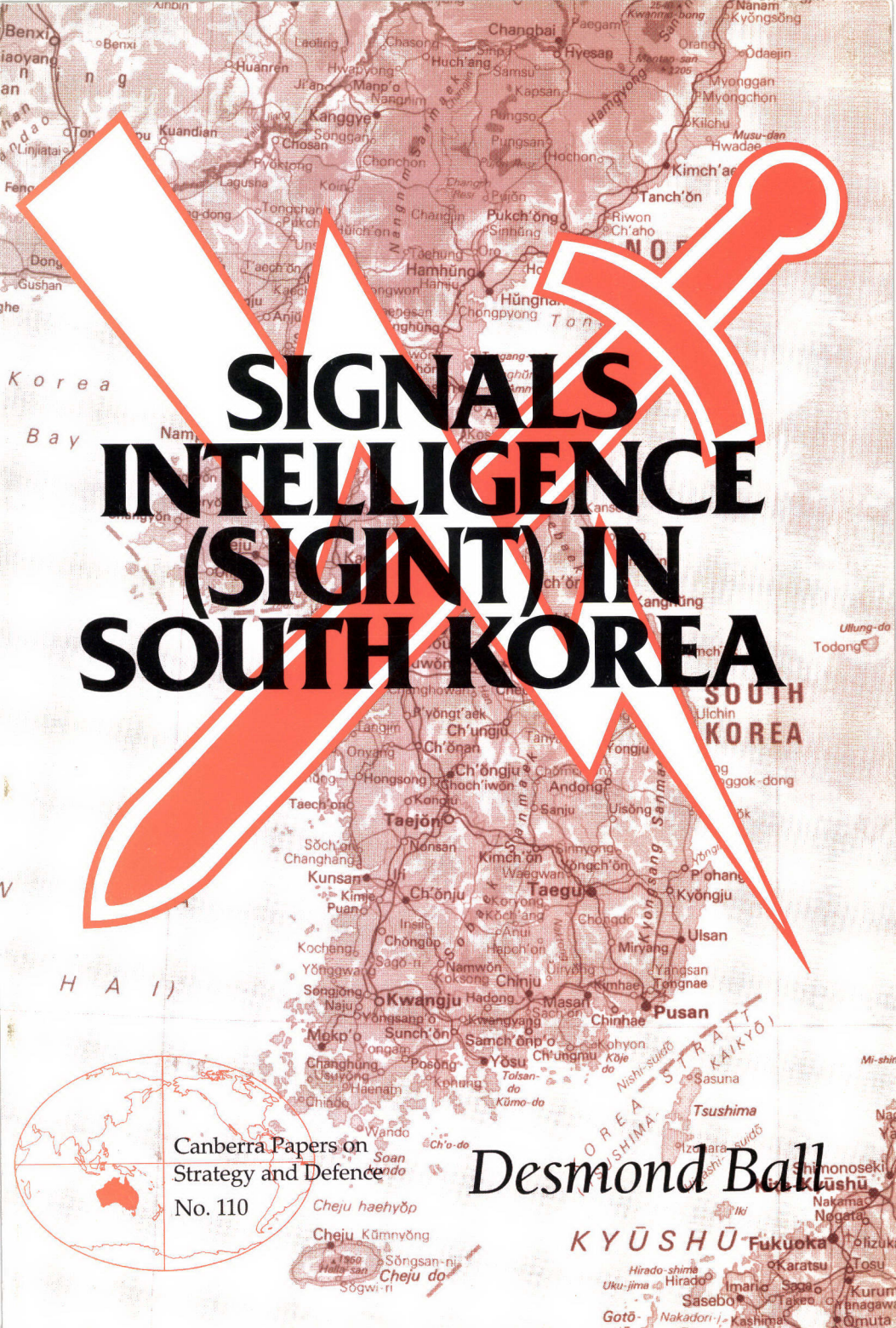




SIGNALS INTELLIGENCE (SIGINT) IN SOUTH KOREA



Canberra Papers on
Strategy and Defence
No. 110

Desmond Ball

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Desmond Ball

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ABSTRACT

The Korean Peninsula is the most serious flashpoint in the Asia/Pacific region. Across the Demilitarized Zone (DMZ) separating North and South Korea, only 40 km from Seoul, South Korea faces a virtually fully mobilised, obdurate Communist regime, with active armed forces of some 1.13 m personnel and a resolute nuclear weapons development program.

South Korea now maintains the most intense signals intelligence (SIGINT) activity in the world, involving some of the most advanced SIGINT systems currently operational. Most of this activity is maintained by US SIGINT authorities and units, but South Korean capabilities for both independent and joint SIGINT activities have increased greatly over the past decade.

At the strategic level, South Korea is host to TR-1A/U-2R strategic reconnaissance aircraft, a link facility in the US Navy's Pacific high frequency direction finding (HF DF) and cryptologic net, and US Army SIGINT operations. But the depth of the SIGINT activity in South Korea lies at the operational and tactical levels.

Most of the US SIGINT agencies and units in South Korea have a direct historical lineage to units which were established during the Korean War. US SIGINT capabilities were completely amiss when North Korea invaded South Korea in June 1950 and when the Chinese Communists intervened in October-November 1950. They are now expected to provide some one to four days warning of a North Korean decision to invade the South and some 12-16 hours warning of an actual invasion. US Army SIGINT units took some 12 months (from June 1950 to July 1951) before they were able to provide effective support to the Eighth Army. They are now expected to provide essential targeting intelligence and operational support for counter-air, strike and strategic interdiction operations immediately following the outbreak of war, and to support subsequent battlefield operations.

This monograph describes the history of SIGINT activity in South Korea since 1950; the principal US SIGINT stations, deployments and operations; and the advanced battlefield SIGINT systems and capabilities currently operational in South Korea. It discusses the South Korean program for increased self-reliance with respect to intelligence, and the impact of the crisis in mid-1994 over North Korean nuclear developments, when the possibility of a war on the Peninsula became very real. It concludes with a brief assessment of the ability of South Korea's SIGINT capabilities to satisfy current strategic and military demands.

Professor Desmond Ball is a professor in the Strategic and Defence Studies Centre at the Australian National University. He is the author of more than 200 academic monographs and articles on nuclear strategy, nuclear weapons, national security decision-making, security developments in the Asia/Pacific region, and Australia's defence policy. His major books include *Politics and Force Levels: The Strategic Missile Program of the Kennedy Administration*, (University of California Press, Berkeley, 1980); *A Suitable Piece of Real Estate: American Installations in Australia*, (Hale & Iremonger, Sydney, 1980), *A Base for Debate: The US Satellite Station at Nurrungar*, (Allen & Unwin, Sydney, London and Boston, 1987); *Pine Gap: Australia and the US Geostationary Signals Intelligence Satellite Program*, (Allen & Unwin, Sydney, 1988); and *Signals Intelligence in the Post-Cold War Era: Developments in the Asia-Pacific Region*, (Institute of Southeast Asian Studies (ISEAS), Singapore, 1993). He is the co-author of *The Ties That Bind: Intelligence Cooperation Between the UKUSA Countries*, (George Allen & Unwin, Sydney, London and Boston, 1985, 2nd edn 1990); *Defend the North: The Case for the Alice Springs-Darwin Railway*, (George Allen & Unwin, Sydney 1985); and *Crisis Stability and Nuclear War*, (American Academy of Arts and Sciences, and Cornell University Peace Studies Program, Ithaca, New York, 1987). He is editor of *The Future of Tactical Air Power in the Defence of Australia*, (Australian National University, Canberra, 1977); *Strategy & Defence: Australian Essays*, (George Allen & Unwin, Sydney, 1982); *The ANZAC Connection*, (George Allen & Unwin, Sydney, 1985); *Air Power: Global Developments and Australian Perspectives*, (Pergamon Brassey's Defence Publishers, Sydney, 1988); and *Aborigines in the Defence of Australia*, (Australian National University Press, Sydney, 1991). He is co-editor of *Problems of Mobilisation in the Defence of Australia*, (Phoenix Defence Publications, Canberra, 1980); *Civil Defence and Australia's Security in the Nuclear Age*, (Strategic and Defence Studies Centre, Australian National University, Canberra, and George Allen & Unwin, Sydney, 1983); *Strategic Nuclear Targeting*, (Cornell University Press, Ithaca, New York, 1986); *A Vulnerable Country? Civil Resources in the Defence of Australia*, (Australian National University Press, Canberra, 1986); *The Future of Arms Control*, (Australian National University Press, Sydney, 1986); *Geographic Information Systems: Defence Applications*, (Pergamon Brassey's Defence Publishers, Sydney, 1989); *Security and Defence: Pacific and Global Perspectives*, (Allen & Unwin, Sydney, 1990); and *Strange Neighbours: The Indonesian-Australian Relationship*, (Allen & Unwin, Sydney, 1991).

Canberra Papers on Strategy and Defence are a series of monograph publications that arise out of the work of the Strategic and Defence Studies Centre at the Australian National University. Previous Canberra Papers have covered topics such as the relationship of the superpowers, arms control at both the superpower and Southeast Asian regional level, regional strategic relationships and major aspects of Australian defence policy. For a list of recent Centre publications, please refer to the last pages of this volume.

Unless otherwise stated, publications of the Centre are presented without endorsement as contributions to the public record and debate. Authors are responsible for their own analysis and conclusions.

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ACRONYMS AND ABBREVIATIONS

AE	Aerial Exploitation
AQL	Advanced <i>Quick Look</i>
ASA	US Army Security Agency
AWACS	Airborne Warning and Control System
BOC	Battalion Operations Center
C ³ I	command, control, communications and intelligence
CCRCs	COMINT Communications Relay Centers
CEWI	Combat Electronic Warfare and Intelligence
CFC	Combined Forces Command
CHAALS	Communications High Accuracy Airborne Location System
COMINT	Communications Intelligence
COMSEC	Communications Security
CRB	Communication Reconnaissance Battalion
CRC	Communications Reconnaissance Company
CRG	Communication Reconnaissance Group
DF	direction-finding
DMZ	Demilitarized Zone
DSA	Defense Security Agency, South Korea
ECR	Electronic Combat and Reconnaissance
ELINT	electronic intelligence
EOB	electronic order of battle
ESG	Electronic Security Group
ESM	Electronic Support Measures
EUSAK	Eighth US Army, Korea
EW	electronic warfare
GAO	General Accounting Office
GHz	gigahertz
HF	high frequency
HHC	Headquarters and Headquarters Company
HQ	headquarters
HSC	Headquarters and Service Company
HUMINT	human intelligence
I&W	Indications and Warning
IEW	Intelligence and Electronic Warfare
IEWSOs	Intelligence and Electronic Warfare staff officers
IMINT	imagery intelligence
INSCOM	Intelligence and Security Command (US Army)

KWP	Korean Worker's Party
LET	Live Environment Training
LLVI	Low Level Voice Intercept
MHz	megahertz
MND	Ministry of National Defense (Korea)
MPAF	Ministry of the People's Armed Forces
MTI	moving target indicator
NCS	National Cryptologic School (NSA)
NOSIS	Naval Ocean Surveillance Information System (US)
NSA	National Security Agency
OL	operating location
OPC	operations company
Ops Div	operations division
OPSEC	Operational Security
PACAF	Pacific Air Forces
ROK	Republic of Korea
RSM	Radio Squadron Mobile
SAR	synthetic aperture radar
SIGINT	signals intelligence
SLAR	side-looking airborne radar
SNAREs	Short Notice Alert Readiness Exercises
SOs	staff officers
SRW	Strategic Reconnaissance Wing
SSD	Special Security Detachment
TACELIS	Tactical Automated Communications Emitter Location and Identification System
TACSIM	Tactical Simulation
TCAE	Technical Control and Analysis Element
UHF	ultra high frequency
UKUSA	United Kingdom, the United States of America, Canada, Australia and New Zealand
US	United States of America
USAFSK	US Army Field Station Korea
USAFSS	US Air Force Security Service
USASA	US Army Security Agency
USFK	US Forces, Korea
USNSGA-PT	US Naval Security Group Activity, Pyong Taek
VHF	very high frequency

CHAPTER 1

INTRODUCTION

The Korean Peninsula is the most serious flashpoint in the Asia/Pacific region. Across the Demilitarized Zone (DMZ) separating North and South Korea, only 40 km from Seoul, South Korea faces a virtually fully mobilised, obdurate Communist regime, with active armed forces of some 1.13 m personnel and a resolute nuclear weapons development program.

South Korea now maintains the most intense signals intelligence (SIGINT) activity in the world. Although it is a country only a quarter the area of Japan, it is the third largest in East Asia (after China and Japan) in terms of SIGINT capabilities. Moreover, except for a US SIGINT station at Taegu, in the southeast of the country, essentially all the SIGINT capabilities in South Korea are concentrated within some 150 km of the DMZ, with several facilities only 10 km or less from the DMZ.

