearing in three newspapers of very wide circulation, and a columnist with an international radio audience disclosed that our Navy knew in advance the Japanese plans for the attack. We haven't time to tell you how that leak occurred, but the effect was quick! The Japanese immediately changed their codes and ciphers and our Navy was really up against it for a number of weeks. In passing, I might add that the trouble with such leaks is that under our present laws, it's practically impossible to punish violations of secrecy without disclosing to the world full details which would be even more disastrous than the original leak.

However, if the Army, the Navy, and the Air Force in a future war are to make the most of the tremendous potentialities presented by the highly-specialized field of knowledge forming the subject of this course, it's necessary that detailed instruction be given to a chosen few who may later be made responsible for conducting the activities in this field, the conditions and circumstances under which specialized operating units under their command may or can

produce useful results, and how these units should best be organized and directed in order to function most effectively. In this course we will deal largely with Army units but the general principles will apply equally to Navy and Air Force units.

Then there's another reason for lifting the curtain a bit. Maybe not all of you will have such an assignment; maybe some of you will be commanding other sorts of units, large ones perhaps, and therefore an appreciation of the contribution communication intelligence can make in actual combat situations will be valuable even if you don't specialize in the field. Don't think that the contribution communication intelligence can make in actual combat situations will be valuable even if you don't specialize in the field. Don't think that the contribution communications intelligence can make is obvious to everybody. Certain commanders ;in the late war, especially in their early days of participation in actual combat, were very skeptical.

Let me read you an extract from an official report:

"In many cases it was the unnecessary task of signal intelligence Detachments in the Mediterranean Theater to overcome a general feeling of skepticism in American Tactical Staffs concerning the value and accuracy of signal intelligence material. In several instances outright disbelief in the intelligence produced by Detachments was expressed by G-2 Staffs of Headquarters served by the Detachments. In time all tactical staffs served by Intelligence Branch Detachments became aware of the accuracy of intercept information; but many unfortunate mistakes were made by tactical commands by ignoring signal intelligence was developed. It is felt that such unnecessary lack of confidence in signal intelligence operations can be eliminated before actual operations in an active theater are begun by educating tactical staffs with the role which signal intelligence can and should play in modern tactical warfare."

Perhaps the few examples I'll have occasion to cite will be sufficient to impress upon all of you the tactical value of the kind of intelligence, communication intelligence can yield.

This course deals with "Signal Intelligence and Communication Security", I don't think it necessary to go far back into their history, but it is necessary to define them.

Perhaps I should begin by defining a term not mentioned thus far, namely, radio intelligence, which is the product obtained from the interception, study, and analysis of electro-magnetic emissions

of all types. Besides emissions carrying messages or communications, that is, emissions which convey thoughts, ideas, reports, orders, and so on, whether they be in written or oral form, or even in the form of pictures, there are emissions which do not convey any of these things but are purely signals of one sort or another, such as radar, navigational, guided-missile control, meteorological or meteorographic signals and so on. So, we may divide the radio intelligence field into two sub-fields (1) the sub-field which deals with the interception and solution of what we will call "communication-type" signals, and (2) the sub-field which deals with the interception and study of "non-communication-type" signals. Under a very recent arrangement, the Air Force is responsible for the latter field and not much will be said about it in this course. The field is relatively new, as you may well imagine, and there is much spade work to be done. You will be concerned largely with learning as much as you can, however, about the sub-field of radio-intelligence which we call communication intelligence or signal intelligence. And because the official designation up to the present is signal intelligence, I'll have to use that until the term is changed officially. Signal intelligence, then, is the product obtained from the interception, study, and solution of messages. We also include, for practical reasons, the study of secret writing produced by means of invisible inks and microphotographic methods.

We also will deal with communication security, which embraces all measures designed to deny to unauthorized persons such information as might be derived by the application of signal intelligence procedures on our own communications.

It is almost impossible to estimate the amount of time and money spent, the changes in plans which were necessitated, and the hundreds of other things involved in investigating the loss and taking corrective action in the foregoing case.

This was a very costly error, and why did it happen? Poor security indoctrination is the only answer, and it was the answer given by the Inspector General who conducted the investigation. Hearings disclosed that the officers involved were unaware of the security regulations imposed on the handling of the cryptographic material they had. But the hearings also disclosed that the Signal Officer had received three specific letters dealing with special security instructions for the cryptographic equipment assigned to him, and that 20 other publications bearing on security were on file in the Division Signal Center.

The Inspector General's recommendations made at the conclusion of his hearings will indicate how seriously he considered the various derelictions. He recommended that the Commanding General of the Division be relieved of command; that his Chief of Staff be relieved of his assignments; that the Division Signal Officer, message center officer, assistant message center officer and message center chief be tried by courts martial for gross neglect of duty.