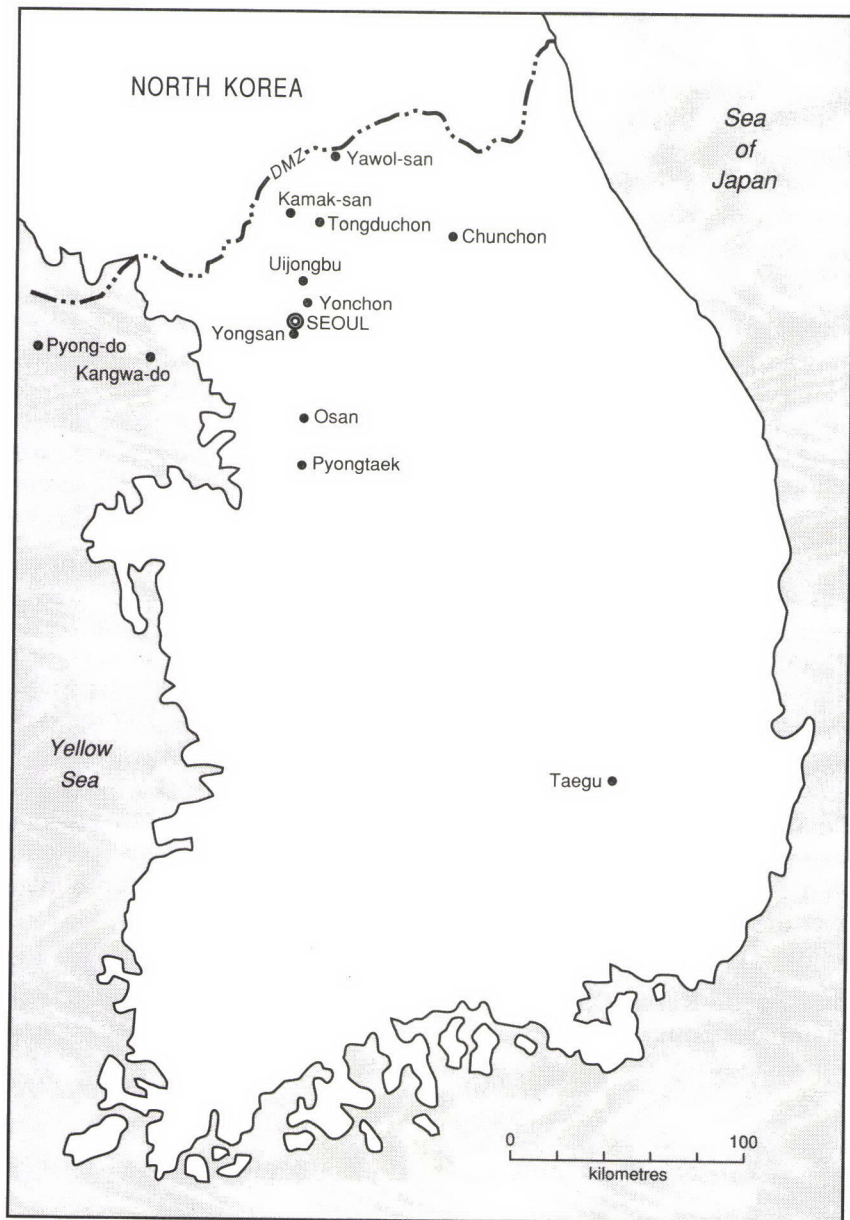
There are more than a dozen major SIGINT ground stations and facilities in South Korea - the largest of which, at Camp Humphreys, near Pyongtaek, has some 1,500 personnel. The airborne SIGINT systems based in South Korea include some of the most sophisticated in the world - at both the strategic (e.g. the TR-1A/U-2R aircraft) and operational (e.g. the *Guardrail* system) levels of SIGINT activity. At the battlefield level, the most advanced US Army SIGINT systems available are deployed in support of all the principal Commands and the Divisional and brigade levels. These SIGINT stations and systems are normally maintained at very high levels of alert and operational tempo, but these have been raised even higher over the past year.

Since 1950, there has been close cooperation between the US and South Korean SIGINT authorities. In September 1950, for example, a South Korean SIGINT unit was brought under the control of the US Army Security Agency (ASA).¹

¹ 'History of ASA in Korea' (US Army Security Agency, mimeo, no date), p.1.

2 Signals Intelligence (SIGINT) in South Korea

FIGURE 1
SIGINT SITES: SOUTH KOREA



The South Korean SIGINT agency is the Defense Security Agency (DSA) of the Ministry of National Defense (MND). The DSA/MND is a Third Party member of the UKUSA agreement (the First and Second Parties being the United States, the United Kingdom, Canada and Australia), a status which endows substantial but in certain specific respects quite limited access to US SIGINT authorities and facilities.² The discriminatory nature of the UKUSA's tiered structure has sometimes been quite crude. Until Lt. Gen. Marshall S. Carter became Director of the National Security Agency (1965-69), for example, Third Party representatives were not allowed in the main building at NSA headquarters at Fort George G. Meade, Maryland - a situation which General Carter changed when South Korean officials visited soon after he became Director. According to an account of this episode based on an interview with General Carter:

Notified that the meeting [with the South Koreans] would have to take place at another location, Carter protested. 'We don't let them into the building', the director was informed by his senior staff. 'I said: "No way! If we are going to exchange information with the Koreans and they are going to look to us for guidance and everything, well they have a right to come in". So I had them in for luncheons in my office and at the Maryland Club'.³

Since the early 1980s, as South Korean operational SIGINT capabilities and expertise have improved, the cooperation between the US and South Korean SIGINT agencies has become much more mature and co-extensive. Some former US Army Security Agency (ASA) SIGINT stations have actually been handed over to the DSA/MND - for example, the SIGINT sites on Pyong-Do island in the Yellow Sea, off the southern coast of North Korea. The DSA/MND also maintains units and facilities along the DMZ. It now also has detachments at all major US SIGINT posts in South Korea, such as those at Pyongtaek, Tongduchon, Kanghwa-Do, Taegu, Uijongbu, Osan, and Yongsan, as

² James Bamford, *The Puzzle Palace: A Report on America's Most Secret Agency* (Houghton Mifflin Company, Boston, 1982), pp.309-315; Jeffrey T. Richelson and Desmond Ball, *The Ties That Bind: Intelligence Cooperation Between the UKUSA Countries - the United Kingdom, the United States of America, Canada, Australia and New Zealand* (Unwin Hyman, Boston, Second Edition, 1990), p.142; and Jeffrey T. Richelson, *The U.S. Intelligence Community* (Ballinger Publishing Company, Cambridge, Massachusetts, Second Edition, 1989), p.283.

³ James Bamford, *The Puzzle Palace*, p.326.

4 *Signals Intelligence (SIGINT) in South Korea*

well as with the US Army's tactical SIGINT and EW units deployed along the DMZ.⁴ The DSA gained access to US SIGINT activities at the Osan site in 1981; DSA SIGINT units currently operating at Osan include the 1925th and 7235th Units.⁵ The 1998th DSA/MND Unit is based at Camp Humphreys, Pyongtaek, where it is a tenant unit of the US Army Field Station Korea (USAFSK).⁶ Also located at Camp Humphreys is the Combined ROK/US Intelligence Operations Center, Korea.⁷

⁴ See Jeffrey T. Richelson and Desmond Ball, *The Ties That Bind: Intelligence Cooperation Between the UKUSA Countries - the United Kingdom, the United States of America, Canada, Australia and New Zealand*, p.346; and Desmond Ball, *Signals Intelligence in the Post-Cold War Era: Developments in the Asia-Pacific Region* (Institute of Southeast Asian Studies, Singapore, 1993), pp.48-49.

⁵ '6903rd ESG Member Earns Appreciation', *Spokesman [Journal of the US Air Force Electronic Security Command]*, 10 February 1990, p.10; and 'Commendation', *Spokesman*, April 1991, p.9.

⁶ United States Army Field Station Korea, *Annual Historical Report: Fiscal Year 1986*, p.5.

⁷ *Ibid.*, cover photograph.

CHAPTER 2

HISTORY OF US SIGINT ACTIVITIES IN SOUTH KOREA

Upon occupation of South Korea by US Forces at the end of the Second World War, the 1st Operating Platoon of the 126th Signal Service Company was transferred from Kyoto, Japan, to Seoul on 20 December 1945. This was the first US SIGINT unit to serve in South Korea. On 26 April 1947, the 111th Signal Service Company deployed to Seoul, replacing the 1st Operating Platoon of 126th Signal Service Company, and established a permanent, semi-fixed SIGINT station that was attached to the XXIV US Army Corps.¹

In July 1948, the 111th Signal Service Company was withdrawn from Korea and reassigned elsewhere in the region, and from then to the Korean War there were no US SIGINT units in Korea.²

The Korean War:

The US SIGINT establishment was caught by surprise by the Korean War. As an official report noted in June 1952, 'COMINT [communications intelligence] failed to warn us of the attack on South Korea' by North Korean forces on 26 June 1950.³ The US SIGINT authorities were 'so poorly prepared to handle Korean traffic when the invasion occurred' that it took several months to establish an effective SIGINT capability in the theatre.⁴ During the first months of the hostilities, all SIGINT was provided by fixed sites in Japan and elsewhere in the western Pacific.⁵

When China entered the War in October/November 1950, US SIGINT authorities were still unprepared. Human intelligence (HUMINT) described a massive Chinese troop build-up in Manchuria and North China throughout September and into October, but there

1 'History of ASA in Korea' (US Army Security Agency, mimeo, no date).

2 *Ibid.*

3 George A. Brownell, *The Origin and Development of the National Security Agency* (Aegean Park Press, Laguna Hills, California, 1981), p.23.

4 *Ibid.*, p.42.

5 'History of ASA in Korea', p.1.

6 *Signals Intelligence (SIGINT) in South Korea*

was 'no SIGINT'.⁶ The US Army's Far East Command and Eighth Army intelligence offices were completely surprised by the Chinese intervention, then greatly under-estimated the strength of the Chinese forces and tragically misread Chinese intentions.⁷

In September 1950, the Army Security Agency (ASA) Pacific organised a Liaison Detachment at Pusan to support HQ, Eighth US Army, Korea (EUSAK) and to coordinate and control support being furnished by a South Korean SIGINT group.⁸

On 26 November 1950, ASA Pacific (Advance) was established. It replaced the ASA Pacific Liaison Detachment, took over its mission, and provided the expansion base for ASA SIGINT units as they arrived in Korea.⁹ It was joined in Pusan by the 50th Signal Service Detachment, responsible for communications security (COMSEC) operations, in October 1950.¹⁰

Later the same month, the 60th Signal Service Company joined EUSAK in Seoul, to provide mobile SIGINT support for the Eighth US Army. By June 1951, ASA Pacific (Advance) had moved from Pusan to Seoul, and the Headquarters and Headquarters Detachment of 303rd Communication Reconnaissance Battalion (CRB) had been established in Seoul. Located with ASA Pacific (Advance), the 303rd CRB assumed control of two Communications Reconnaissance Companies (CRCs) and established liaison teams at the 1, 1X and X Corps Headquarters.¹¹

On 10 July 1951, the 501st Communication Reconnaissance Group (CRG) became operational at Seoul. (The initial HQ of the 501st CRG was located in the main building of the Kyanggi Middle School, Seoul.)¹² It assumed control of all US Army SIGINT units in Korea, assimilating the assets of ASA Pacific (Advance) which was disbanded. The need to provide in-depth SIGINT support to the Army and Corps led to the addition of two SIGINT operating and analysis

6 Captain Michael E. Bigelow, 'Disaster Along the Ch'ongch'on: Intelligence Breakdown in Korea', *Military Intelligence*, July-September 1992, pp.11-16.

7 *Ibid.*

8 'History of ASA in Korea', p.1.

9 *Ibid.*

10 *Ibid.*

11 *Ibid.*

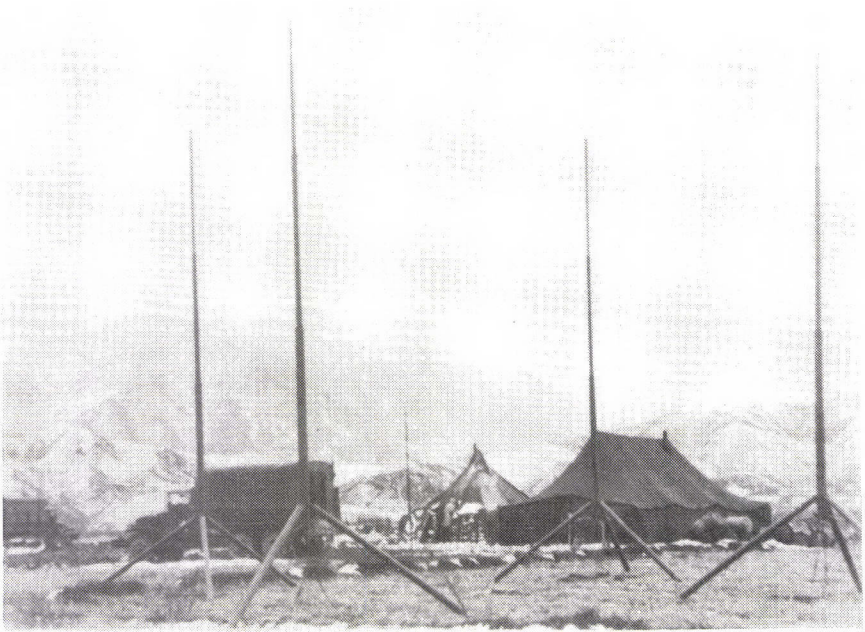
12 '501st Military Intelligence Group', *Military Intelligence* (Vol.11, No.2), April-June 1985, p.53.

Table 1: ASA Units in Korea, 1950-52

	Unit	Date of Arrival	Comments
1	ASA Pacific Liaison Detachment	18 September 1950	Supported HQ EUSAK. Replaced by ASA Pacific (Advance) on 26 November 1950.
2	50th Signal Service Detachment	2 October 1950	Returned to Japan on 21 May 1951.
3	ASA Pacific (Advance)	3 October 1950	Replaced ASA Pacific Liaison Detachment on 26 November 1950. Assimilated into 501st CRC in Seoul on 15 July 1951.
4	60th Signal Service Company	9 October 1950	First mobile unit to support EUSAK. Reorganised and re-designated 330th CRC on 24 October 1951.
5	303rd CRB	10 January 1951	
6	652nd CRC	1 March 1951	
7	1st Operating Platoon, 126th Signal Service Company	11 May 1951	Reorganised and re-designated 326th CRC on 24 October 1951.
8	304th CRB	25 June	
9	501st CRC	25 June 1951	Became operational at Seoul on 10 July 1951.
10	126th Signal Service Company	31 August 1951	Assimilated ASA Pacific (Advance) on 15 July 1951.
11	326th CRC		Reorganised and re-designated 326th CRC on 24 October 1951.
12	330th CRC		Formerly 126th Signal Service Company.
13	329th CRC	5 December 1951	Formerly 60th Signal Service Company.
14	301st CRB	5 December 1951	
15	351st CRC	27 August 1952	

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FIGURE 2 A DF ARRAY OF THE 326TH CRC IN KOREA



Source: John Patrick Finnegan, *Military Intelligence: A Picture History* (History Office, Deputy Chief of Staff, Operations, U.S. Army Intelligence and Security Command, Arlington, Virginia, 1985), p.122.

FIGURE 3
FORWARD OPERATIONS SITE OF THE 326TH CRC
AT CHUN CHIN, KOREA, IN 1951



Source: John Patrick Finnegan, *Military Intelligence: A Picture History* (History Office, Deputy Chief of Staff, Operations, U.S. Army Intelligence and Security Command, Arlington, Virginia, 1985), p.123.

10 *Signals Intelligence (SIGINT) in South Korea*

companies and a Communication Reconnaissance Battalion (CRB) at each Corps, which controlled one or more CRCs with forward platoons at division and operations sites throughout their respective Division areas.¹³

By mid-1952, a 'viable' SIGINT organisation had been established by the ASA in Korea. Table 1 lists the ASA units which served in the Korean War.¹⁴

From August 1952 through the end of the War, the ASA organisation in Korea compromised the 501st CRG with three battalions (303rd, 304th and 301st CRBs) and five companies (652nd, 326th, 330th, 329th and 351st CRCs). The total strength at the end of the War amounted to more than 1,600 personnel.¹⁵

For 'outstanding performance of duty' during the war, ASA units were awarded 61 Battle Stars, 14 Meritorious Unit Citations, and 14 Republic of Korea Presidential Unit Citations.¹⁶ For example, the 329th CRC was awarded two Meritorious Unit Commendations and a ROK Presidential Unit Citation;¹⁷ the 303rd CRB was awarded eight Battle Stars, a Meritorious Unit Commendation and a ROK Presidential Unit Citation;¹⁸ and the Headquarters and Headquarters Company of the 501st CRG received six Battle Stars, a Meritorious Unit Commendation and a ROK Presidential Unit Citation.¹⁹

Post-War Reorganisation:

A major reorganisation, reduction and relocation of US Army SIGINT units in Korea took place in 1955. The 303rd and 304th CRBs and the 351st and 352nd CRCs were inactivated or redeployed elsewhere. The 501st CRG remained in Seoul to support EUSAK,

¹³ 'History of ASA in Korea', pp.1-2.

¹⁴ *Ibid.*, p.2.

¹⁵ '501st Military Intelligence Group', *Military Intelligence* (Vol.11, No.2), April-June 1985, p.53.

¹⁶ *Ibid.* See also John Patrick Finnegan, *Military Intelligence: A Picture History* (History Office, Deputy Chief of Staff, Operations, U.S. Army Intelligence and Security Command, Arlington, Virginia, 1985), p.122.

¹⁷ '102nd Military Intelligence Battalion', *Military Intelligence* (Vol.14, No.4), October 1988, p.53.

¹⁸ '303rd Military Intelligence Battalion', *Military Intelligence* (Vol.13, No.3), October 1987, p.61.

while the 301st CRB was deployed to Camp Red Cloud, near Uijongbu, to provide support to the 1 Corps.²⁰

The US Air Force Security Service (USAFSS) in the Korean War:

US Air Force Security Service (USAFSS) SIGINT units were very active during the Korean War, with operations being conducted from Japan as well as Korea itself. For example, the 1st Radio Squadron (Mobile) and the 6920th Security Group operated from Johnson Air Base in Japan from June 1950 through 1954.²¹

The first USAFSS SIGINT detachment - designated Detachment C, 1st Radio Squadron (Mobile) - arrived in Korea just eight days after the North Korean invasion, and set up operations in Pyongyang, the current capital of North Korea.²² The tides of war pushed it down to Taegu in the south of the peninsula, where it was formally activated on 20 November 1950; it moved to Seoul in June 1951, and was transferred to the 15th RSM on 22 August 1952. It then moved to Osan Air Base in September 1953.²³ Its successor unit, the 303rd Intelligence Squadron, remains stationed at Osan.

19 '501st Military Intelligence Group', *Military Intelligence* (Vol.11, No.2), April-June 1985, p.53.

20 'History of ASA in Korea', p.2.

21 'Intercom: 1st Radio Squadron Mobile', *Air Force Magazine*, July 1982, p.117.

22 MSgt. Dennis Buxton, 'Skivvy Nine: Osan Unit Proudly Boasts 40 Years of Dedication', *Remain In Touch* (Newsletter of the USAFSS/ESC Association), Vol.X, No.1, March 1991, p.26.

23 James E. Pierson, *A Historical Study of the Organizational Development of the United States Air Force Security Service, 1970-1974* (United States Air Force Security Service, 15 September 1974), p.24.

CHAPTER 3

SIGINT GROUND STATIONS AND DEPLOYMENTS IN SOUTH KOREA

From the mid-1950s through to the mid-1980s, US SIGINT agencies established more than a dozen major SIGINT stations and facilities in South Korea. Most were established by the US Army SIGINT authorities - the Army Security Agency (ASA) and its successor agency, the Intelligence and Security Command (INSCOM); some of these have been transferred to South Korean command, and all of them now have a significant South Korean presence.

1. *Seoul:*

As described above, the first US SIGINT unit to be established in South Korea was the 1st Operating Platoon of the ASA's Signal Service Company, which was deployed to Seoul from Kyoto, Japan, on 20 December 1945. It was replaced by the 111th Signal Service Company on 26 April 1947, but it departed Korea in July 1948.¹

US Army SIGINT units returned to Seoul in 1950-51 - the 60th Signal Service Company (later redesignated the 330th CRS) on 9 October 1950; the 303rd CRB on 10 January 1951; the 1st Operating Platoon of 126th Signal Service Company (later redesignated the 326th CRC) on 11 May 1951; and ASA Pacific (Advance), assimilated into the 501st Communication Reconnaissance Group (CRG) in July 1951.² With the reorganisation of ASA SIGINT units in Korea in 1955, the ASA presence in Seoul was reduced to the 501st CRG and its two subordinate companies - the 330th CRC and the 326th CRC (which returned to Japan in August 1955).³

1 'History of ASA in Korea' (US Army Security Agency, mimeo, no date), p.1.
2 *Ibid.*, pp.1-2.
3 *Ibid.*, p.2.

From June 1951 to September 1953, the US Air Force Security Service (USAFSS) maintained its SIGINT activity in Seoul.⁴

In 1956, the US established a COMINT Communications Relay station in Seoul, maintained by the 501st CRG, US Army Security Agency, to link SIGINT activities in South Korea to the world-wide COMINT Communications Relay Centers (CCRCs).⁵ (The 501st CRG was redesignated as the 501st ASA Group in January 1956, and then reconstituted as the 508th ASA Group in July 1956).⁶

The NSA/CSS Pacific-Korea Representative is based in Seoul.

2. Camp Humphreys, Anchong-ri, Pyongtaek:

Camp Humphreys is located some 96.6 km south of Seoul and 8.1 km southwest of the town of Pyongtaek. It is by far the largest US SIGINT complex in South Korea, involving about a dozen different SIGINT units and activities (including US Navy and South Korean SIGINT units) and some 1,500 personnel:

- 501st MI Brigade (Zoeckler Station):

The 501st Military Intelligence Brigade is a direct descendant of the 501st CRG which became operational in Seoul and assumed control of all US Army SIGINT activities in Korea in July 1950. From April 1977 through the mid-1980s, it was designated 501st Military Intelligence Group and located at Camp Coiner, Yongsan. It was elevated to Brigade status on 15 April 1986.⁷

The 501st MI Brigade is directly subordinate to the US Army Intelligence and Security Command (INSCOM). Its mission is to conduct multidiscipline intelligence collection, counter-intelligence

⁴ James E. Pierson, *A Historical Study of the Organizational Development of the United States Air Force Security Service, 1970-1974* (United States Air Force Security Service, 15 September 1974), p.24.

⁵ *Notes by the Secretaries to the Joint Communications-Electronics Committee on Revision of Interim Outline Plan for Telecommunications Support of National Security Agency* (JCEC 1371/1), 19 July 1956.

⁶ '501st Military Intelligence Group', *Military Intelligence* (Vol.11, No.2), April-June 1985, p.53.

⁷ Sgt. Joy Peterson, 'FS Augsburg's Support Battalion Gets New Chief', *INSCOM Journal*, September 1982, p.11; '501st Military Intelligence Group', *Military Intelligence* (Vol.11, No.2), April-June 1985, p.53; and '501st Military Intelligence Brigade (EAC)', *Military Intelligence*, July-September 1992, p.53.

FIGURE 4
EMBLEM OF THE 501ST MILITARY INTELLIGENCE
BRIGADE



operations and services, and tactical electronic warfare (EW) in Korea, as directed by the Eighth US Army, US Forces Korea, INSCOM, NSA, and other national-level tasking authorities.⁸

- The US Army Field Station Korea (USAFSK):

The US Army Field Station Korea (USAFSK) is a battalion-sized element of the 501st MI Brigade, which is subordinate to the US Army's Intelligence and Security Command (INSCOM). It provides strategic SIGINT support to national-level agencies throughout the Pacific region; tactical SIGINT support to tactical commands in South Korea; and conducts electronic warfare (EW) operations in support of the US Eighth Army.⁹ As of December 1990, there were some 321 INSCOM personnel (257 military and 64 civilian) assigned to USAFSK.¹⁰

The USAFSK is composed of the following assigned, attached and tenant elements:¹¹

Headquarters and Service Company (HSC)

Operations Company (OPC)

Special Security Detachment (SSD)

USAIISC Detachment - Pyongtaek

332nd MI Company (EW), *Mudpack* Detachment

Detachments C, J, K and L

USAFSK Aviation Section

Operations Division (Ops Div)

3rd MI Battalion (Aerial Exploitation)

US Naval Security Group Activity, Pyong Taek (USNSGA-PT)

⁸ '501st Military intelligence Brigade (EAC)', *Military Intelligence*, July-September 1992, p.53.

⁹ United States Army Field Station Korea, *Annual Historical Report*, FY 1985, pp.5-6; and United States Army Field Station Korea, *Annual Historical Report*, Fiscal Year 1986, p.5.

¹⁰ Department of the Army, *Department of the Army Force Accounting System Active Army Troop List* (MOFI-ZB-1, Department of the Army, Washington, D.C., 31 December 1990).

¹¹ United States Army Field Station Korea, *Annual Historical Report*, Fiscal Year 1986, p.5.

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US Marine Corps Support Battalion, Company G

Combined ROK/US Intelligence Operations Center Korea

1998th Ministry of National Defense Unit, ROK.

- Detachment C, USAFSK:

Detachment C of USAFSK consists of 'a remote unmanned TRD-15 antenna array ... located near the airfield at Camp Humphreys'.¹²

- Detachments J, K and L, USAFSK:

Detachments J, K and L are forward collection detachments of USAFSK. Code-named *Tracechain*, they are located at remote sites near the DMZ - Koryo-San, Kamak-San and Yawol-San respectively.¹³

- USAFSK Aviation Section:

The principal mission of the USAFSK Aviation Section is to provide logistical support to the three forward USAFSK Detachments (J, K and L) in peacetime, and tactical support during war. It also flies missions for the 501st MI Brigade Commander, the USAFSK Commander, and USAFSK Staff elements when possible.¹⁴

- US Naval Security Group Activity, Pyong Taek (USNSGA-PT):

The US Navy maintains one of its two-dozen principal SIGINT activities at Camp Humphries, formally designated US Naval Security Group Activity, Pyong Taek (USNSGA-PT).¹⁵ The station is part of the *Classic Wizard* Reporting System,¹⁶ which is the world-wide signals intercept and direction-finding (DF) network for the US Navy's Ocean Surveillance Information System (NOSIS).¹⁷ It is a major element of

¹² *Ibid.*, p.1.

¹³ *Ibid.*, pp.1-2.

¹⁴ *Ibid.*, p.13.

¹⁵ United States Army Field Station Korea, *Annual Historical Report, FY 1985*, p.6. See also Commander, Naval Security Group Command, 'Mission and Functions of the U.S. Naval Security Group Activity, Pyongtaek, Republic of Korea', *NAVSECGRU Instruction 5450.56* (Naval Security Group Command Headquarters, Washington, D.C.), 10 February 1981.

¹⁶ 'Classic Wizard Reporting System', 26 May 1981, in *CINCPAC Fleet Note 5215*, 11 February 1983, Enclosure 1, p.10.

¹⁷ See Jeffrey T. Richelson and Desmond Ball, *The Ties That Bind*, pp.202-207.

the Pacific High Frequency Direction Finding (HF DF) Net - which also includes NSG stations at Misawa (Japan), Hanza (Okinawa, Japan), Yokosuka (Japan), Kamiseya (Japan), Diego Garcia (Indian Ocean), Adak (Alaska), Kunia (Hawaii), Guam and San Diego (California).¹⁸

- US Marine Corps Support Battalion, Company G:

The US Marine Corps has maintained a relatively small SIGINT unit at Camp Humphreys for at least two decades. In the early 1970s, for example, it was a detachment of 1st Marine Radio Battalion and consisted of 21 personnel.¹⁹ The unit was later redesignated Company G of the Marine Support Battalion;²⁰ it is formally assigned as a sub-tenant of the US Naval Security Group Activity, Pyong Taek (USNSGA-PT).

- 3rd MI Battalion (Aerial Exploitation) of 501st MI Brigade:

The 3rd Military Intelligence Battalion (Aerial Exploitation) of the 501st Military Intelligence Brigade is a tenant unit at USAFSK, Camp Humphreys.²¹ Some 412 personnel were assigned to the Battalion as at December 1990.²² Company A of the 3rd MI Battalion (AE) is responsible for operation of the RV-1D *Mohawk/Quick Look II* airborne ELINT system; Company B is responsible for the *Guardrail V* airborne COMINT system.²³

18 See 'Classic Wizard Reporting System', 26 May 1981; 'Narrowband Assignment and Reporting Instructions for the Pacific High Frequency Direction Finding Net', 17 February 1982, and 'Policy Guidance for Cryptologic Direct Support Operations in the Pacific Fleet', 11 January 1983, in *CINCPAC Fleet Note 5215*, 11 February 1983, Enclosure 1, p.10.

19 'Pass in Review: Korea', *The Hallmark* [Journal of the US Army Security Agency], January 1972, p.5.

20 U.S. Military Communications-Electronics Board, *Message Address Directory*, 30 January 1993, p.145.

21 United States Army Field Station Korea, *Annual Historical Report: Fiscal Year 1986*, p.5.

22 Department of the Army, *Department of the Army Force Accounting System Active Army Troop List* (MOFI-ZB-1, Department of the Army, Washington, D.C., 31 December 1990). See also Jeffrey T. Richelson, *The U.S. Intelligence Community*, p.63.

23 Captain Kirk E. McIntosh, 'Guardrail/Common Sensor System', *Military Intelligence*, July-September 1992, pp.31-33.

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- Special Security Detachment (SSD):

The Special Security Detachment (SSD), Field Station Korea, is a subordinate unit of the US Army Special Security Command, Korea/Japan.²⁴

- 332nd MI Company (EW), *Mudpack* Detachment:

Until September 1986, the 332nd Military Intelligence Company (EW) was a subordinate unit to USAFSK, Camp Humphreys. Although the Company itself was located elsewhere (at Camp Page, Chunchon, until October 1985, when it relocated to Camp Red Cloud, Uijongbu), it maintained personnel at Camp Humphreys for both liaison and operational purposes.²⁵

A small detachment (known as *Mudpack* Detachment) of the 332nd MI Co (EW) remains at Camp Humphreys, attached to Operations Company, USAFSK, 'to perform mission-related functions in accordance with the longstanding MUDPACK agreement'.²⁶

- USAISC [US Army Information Systems Command] Detachment, INSCOM:

This Detachment is a subordinate unit of 36th Signal Brigade, Korea. Its mission is 'to provide over the counter record message traffic; provide Criticom reporting capabilities for intelligence analysts through the use of communications circuit paths; provide courier service for Genser [general service] customers; provide Communications and Electronics assistance to FSK [Field Station Korea] staff; and provide COMSEC support to FSK and three forward detachments'.²⁷

- The South Korean Presence at Camp Humphreys:

The South Korean presence at Camp Humphreys is now quite substantial. The Combined ROK/US Intelligence Operations Center

²⁴ United States Army Field Station Korea, *Annual Historical Report*, FY 1985, p.5.

²⁵ United States Army Field Station Korea, *Annual Historical Report*, FY 1985, p.2; and United States Army Field Station Korea, *Annual Historical Report*, Fiscal Year 1986, pp.1,13.

²⁶ United States Army Field Station Korea, *Annual Historical Report*, FY 1985, p.2; and United States Army Field Station Korea, *Annual Historical Report*, Fiscal Year 1986, pp.5-6.

²⁷ United States Army Field Station Korea, *Annual Historical Report: Fiscal Year 1986*, p.15.

Korea was established at Zoeckler Station in the early 1980s, and the 1998th Ministry of National Defense (MND) Unit became a tenant unit at the Station.²⁸ South Korean MND/DSA personnel are now also involved in the *Guardrail* COMINT/DF activities of the 3rd MI Battalion (Aerial Exploitation) at Camp Humphreys.

Visits to Camp Humphreys by senior MND/DSA officers have become commonplace since the early 1980s. For example, Brigadier General Kim Yah Suh Sung, from DSA Headquarters, visited in April 1985.²⁹ South Korean officers and SIGINT/EW units are now also regular observers at and often participate in US Army EW exercises. For example, General Park Hee Do, Commanding General of the Third ROK Army, visited a platoon of 332nd MI Co (EW) during a field training exercise associated with *Team Spirit* 85 in February 1985, and received an EW demonstration.³⁰

- **Exercise Activities:**

The US Army Field Station Korea, its forward Detachments and its attached Army SIGINT elements maintain a very active training and exercise schedule. Much of this exercise activity reflects the high levels of alert and operational tempo on the Korean Peninsula, and is geared to immediate action in the event of a war. Some of the exercises are limited to particular SIGINT units; others involve extensive participation in large-scale combined forces exercises.

For example, rapid evacuation of the forward Detachments at Koryo-San, Kamak-San and Yawol-San is 'practiced regularly'.³¹ All USAFSK elements regularly participate in Short Notice Alert Readiness Exercises (SNAREs).³² The major exercises are *Ulchi Focus Lens* and *Team Spirit*. These generally involve the activation of a Battalion Operations Center (BOC) at the station, and involve large numbers of troops from other units, such as the 501st Military Intelligence Brigade and the 524th Military Intelligence Battalion at

28 United States Army Field Station Korea, *Annual Historical Report*, FY 1985, cover page and p.6.

29 *Ibid.*, p.20.

30 *Ibid.*, p.11.

31 United States Army Field Station Korea, *Annual Historical Report*, Fiscal Year 1986, p.8.

32 United States Army Field Station Korea, *Annual Historical Report*, FY 1985, pp.9-10.

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Camp Coiner and the 332nd Military Intelligence Company (Electronic Warfare) at Camp Red Cloud, as well as units normally stationed at Camp Humphreys.³³ They also now involve substantial South Korean participation. Throughout the year, there is a very active Live Environment Training (LET) Schedule at the Field Station, involving both tenant units and logistical support for visiting units, especially elements of the 332nd MI Co (EW). For example, at any given time of the year, at least one platoon of the 332nd MI Co (EW) is engaged 'in the field conducting training or in support of another unit's exercise'.³⁴

3. *Yawol-san:*

Detachment L of USAFSK is located at Yawol-san mountain (38° 14'N, 127° 06'E), which is 108 km northeast of Seoul and just 1,500 metres from the DMZ.³⁵

4. *Kamak-san, Tongduchon:*

Detachment K of USAFSK is located at Kamak-san mountain (37°56'N, 126°48'E), which is 13.3 km west of Camp Casey, outside Tongduchon, and approximately 10 km from the DMZ.³⁶ (The site is sometimes referred to as Sinsan-ni.) It was reportedly established in 1970.³⁷

In addition to serving as a *Tracechain* site, Detachment K is also the forward end site for the *Trojan* project.³⁸

In July 1985, the 332nd MI Co (EW) deployed the AN/TRR-20 system to Detachment K for training purposes. (This was the first deployment of the TRR-20 in the 332nd MI Co (EW)).³⁹

³³ *Ibid.*, pp.10-11.

³⁴ *Ibid.*, pp.11-13.

³⁵ *Ibid.*, p.2.

³⁶ *Ibid.*

³⁷ Robert E. Harkavy, *Bases Abroad: The Global Foreign Military Presence* (Oxford University Press, Oxford, 1989), p.181; and information provided by the Stockholm International Peace Research Institute (SIPRI).

³⁸ United States Army Field Station Korea, *Annual Historical Report, Fiscal Year 1986*, p.2.

³⁹ United States Army Field Station Korea, *Annual Historical Report: FY 1985*, p.12.

An 'expansion project' was initiated at Detachment K on 4 September 1986.⁴⁰

5. *Koryo-san, Kangwa-do:*

Kangwa-do is an island just off the northwest coast of the ROK, approximately 75 km west of Seoul and about 5 km from the Han Estuary (Neutral Zone). During the late 1950s and the 1960s, it was the site of one of the two principal US Army Security Agency (ASA) SIGINT activities then maintained in South Korea (the other being Camp Humphreys, Pyongtaek).⁴¹

Detachment J of USAFSK is located at Koryo-san mountain (37° 45'N, 126° 48'E) on Kangwa-do.⁴²

6. *Pyong-do:*

Pyong-do is an island in the Yellow Sea, some 110 km west of Seoul and some 15 km south of North Korean waters. Several sites on the island have been used by the US Army for SIGINT activities, but these have been handed over to the South Korean DSA.

7. *Camp Howard, Pyongtaek:*

From 15 June 1971 to 30 September 1972, the 6903rd Security Squadron of the US Air Force Security Service (USAFSS) at Osan Air Base maintained a subordinate operating location (initially designated OL BB and redesignated OL DB on 1 November 1971) at Camp Howard, Pyongtaek.⁴³

8. *Camp Casey, Tongduchon:*

Camp Casey was formerly the location of the 329th ASA Co (DS), which provided tactical SIGINT and EW support to the 2nd

⁴⁰ *Ibid.*

⁴¹ 'Vigilance From North to South: The Story of USASA Group Korea', *The Hallmark*, November 1969, pp.10-11.

⁴² United States Army Field Station Korea, *Annual Historical Report*, FY 1985, p.2.

⁴³ James E. Pierson, *A Historical Study of the Organizational Development of the United States Air Force Security Service, 1970-1974*, p.40.

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Infantry Division. It has been incorporated into the 102nd MI Battalion at Camp Hovey, a few kilometres to the southeast.

9. *Camp Hovey, Tongduchon:*

Camp Hovey is the home of the 102nd Military Intelligence Battalion, which provides tactical SIGINT/EW support to the 2nd Infantry Division. The 102nd MI Battalion is a direct descendant of the 329th CRC, which arrived in South Korea in December 1951. On 25 June 1955, the 329th CRC was reconstituted at Camp Red Cloud, Uijongbu, as Company B, 301st Communication Reconnaissance Battalion (CRB), redesignated 301st ASA Battalion in July 1956. It was redesignated as the 329th ASA Company in November 1975, and assigned to the 2nd Infantry Division on 1 October 1976.⁴⁴

The 102nd MI Battalion was constituted at Camp Hovey on 16 September 1981, and the 329th ASA Company was incorporated as Company A, 102nd MI Battalion.⁴⁵

The 102nd MI Battalion maintains 'detachments spread out along the DMZ for surveillance, observation and interception'.⁴⁶ According to Lieutenant Colonel John Phillips, who has recently served as Commander of the 102nd MI Battalion:

The 102d's initial battle is to occupy the high ground. Our competitors are U.S. and Republic of Korea (ROK) signal assets, manoeuvre observation posts, and air defense positions. Extensive reforestation greatly restricts access to dominant terrain and limits many of our IEW [Intelligence and Electronic Warfare] assets to hilltops with roads.

Given these terrain restraints, the use of digital terrain analysis software is extremely beneficial when planning signals intelligence (SIGINT) collection baselines. This software helps in selecting collection sites that provide maximum SIGINT coverage. These sites should also provide lateral radio line of sight between collection assets which are designed to net during direction finding (DF) operations. To cover this

⁴⁴ '102nd Military Intelligence Battalion', *Military Intelligence* (Vol.14, No.4), October 1988, p.53.

⁴⁵ *Ibid.*

⁴⁶ Jeffrey T. Richelson and Desmond Ball, *The Ties That Bind*, p.346.

FIGURE 5
EMBLEM OF THE 102ND MILITARY INTELLIGENCE
BATTALION, CAMP HOVEY, TONGDUCHON



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challenging terrain, we need as many ground based collection teams as possible.⁴⁷

The principal mission of the 102nd MI Battalion is the provision of Low Level Voice Intercept (LLVI) COMINT/DF intelligence to Divisional commanders and fire support (e.g. artillery) units. It employs five-person PRD-11 teams (together with two-person analysis elements) at forward locations, netted with other Battalion SIGINT assets such as the AN/TRQ-32 *Teammate*, AN/TSQ-114 *Trailblazer* and AN/ALQ-151 *Quick Fix II* systems. The SIGINT reporting nets between the Battalion's Technical Control and Analysis Element (TCAE) on the one hand and the PRD-11 teams and other collection assets on the other hand are monitored by Intelligence and Electronic Warfare (IEW) staff officers (IEWSOs) at brigade-level, who identify and locate close fire support targets for brigade fire support units. The TCAE all passes targeting intelligence to divisional fire support units.⁴⁸

10. *Camp Red Cloud, Uijongbu:*

The US Army established a SIGINT activity at Camp Red Cloud (ASA Location 321), some 10 km west of Uijongbu, in 1953.⁴⁹

In June 1955, the 301st CRB was constituted at Camp Red Cloud to provide support to the 1 Corps. It had two subordinate companies - Company A (formerly 356th CRC), responsible for signal security; and Company B (formerly 329th CRC), responsible for SIGINT collection and analysis.⁵⁰ (The latter Company subsequently became a major element of the 102nd MI Battalion at Camp Hovey.)⁵¹

In October 1985, the 332nd MI Co (EW) was moved to Camp Red Cloud from Camp Page, Chungchon.⁵² At this time, it had some

⁴⁷ Lieutenant Colonel John Phillips, 'Intelligence Targeting in Korea', *Military Intelligence* (Vol.20, No.1), January-March 1994, p.22.

⁴⁸ *Ibid.*, pp.22-23.

⁴⁹ US Congress, House of Representatives, Subcommittee of the Committee on Appropriations, *Military Construction Appropriations for 1960* (U.S. Government Printing Office, Washington, D.C., 1959), pp.326-327.

⁵⁰ 'History of ASA in Korea', p.2.

⁵¹ '102nd Military Intelligence Battalion', *Military Intelligence* (Vol.14, No.4), October 1988, p.53.

⁵² United States Army Field Station Korea, *Annual Historical Report, Fiscal Year 1986*, p.13.

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245 personnel⁵³ and was equipped, *inter alia*, with the AN/TRR-20 system and the AN/TRQ-32(V) *Teammate* truck-mounted COMINT/DF system.⁵⁴

11. *Camp Page, Chungchon:*

The 332nd MI Co (EW) was located at Camp Page until October 1985, when it was relocated to Camp Red Cloud, Uijongbu.⁵⁵

12. *Camp Coiner, Yongsan:*

Camp Coiner, at Yongsan, in Seoul, has long been the home of the principal Commands in South Korea - the ROK/US Combined Forces Command (CFC), US Forces in Korea (USFK) Command, and the US Eighth Army Command, as well as many of their support units.

The US Army SIGINT units located at Camp Coiner include the INSCOM HQ for South Korea; the HQ of the 502nd Military Intelligence Battalion (Operations); the Headquarters and Headquarters Company (HHC) of the 501st Military Intelligence Brigade; the 524th Military Intelligence Battalion (Collection); and the 209th Military Intelligence Company (OPSEC).⁵⁶

The 502nd Military Intelligence Battalion was activated at Tagegu in South Korea on 1 September 1952, and assigned to the Far East Command. It 'was instrumental in providing vital and timely intelligence in support of the Korean War'.⁵⁷ On 25 March 1961, it was reactivated at Yongsan as a field Army battalion assigned to the US Army Pacific Command and subsequently assigned to the Eighth Army. It provides intelligence support to 1 Corps.⁵⁸

The 501st Military Intelligence Group, Headquarters and Headquarters Company (HHC), was activated at Yongsan on

⁵³ Jeffrey T. Richelson, *The U.S. Intelligence Community*, p.63.

⁵⁴ United States Army Field Station Korea, *Annual Historical Report*, FY 1985, pp.12,14.

⁵⁵ United States Army Field Station Korea, *Annual Historical Report*, Fiscal Year 1986, p.13.

⁵⁶ Jeffrey T. Richelson, *The U.S. Intelligence Community*, p.63.

⁵⁷ '502nd Military Intelligence Battalion', *Military Intelligence* (Vol.12, No.4), October-December 1986, p.61.

⁵⁸ *Ibid.*

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1 January 1978, replacing the temporary 501st MI Group (Provisional), which had been set up at Camp Coiner in April 1977.⁵⁹ In 1985, there were some 290 personnel assigned to the HHC, 501st MI Group.⁶⁰ The 501st MI Group was elevated to the 501st MI Brigade on 15 April 1986.⁶¹ The Brigade's field station is Zoeckler Station at Camp Humphreys, Pyongtaek.⁶²

Yongsan was a suburban district on the southern outskirts of Seoul when the US and ROK/US Commands were first located there, but it has now become part of central Seoul and a hindrance to 'the improvement of the metropolitan environment'.⁶³ Under the Yongsan Relocation Plan, the US elements are being located to 'new facilities ... integrated into the current US bases in Osan and Pyongtaek', although 'a minimum level' of personnel will remain in Seoul.⁶⁴

13. *Yongsan Reservation:*

In June 1968, the US Air Force Security Service (USAFSS) established an operating location (OL) at Yongsan Reservation. Activated as OL 13 of the 6970th USAFSS Support Group, it was redesignated OL FM of the 6970th Air Base Group on 1 July 1972.⁶⁵

14. *Taegu:*

Taegu, in southeast South Korea, is the only major US SIGINT site in South Korea not located within 150 km of the North Korean border. It has been used by both the US Army and the NSA for airborne and ground-based operational and strategic SIGINT activities.

59 '501st Military intelligence Group', *Military Intelligence* (Vol.11, No.2), April-June 1985, p.53; and '501st Military Intelligence Brigade (EAC)', *Military Intelligence*, July-September 1992, p.53.

60 Jeffrey T. Richelson, *The U.S. Intelligence Community*, p.63.

61 '501st Military Intelligence Brigade (EAC)', *Military Intelligence*, July-September 1992, p.53.

62 United States Army Field Station Korea, *Annual Historical Report, Fiscal Year 1986*, cover page.

63 Ministry of National Defense, Republic of Korea, *Defense White Paper 1992-1993* (Ministry of National Defense, Seoul, 1993), p.147.

64 *Ibid.*

65 James E. Pierson, *A Historical Study of the Organizational Development of the United States Air Force Security Service, 1970-1974*, pp.33-34.

(i) 146th ASA Aviation Company, Taegu Air Base, 1975-79:

From January 1975 until its transfer to Camp Humphreys, Pyongtaek, in 1978-79, the 146th ASA Aviation Company maintained the *Guardrail IV* airborne SIGINT/DF system at Taegu Air Base. The *Guardrail IV* system, which was flown aboard Beechcraft RU-21H *Ute* aircraft, was targeted against VHF communications. The aircraft were linked to a fixed site, code-named *Adventurer*, which performed the signals analysis and evaluation.⁶⁶

(ii) NSA Taegu Facility:

The NSA facility at Taegu (code-named *Ermine*) is remoted to the NSA's B-Group Remote Operations Facility at Kunia, Hawaii.⁶⁷

It is maintained and operated for the NSA by the Bendix Field Engineering Group, is equipped with a *Pusher* HF DF CDAA, and targeted against communications in China and North Korea. There are South Korean personnel at the Taegu facility to provide linguistic capability.

14. Osan Air Base:

Osan Air Base, which is 35 miles south of Seoul, is the most forward deployed US Air Force base in the world.⁶⁸ Located at Osan Air Base is the 303rd Intelligence Squadron of the US Air Force's Air Intelligence Agency (formerly the 6903rd Electronic Security Group (ESG) of the US Air Force's Electronic Security Command), one of the US Air Force's five principal SIGINT Squadrons/Groups in the Pacific

⁶⁶ 'The Electronic Battlefield: Army Beefing Up Intelligence Capabilities', *Defense Electronics*, June 1979, p.59; 'Airborne Comint Improvements Pushed', *Defense Electronics*, June 1979, p.61; and Dick van der Aart, *Aerial Espionage: Secret Intelligence Flights by East and West* (Arco/Prentice Hall Press, New York, 1986), p.139.

⁶⁷ Jeffrey T. Richelson, *The U.S. Intelligence Community*, p.185.

⁶⁸ Jim Tice, 'Life at Osan: "We Are Within Scud Range"', *Air Force Times*, 27 June 1994, p.13.

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theatre.⁶⁹ As at the end of 1990, the 6903rd ESG had more than 500 personnel.⁷⁰

US Air Force SIGINT activities at Osan began in September 1953, when the 15th Radio Squadron (Mobile), USAFSS, formerly Detachment C of the 1st RSM, arrived at the base. The 15th RSM was redesignated the 6929th RSM on 1 October 1958; the 6929th Security Squadron on 1 July 1963; Detachment 1, 6922nd Security Wing on 1 April 1964; Detachment 1, Pacific Security Region, on 1 April 1970; and the 6903rd Security Squadron on 1 May 1970.⁷¹ It was later redesignated the 6903rd ESG, and then, in 1993, the 303rd Intelligence Squadron.⁷²

In the early 1970s, the 6903rd Security Squadron maintained subordinate operating locations (OLs) at the Chak Pyong Training Area, Camp Colbern (designated OL DA, 24 May 1971 to 30 September 1972), and at Camp Howard, Pyongtaek (OL DB, 15 June 1971 to 30 September 1972).⁷³

From 20 February 1969 to 31 May 1972, Osan was also the site of an operating location (OL 1, redesignated OL AA on 30 October 1970 and OL EA on 1 November 1971) of the 6988th Security Squadron.⁷⁴ This Squadron maintained a subordinate operating location (OL EB) at Kwanju Air Base from 15 February 1971 to 30 April 1972.⁷⁵

The 303rd Intelligence Squadron is responsible for US Air Force strategic and operational SIGINT activities in Korea and surrounding areas. Its principal tenant unit is Detachment 2 of the 9th

69 'Electronic Security Command', *Air Force Magazine*, May 1981, p.91; 'Air Force Intelligence Command (AFIC)', *Air Force Magazine*, May 1993, p.66; and 'Guide to Air Force Installations Worldwide', *Air Force Magazine*, May 1994, p.101.

70 MSgt. Dennis Buxton, 'Skivvy Nine: Osan Unit Proudly Boasts 40 Years of Dedication', *Remain In Touch* (Newsletter of the USAFSS/ESC Association), (Vol.X, No.1), March 1991, p.26.

71 James E. Pierson, *A Historical Study of the Organizational Development of the United States Air Force Security Service, 1970-1974*, p.24.

72 'Electronic Security Command', *Air Force Magazine*, May 1981, p.91; 'Air Force Intelligence Command (AFIC)', *Air Force Magazine*, May 1993, p.66; and 'Guide to Air Force Installations Worldwide', *Air Force Magazine*, May 1994, p.101.

73 James E. Pierson, *A Historical Study of the Organizational Development of the United States Air Force Security Service, 1970-1974*, p.40.

74 *Ibid.*, p.51.

75 *Ibid.*

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Strategic Reconnaissance Wing (SRW), which maintains at least one TR-1A/U-2R SIGINT-equipped reconnaissance aircraft; however, various other elements of the Group conduct a wide variety of other SIGINT activities in support of the HQ 7th Air Force and the 51st Fighter Wing at Osan; the 692nd Intelligence Group of the US Air Force's Air Intelligence Agency at Hickam Air Force Base in Hawaii; and the NSA at Fort George G. Meade in Maryland.

Rose Bowl:

From the late 1950s through the early 1960s, the 6929th Radio Squadron Mobile (RSM) at Osan Air Base operated several specially configured T-29 aircraft, code-named *Rose Bowl*, which were 'used very successfully'.⁷⁶

Combat Dawn:

From 1970 to 1977, Osan Air Base was used by the US for airborne SIGINT operations, code-named *Combat Dawn*, involving pilotless reconnaissance aircraft or drones, against North Korea and China. Following the shooting down of a US Navy EC-121M SIGINT aircraft off the North Korean coast by North Korean fighters on 14 April 1969 (with the death of all the 31 crew members), the NSA decided to use drones for COMINT flights over the Sea of Japan and the East China Sea. For this task, Teledyne Ryan produced the 30-foot long Model 147TE/AQM-34Q and 147TF/AQM-34R remotely-piloted vehicles.⁷⁷

(The EC-121M SIGINT aircraft shot down on 14 April 1969 took off from Atsugi Air Base in Japan, and 'was directed to fly a track from Atsugi to a point off the Musu Peninsula on the North Korean coast, make a number of orbits on an ellipse about 120 miles long running from the Northeast to the Southeast and land at Osan Air Base

⁷⁶ Master Sergeant Thomas N. Thompson, *USAFSS Performance During the Cuban Crisis - Volume 1: Operations* (Historical Division, United States Air Force Security Service, San Antonio, Texas, 1963), p.12.

⁷⁷ Dick van der Aart, *Aerial Espionage: Secret Intelligence Flights by East and West*, p.75; and Martin Streetly, *Airborne Electronic Warfare: History, Techniques and Tactics* (Jane's Publishing Company Limited, London, 1988), pp.130, 170.

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in ROK'.⁷⁸ It was shot down some 90 miles southeast of Chongjin, North Korea.⁷⁹

The 147TE and 147TF drones were launched from DC-130 mother aircraft and had an endurance of as long as 12 hours, though flights of 7-8 hours were more typical.⁸⁰ The drones could listen to Chinese and North Korean military communications traffic up to about 300 miles (500 km) away, and pass the intercepted traffic over the same distance to either the mother aircraft or to a ground station.⁸¹ The 147TE drones flew some 268 COMINT sorties from Osan from early 1970 to June 1973. The 147TF drone became operational at Osan in February 1974, and conducted some 216 sorties over the Yellow Sea between the Korean Peninsula and mainland China, as well as along the 38th parallel dividing the Koreas, until the termination of the *Combat Dawn* program in June 1977.⁸²

Det 2, 9th SRW: TR-1A/U-2R SIGINT Aircraft:

Detachment 2 of the 9th Strategic Reconnaissance Wing (SRW) maintains at least one TR-1A/U-2R aircraft at Osan Air Base on a rotational basis. Equipped with a variety of COMINT and ELINT intercept antennas mounted under the rear fuselage, the TR-1A/U-2R aircraft are principally used for monitoring North Korean activity along the DMZ.⁸³ Sometimes, however, 8-10 hour missions would be undertaken across the Peninsula and up the North Korean east coast, over military bases and cities such as Wonsan and Chongjin, up past

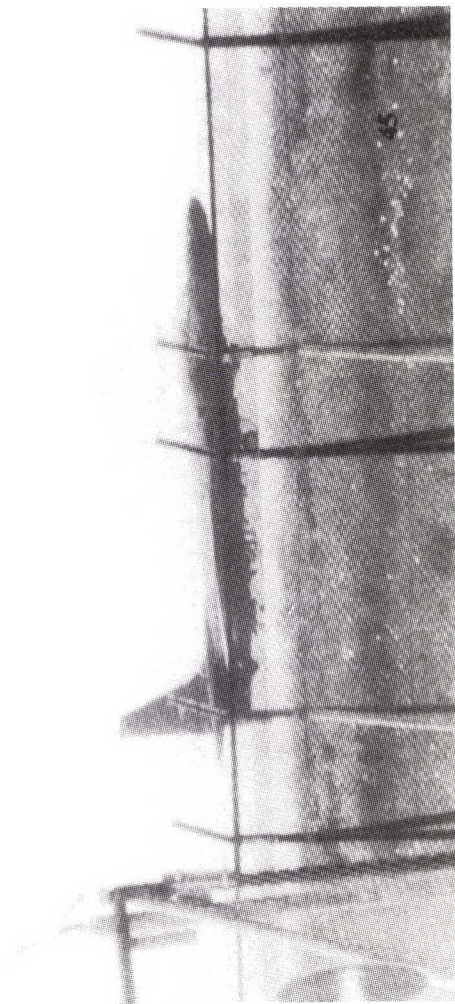
78 US Congress, House of Representatives, Committee on Armed Services, Special Subcommittee on the U.S.S. Pueblo, *Inquiry Into the U.S.S. Pueblo and EC-121 Plane Incidents* (U.S. Government Printing Office, Washington, D.C., 1969), p.890.
79 *Ibid.*

80 Martin Streetly, *World Electronic Warfare Aircraft* (Jane's Publishing Company Limited, London, 1983), pp.101-102; Martin Streetly, *Airborne Electronic Warfare: History, Techniques and Tactics*, p.171; and Dick van der Aart, *Aerial Espionage: Secret Intelligence Flights by East and West*, p.75.

81 Dick van der Aart, *Aerial Espionage: Secret Intelligence Flights by East and West*, p.75.
82 Martin Streetly, *Airborne Electronic Warfare: History, Techniques and Tactics*, p.171.

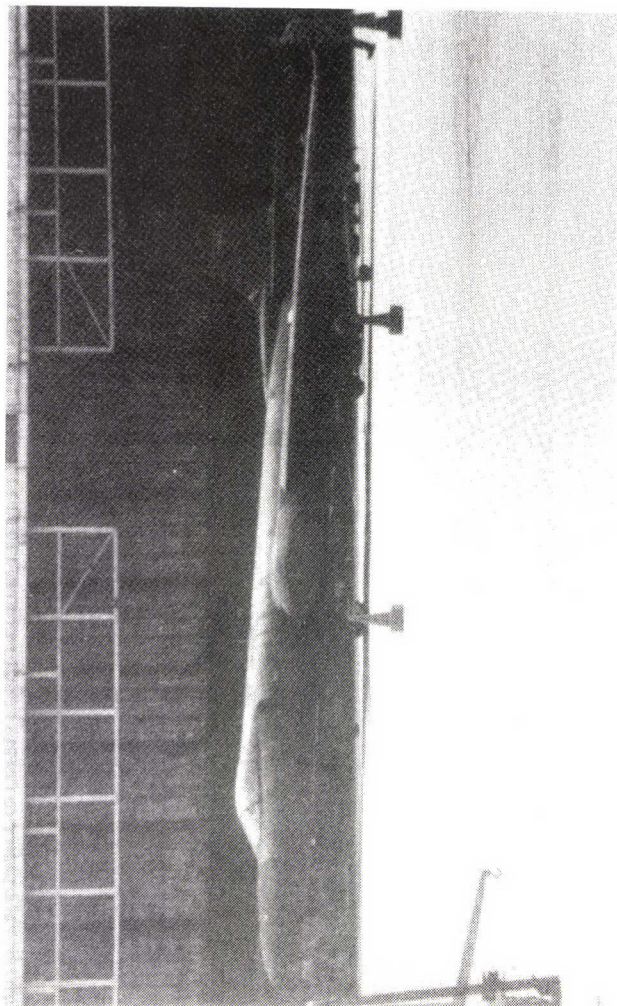
83 Larry Davis, *U-2 Spyplane in Action* (Aircraft No.86, Squadron/Signal Publications, Inc., Carrollton, Texas, 1988), pp.39,45.

FIGURE 6
TR-1A/U-2R, DET 2, 9TH SRW, AT OSAN AIR BASE



Source: Larry Davis, *U-2 Spyplane in Action* (Aircraft No.86, Squadron/Signal Publications, Inc., Carrollton, Texas, 1988), p.45.

FIGURE 7
TR-1A/U-2R, DET 2, 9TH SRW, AT OSAN AIR BASE



Source: Larry Davis, *U-2 Spyplane in Action* (Aircraft No.86, Squadron/Signal Publications, Inc., Carrollton, Texas, 1988), p.45.

Vladivostok, and back across the Sea of Japan to Osan.⁸⁴ There is no doubt that some TR-1A/U-2R missions from Osan also involve penetrations deep into North Korean airspace.

Through the 1970s and 1980s, however, overflights of North Korea itself were primarily the responsibility of SR-71 *Blackbird* aircraft operated by Detachment 1 of the 9th SRW based at Kadena Air Base on Okinawa.⁸⁵ Sometimes, however, the SR-71s would recover from these overflights at Osan.⁸⁶

South Korean Access to Osan:

South Korean SIGINT units were admitted into the 6903rd ESG's activities at Osan in 1981. Two South Korean units (the 1925th Unit, MND and the 7235th Unit, MND) work in a 'South Korean/U.S. joint integrated environment' responsible for both the operational management of TR-1A/U-2R SIGINT missions and the analysis and evaluation of the SIGINT product.⁸⁷

14. *Chak Pyong Training Area, Camp Colbern:*

From 24 May 1971 to 30 September 1972, the 6903rd Security Squadron of the USAFSS at Osan Air Base maintained a detachment at the Chak Pyong Training Area, Camp Colbern.⁸⁸

15. *Kwangju Air Base:*

From 15 February 1971 to 30 April 1972, the 6988th Security Squadron of the USAFSS maintained a detachment at Kwangju Air Base in the south of South Korea.⁸⁹

84 Ernest K. Gann, *The Black Watch: The Men Who Fly America's Secret Spy Planes* (Random House, New York, 1989), pp.187-205.

85 Paul F. Crickmore, *Lockheed SR-71 Blackbird* (Osprey Publishing Limited, London, 1986), pp.175-179.

86 See, for example, Ernest K. Gann, *The Black Watch*, p.171; and Paul F. Crickmore, *Lockheed SR-71 Blackbird*, p.177.

87 '6903rd ESG Member Earns Appreciation', *Spokesman*, February 1990, p.10; and 'Commendation', *Spokesman*, April 1991, p.9.

88 James E. Pierson, *A Historical Study of the Organizational Development of the United States Air Force Security Service, 1970-1974*, p.40.

89 *Ibid.*, p.51.

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16. *Toegeuag:*

A small ASA SIGINT station was reportedly established at Toegeuag following the Korean War.⁹⁰

17. *Yonchon:*

An ASA SIGINT station, code-named *Alamo*, was established at Yonchon (37°37'N, 127°05'E), just 10 km northeast of the centre of Seoul, in 1954; it was reportedly still operational in the early 1980s.⁹¹

Yonsei University Korean Language Program, Seoul:

The NSA's National Cryptologic School (NCS) has established the Yonsei University Korean Language Program at Yonsei University, Seoul, for Korean linguists to enhance their language skills. Trainees are required to have a minimum of four years' operations experience as a Signals Intelligence Analyst, Traffic Analysis Technician or Voice Intercept Technician, and 'have a potential to be or are currently in a position requiring advanced Korean language skills'.⁹²

Monitoring Jamming of HF Broadcast Services:

South Korea maintains four stations for determining 'the location of sources of harmful interference to the high frequency (HF) broadcasting service' - i.e., HF jamming stations. These monitoring stations, which are equipped with log periodic antennas, are located at Seoul (37°12'N, 127°07'E), Pusan (35°12'N, 128°58'E), Kwangju (35°01'N, 126°48'E), and Kwangnung (37°44'N, 128°55'E).⁹³

⁹⁰ James Bamford, *The Puzzle Palace*, p.159.

⁹¹ Robert E. Harkavy, *Bases Abroad: The Global Foreign Military Presence* (Oxford University Press, Oxford, 1989), p.181; and information provided by the Stockholm International Peace Research Institute (SIPRI).

⁹² 'National Cryptologic School - Sponsored Language Programs: Yonsei University Korean Language Program', *Military Intelligence* (Vol.20, No.4), October-December 1993, pp.43,51.

⁹³ M.W. Sower, G.R. Hand and C.M. Rush, *Monitoring of Harmful Interference to the HF Broadcast Service IV. Results of the July 1988 Coordinated Monitoring Period* (NTIA Report 89-244, National Telecommunications and Information Administration, U.S. Department of Commerce, Washington, D.C., June 1989), p.4.

CHAPTER 4

ADVANCED BATTLEFIELD SIGINT SYSTEMS

The US Army has deployed to South Korea its most advanced battlefield SIGINT systems. Deployed across a front of only 200 km and to a depth of only 150 km, with most of the Army's ground systems less than 35 km from the DMZ, and maintained at high readiness levels, it represents the heaviest concentration of battlefield SIGINT capability in the world today. It includes both ground-mobile systems (e.g., *Teammate*, TACELIS and *Trailblazer*) and airborne systems (e.g., *Guardrail V*, *Quick Look II* and *Quick Fix II*). The capabilities of these systems are being continuously enhanced. Special efforts are currently being devoted to the 'fusion' of SIGINT collected by particular ground or airborne COMINT/ELINT/DF systems; and to capabilities for the rapid dissemination of the SIGINT to an extensive array of command levels and unit operations centres - to support both campaign planning and direct targeting of North Korean positions by US/ROK fire support elements.

(i) Ground-mobile Systems:

- *The AN/TRQ-32(V) Teammate System:*

The AN/TRQ-32 system, otherwise known as *Teammate*, is a COMINT/DF system which covers the HF/VHF/UHF frequency bands. It is housed in a shelter mounted on a US Army M-1028 vehicle, and features a pneumatic telescoping antenna mast for rapid movement and deployment. A two-man team can set up the system in less than 10 minutes.¹

The AN/TRQ-32 system is highly automated, and up to 100 frequency channels can be pre-programmed. An auto-netting capability enables a number of such systems to be netted together,

¹ 'AN/TRQ-32 SIGINT System', in Bernard Blake (ed.), *Jane's Radar and Electronic Warfare Systems, 1990-91* (Jane's Information Group, Coulsdon, Surrey, Second Edition, 1990), p.343.

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with one acting as the master and the others as slaves, for enhanced DF performance.²

The AN/TRQ-32(V) *Teammate* system was delivered to the 332nd Military Intelligence Company (EW) at Camp Page in June 1984.³ It is also in service with the 102nd Military Intelligence Battalion at Camp Hovey, Tonghduchon.⁴

- *The AN/TSQ-112 TACELIS System:*

The AN/TRQ-32 *Teammate* system is currently being replaced by the AN/TSQ-112 TACELIS (Tactical Automated Communications Emitter Location and Identification System) COMINT/DF system. The TACELIS system monitors the 0.5 to 500 MHz HF/VHF/UHF frequency bands. It consists of a central processing station deployed forward with each operations company in a 10-ton truck and three six-ton vans; two remote master stations, deployed in three 5-ton trucks; and four slave stations, each carried in an M113 truck. The slave stations have a DF capability only, while the master stations each have 14 COMINT receivers and two search/acquisition receivers. The TACELIS system is inter-operable with other US Army battlefield COMINT/DF systems, including suitably-equipped versions of the *Guardrail V* airborne COMINT/DF system.⁵

- *The AN/TSQ-114 Trailblazer System:*

The *Trailblazer* system, formally designated AN/TSQ-114, is a tactical ground-mobile communications intercept and DF system, able

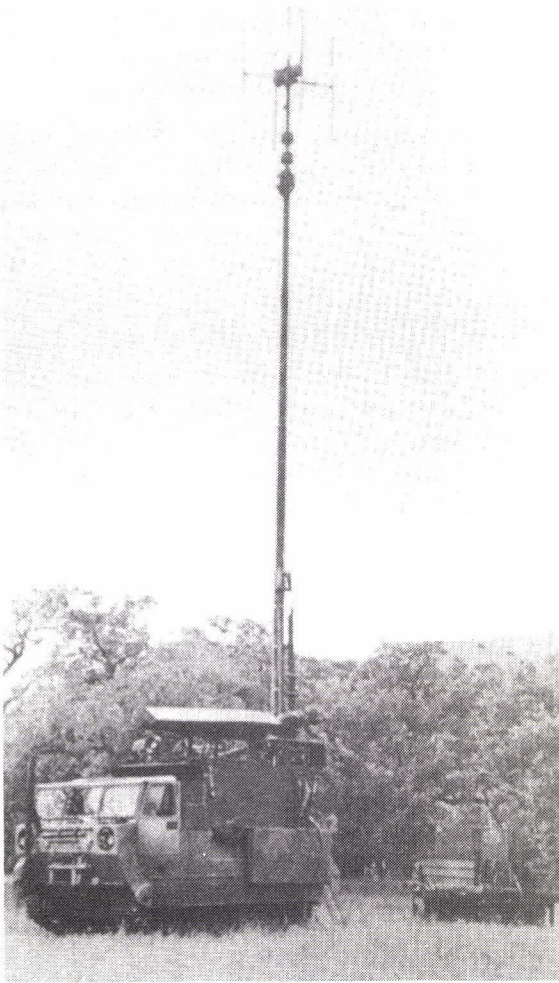
² *Ibid.*

³ United States Army Field Station Korea, *Annual Historical Report*, FY 1985, p.14.

⁴ Lieutenant Colonel John Phillips, 'Intelligence Targeting in Korea', *Military Intelligence* (Vol.20, No.1), January-March 1994, p.22.

⁵ Defense Marketing Services (DMS), 'AN/TSQ-112', *DMS Market Intelligence Report* (DMS Inc., Greenwich, Connecticut, December 1986), pp.1-2; 'AN/TSQ-112 TACELIS ESM System', in Floyd C. Painter (ed.), *The International Countermeasures Handbook* (EW Communications, Palo Alto, California, 13th Edition, 1988), pp.136-137; and 'AN/TSQ-112 TACELIS ESM System', in Bernard Blake (ed.), *Jane's Radar and Electronic Warfare Systems*, 1990-91, p.341.

FIGURE 8
AN/TSQ-114 TRAILBLAZER COMINT/DF SYSTEM



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to monitor communications in the 0.5-150 MHz band and accomplish DF in the 20-80 MHz band.⁶

The *Trailblazer* system consists of two master stations, carried aboard M1015 tracked vehicles, with 50-foot hydraulic-pneumatic quick-erecting masts; and three remote slave stations, mounted in M113 trucks. The slave stations require no operators, and the overall system can DF five or six emitters in one minute. One complete system is deployed with each brigade support company.⁷

The latest version, designated AN/TSQ-114B(V)2, is currently operational in South Korea.⁸ It is in service, for example, with the 2nd Infantry Division's 102nd Military Intelligence Battalion at Camp Hovey, Tongduchon.⁹

(ii) *Airborne SIGINT Systems:*

US Army SIGINT units have deployed to South Korea a comprehensive suite of airborne COMINT and ELINT systems for operational and tactical purposes. These include virtually all of the Army's most sophisticated front-line airborne systems (with a depth of capability that was only ever matched by the airborne systems maintained in West Germany in the mid-1980s).

Although they are relatively expensive to maintain and operate, airborne systems have several significant advantages over ground-based collection systems - their inherent mobility provides much greater operational flexibility; they can respond rapidly to changing operational situations; operating at altitudes from 10,000 feet to 35,000 feet, they are able to monitor signals at much greater ranges and with unimpeded lines-of-sight.

6 'AN/TSQ-114 Trailblazer System', in Bernard Blake (ed.), *Jane's Radar and Electronic Warfare Systems, 1990-91* (Jane's Information Group, Coulsdon, Surrey, Second Edition, 1990), p.339.

7 Defense Marketing Services (DMS), 'AN/TSQ-114', *DMS Market Intelligence Report* (DMS Inc., Greenwich, Connecticut, April 1987), pp.1-2; 'AN/TSQ-114 Trailblazer VHF DF System', in Floyd C. Painter (ed.), *The International Countermeasures Handbook* (13th Edition, 1988), p.136; and 'AN/TSQ-114 Trailblazer System', in Bernard Blake (ed.), *Jane's Radar and Electronic Warfare Systems, 1990-91*, p.339.

8 *Ibid.*

9 Lieutenant Colonel John Phillips, 'Intelligence Targeting in Korea', *Military Intelligence* (Vol.20, No.1), January-March 1994, pp.22-23.

The US Army SIGINT units which currently maintain airborne SIGINT systems include the 3rd Military Intelligence Battalion (Aerial Exploitation) based at Camp Humphreys, Pyongtaek; the 102nd Military Intelligence Battalion based at Camp Hovey, Tongduchon; and forward elements which operate along the DMZ (using, for example, the *Quick Fix II* EH-1H and EH-60C helicopter-borne systems). South Korean SIGINT units are now also extensively engaged in airborne SIGINT activities.

- *The Guardrail COMINT System:*

Guardrail is an airborne COMINT/DF system that intercepts HF and VHF communications, locates and classifies the signals, and transmits the data to ground processors in real-time. The system monitors communications in the 20-70 MHz, 100-150 MHz and 350-450 MHz frequency bands. (The DF capability is limited to the two lower bands.)¹⁰

The *Guardrail* system has evolved through several variants, each successively more capable than their predecessors. The first to be deployed to South Korea was the *Guardrail IV* system, which was fielded with the 146th ASA Aviation Squadron at Taegu Air Base in January 1975.¹¹ The *Guardrail IV* system used six Beechcraft RU-21H *Ute* aircraft, each with eight intercept/DF positions, which typically operated in pairs to provide an optimum baseline for direction-finding, which had a flight endurance of 4-5 hours, and which were interfaced with the *Adventurer* processing and analysis station located at Taegu.¹² In 1978-79, the *Guardrail IV* system was transferred to

10 'Airborne COMINT Improvements Pushed', *Defense Electronics*, June 1979, pp.61-62; 'AN/USD-9V(2) Guardrail Airborne COMINT System', in Floyd C. Painter (ed.), *The International Countermeasures Handbook* (EW Communications, Inc., Palo Alto, California, 13th Edition, 1988), pp.126-137; and 'Guardrail V System (AN/USD-9A)', in Bernard Blake (ed.), *Jane's Radar and Electronic Warfare Systems, 1990-91* (Jane's Information Group, Coulsdon, Surrey, Second Edition, 1990), p.441.

11 'Airborne COMINT Improvements Pushed', *Defense Electronics*, June 1979, p.61; and 'The Electronic Battlefield: Army Beefing Up Intelligence Capabilities', *Defense Electronics*, June 1979, p.59.

12 'AN/USD-9V(2) Guardrail Airborne COMINT System', in Floyd C. Painter (ed.), *The International Countermeasures Handbook* (13th Edition), p.136; 'The Electronic Battlefield: Army Beefing Up Intelligence Capabilities', *Defense Electronics*, June 1979, p.59; and Dick van der Aart, *Aerial Espionage: Secret Intelligence Flights by East and West*, p.139.

Camp Humphreys, Pyongtaek, and the 146th ASA Aviation Company incorporated into the newly-formed 146th CEWI [Combat Electronic Warfare and Intelligence] Battalion (AE) [Aerial Exploitation] (Provisional), later redesignated the 3rd Military Intelligence Battalion (Aerial Exploitation).

In the mid-1980s, the US Army replaced the *Guardrail* IV/RU-21H *Ute* system at Camp Humphreys with the *Guardrail* V system, designated AN/USD-9A, involving Beechcraft *Super King Air* 200 aircraft, designated RC-12D/H. The RC-12D/Hs are pressurised aircraft, able to operate at higher altitudes and over longer ranges (up to 3,650 km as compared to 2,200 km) than the RU-21s, and have a better short-field capability. The VHF search, intercept and DF equipment in the *Guardrail* V system is also much more capable.¹³

The *Guardrail* V (RC-12D/H) system is also much more survivable in hostile situations. The aircraft are equipped with AN/APR-39 and AN/APR-44 radar warning receivers (RWRs) for early warning against threats involving radar-based systems.¹⁴

The ground support for the *Guardrail* V system comprises the AN/TSQ-105(V)4 processing facility, which handles information transmitted by data link from the airborne system, the AN/ARM-63(V)4 flightline van, and the AN/TSC-87 terminal.¹⁵

The *Guardrail* V system is operated by B Company of the 3rd MI Battalion (Aerial Exploitation) at Camp Humphreys.¹⁶ According to the Battalion Operations Center (BOC) officer, *Guardrail* has become 'nearly the perfect intelligence collecting platform'.¹⁷

13 'AN/USD-9V(2) *Guardrail* Airborne COMINT System', in Floyd C. Painter (ed.), *The International Countermeasures Handbook* (13th Edition), pp.136-137; Martin Streetly, *World Electronic Warfare Aircraft*, pp.26-27; and Mark Lambert (ed.), *Jane's All The World's Aircraft, 1990-91* (Jane's Information Group, Coulsdon, Surrey, 81st Edition, 1990), pp.353-354.

14 Captain Kirk E. McIntosh, 'Guardrail/Common Sensor System', *Military Intelligence*, July-September 1992, p.32.

15 Martin Streetly, *Airborne Electronic Warfare: History, Techniques and Tactics*, p.153.

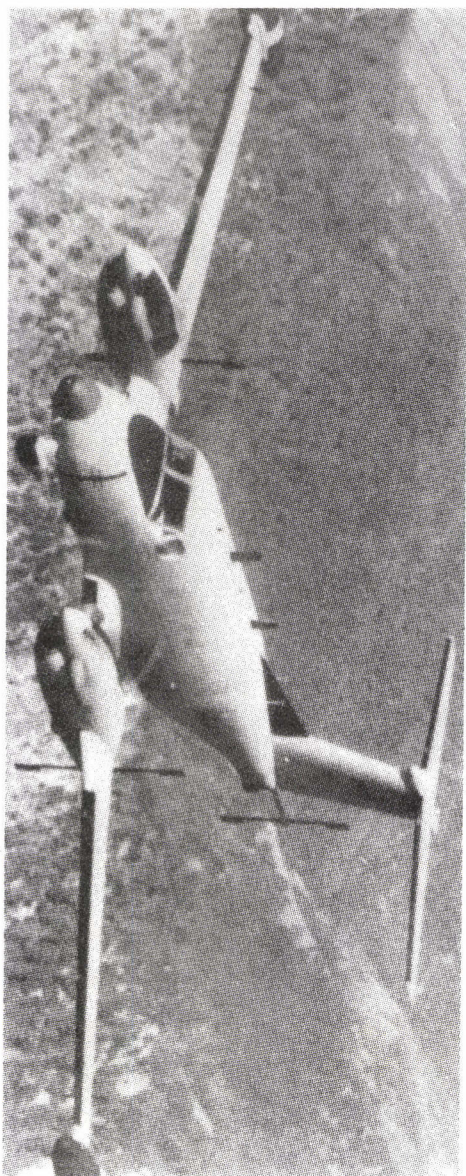
16 Captain Kirk E. McIntosh, 'Guardrail/Common Sensor System', *Military Intelligence*, July-September 1992, p.31.

17 *Ibid.*, p.33.

FIGURE 9
GUARDRAIL



FIGURE 10
GUARDRAIL



- *The Quick Look II ELINT System:*

The *Quick Look II* system, designated AN/ALQ-133, is an ELINT system deployed aboard Grumman OV-1B *Mohawk* aircraft, designated RV-1Ds, six of which are operational with Company A of the 3rd MI Battalion (Aerial Exploitation) at Camp Humphreys, Pyongtaek.¹⁸

The requirement for a *Mohawk/Quick Look* detachment at Camp Humphreys was described to Congress on 6 April 1976 as follows:

The program at USASA location 177 [i.e. Camp Humphreys] consists of an aircraft maintenance hangar and troop housing....

The ... project is required to provide an adequate maintenance hangar to support a USASA aviation company, assigned six OV-1 *Mohawk* twin-engine fixed-wing aircraft, which is to begin operation in [1978].

The aircraft are equipped with classified communications/electronic equipment to provide 24-hour all-weather combat support by flying intelligence gathering electronic reconnaissance missions. Operations will require two aircraft to be airborne at all times with four aircraft hangared, of which two are in preflight and two in postflight status.

These aircraft operations require collocation with the USASA field station ground processing activities.

The hangar is to be used for Project *Quick Look* which is not now in operation. Aircraft will begin to arrive in [1978]. The hangar must be completed by that time.¹⁹

¹⁸ Martin Streetly, *World Electronic Warfare Aircraft*, p.71; Martin Streetly, *Airborne Electronic Warfare: History, Techniques and Tactics*, p.153; and Captain Kirk E. McIntosh, 'Guardrail/Common Sensor System', *Military Intelligence*, July-September 1992, p.32.

¹⁹ US Congress, Senate Committee on Armed Services, Subcommittee on Military Construction, *Military Construction Authorization Fiscal Year 1977* (U.S. Government Printing Office, Washington, D.C., 1976), pp.416-417.

The AN/ALQ-133 *Quick Look II* ELINT system is a radar emitter detection, location and identification system. It consists of two pods: one contains ELINT receivers covering the frequency range from 400 MHz to 18 GHz and equipped with the appropriate broadband antennas; the other contains data processing equipment. The pod antennas are phased interferometer elements capable of providing direction-of-arrival measurements over a 90° sector abeam of the aircraft to a typical accuracy of less than 0.5°. If some degradation of bearing accuracy is acceptable, the coverage sector can be enlarged to 120°. The data processor is responsible for control of the search receivers, analysis of the intercepted signals, and comparison of these against a library of known hostile radar characteristics. The AN/USQ-61 digital data link enables raw ELINT data to be passed from the aircraft to ground processing stations directly reporting to battlefield commanders.²⁰

An Advanced *Quick Look* (AQL) system has been developed, and is currently being installed aboard the RC-12D/H *Guardrail* aircraft. Not only is the AQL more accurate than the *Quick Look II* system, but deployment aboard the RC-12D/Hs will allow missions of double the duration of those allowed by the RV-1D *Mohawks*, as well as direct consolidation of tactical COMINT and ELINT data.²¹ The *Mohawks* are scheduled to be withdrawn from Korea and retired from service by 1 October 1996, though provisions exist for their retention should circumstances on the Korean Peninsula require.²²

- *The Quick Fix II SIGINT/EW System:*

The *Quick Fix II* system, designated AN/ALQ-151, is a helicopter-borne intercept, DF and EW system which covers the 2 to 76 MHz band and which is designed to identify, locate, listen to, and

20 Martin Streetly, *Airborne Electronic Warfare: History, Techniques and Tactics*, p.153; 'AN/ALQ-133 *Quick Look II*', in Floyd C. Painter (ed.), *The International Countermeasures Handbook* (13th Edition), p.117; and 'AN/ALQ-133 ELINT Equipment', in Bernard Blake (ed.), *Jane's Radar and Electronic Warfare Systems, 1990-91*, p.436.

21 Captain Kirk E. McIntosh, 'Guardrail/Common Sensor System', *Military Intelligence*, July-September 1992, pp.32-33.

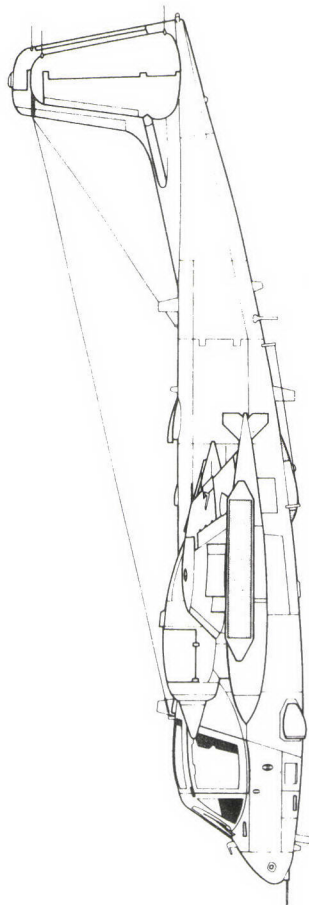
22 'Committee Authorizes Army to Lease Surveillance Aircraft For Korea', *Inside The Army*, 20 June 1994, p.3.

FIGURE 11
QUICK LOOK II



Source: Martin Streetly, *Airborne Electronic Warfare: History, Techniques and Tactics* (Jane's Publishing Company Limited, London, 1988), p.152.

FIGURE 12
QUICK LOOK II



RV-1D, showing one of the two wing-mounted interferometry arrays associated with Quick Look II.
(*Martin Streetly*)

Source: Martin Streetly, *Airborne Electronic Warfare: History, Techniques and Tactics* (Jane's Publishing Company Limited, London, 1988), p.153.

disrupt enemy command and control communications. It is deployed aboard both Bell EH-1H *Iroquois* and Sikorsky EH-60C *Black Hawk* helicopters. The AN/ALQ-151 system on the *Black Hawks* consists of four dipole antennas mounted on the fuselage together with a deployable whip antenna, and a data bank and processor in the cabin.²³ (The AN/TLQ-17 HF/VHF communications intercept and jamming element of the *Quick Fix* system is code-named *Traffic Jam* and covers the 105 to 80 MHz band. It includes a capacity to prevent jamming of friendly voice communications equipment operating in the same area.)²⁴

Quick Fix II helicopters are operated by the 102nd MI Battalion at Camp Hovey in support of the 2nd Infantry Division, with forward deployments elsewhere along the DMZ.²⁵ South Korea itself has reportedly also purchased the *Quick Fix* II system.²⁶

- *Guardrail/Common Sensor System, Advanced Quick Look, and CHAALS:*

The *Guardrail* system is a focal point of recent intelligence fusion efforts by US Army SIGINT authorities. In addition to its current COMINT/DF capabilities, the installation of the Advanced *Quick Look* (AQL) system aboard the RC-12D/H *Guardrail* aircraft will enable it to also collect ELINT and locate and identify non-communications emitters (such as radars associated with air defence weapons systems), and to directly integrate COMINT and ELINT. The addition of the Communications High Accuracy Airborne Location System (CHAALS) will further enhance the system by narrowing an

23 'AN/ALQ-151 Quick Fix Airborne EW System', in Floyd C. Painter (ed.), *The International Countermeasures Handbook* (13th Edition), p.120; 'Quick Fix II B System', in Bernard Blake (ed.), *Jane's Radar and Electronic Warfare Systems, 1990-91*, p.500; Defense Marketing Services (DMS), 'AN/ALQ-151 (Quick Fix)', *DMS Market Intelligence Report* (DMS Inc., Greenwich, Connecticut, January 1989), pp.1-2; Martin Streetly, *World Electronic Warfare Aircraft*, pp.27, 99; and Mark Lambert (ed.), *Jane's All The World's Aircraft, 1990-91*, p.508.

24 'AN/TLQ-17/17A Traffic Jam Ground ECM System', in Floyd C. Painter (ed.), *The International Countermeasures Handbook* (13th Edition), p.135.

25 Lieutenant Colonel John Phillips, 'Intelligence Targeting in Korea', *Military Intelligence* (Vol.20, No.1), January-March 1994, p.23.

26 Defense Marketing Services (DMS), 'AN/ALQ-151 (Quick Fix)', *DMS Market Intelligence Report* (DMS Inc., Greenwich, Connecticut, January 1989), p.2.

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emitter's location down by a factor of 10.²⁷ Specially-equipped *Guardrail* aircraft can now also be inter-netted with some of the US Army's more advanced ground-based battlefield COMINT/DF systems, such as the AN/TSQ-112 TACELIS.²⁸

Simulation of Battlefield SIGINT Operations:

To support intelligence training in the Military Intelligence units in South Korea, the US Army has established a Tactical Simulation (TACSIM) Project Office (TPO) facility at Camp Coiner, Yongsan, in Seoul.²⁹ The TACSIM system provides sophisticated training in 'all aspects of intelligence, from the design of collection requirements to the analysis of raw intelligence'.³⁰ The system simulates and integrates intelligence from US Army and Air Force COMINT, ELINT and imagery intelligence (IMINT) collection assets in service in South Korea - including the *Guardrail*, *Quick Fix* (AN/ALQ-151), *Traffic Jam* (AN/TLQ-17) and *Teammate* (AN/TRQ-32(V)) COMINT systems and the *Quick Look* (AN/ALQ-133) ELINT system.³¹

27 Captain Kirk E. McIntosh, 'Guardrail/Common Sensor System', *Military Intelligence*, July-September 1992, pp.31-33.

28 'AN/USD-9V(2) Guardrail Airborne COMINT System', in Floyd C. Painter (ed.), *The International Countermeasures Handbook* (13th Edition), p.137.

29 Major Gary Allen and Roger D. Smith, 'TACSIM: Intelligence Training for Tomorrow's Battlefield', *Military Intelligence*, October-December 1994, pp.23-27.

30 *Ibid.*, p.23.

31 *Ibid.*, p.24.

CHAPTER 5

SOUTH KOREAN SELF-RELIANCE

In the late 1980s, as it became clear that the Soviet Union was collapsing, the Cold War was over, and the US was instituting substantial reductions in its defence capabilities and retracting many of its forward deployments, the South Korean Government recognised the need to become much more self-reliant - including, most particularly, with respect to surveillance, early warning and intelligence capabilities. As the MND was later to report, with the reduced role of the US Forces in Korea (USFK) and the transfer of much peacetime operational control to the ROK, 'intelligence capability has become the most essential but vulnerable field for the ROK armed forces'.¹ And as an MND official reportedly stated:

We have been too dependent on the US military for North Korean-related intelligence to date. Now it's time to redress the situation.²

The general requirements for more self-reliant national South Korean intelligence capabilities were first publicly described by the MND in 1991:

In regard to strategic early warning Korea still depends on the ROK/US combined intelligence system.

Reducing this reliance on US forces will require the acquisition of reconnaissance aircraft and intelligence-gathering equipment as a substitute for those belonging to the US forces, as well as improvement of early warning and battleground surveillance capabilities and development of command, control, communication and intelligence (C³I) systems.³

Complete self-reliance with respect to intelligence activities would be economically prohibitive and is unnecessary in strategic and

¹ Ministry of National Defense, Republic of Korea, *Defense White Paper 1993-1994* (Ministry of National Defense, Seoul, 1994), p.106.

² Cited in *Asia-Pacific Defence Reporter*, June-July 1993, p.21.

³ Ministry of National Defense, Republic of Korea, *Defense White Paper 1990* (Ministry of National Defense, Seoul, 1991), p.152.

operational terms. According to estimates by MND officials, the intelligence collection equipment possessed by the US in South Korea is worth about \$(US)25 b. and costs about \$2 b. a year to operate and maintain.⁴ Rather, the MND has been concerned to identify general capabilities which South Korea should possess itself, or capabilities which are jointly maintained with the US but which could usefully be enhanced by greater South Korean investment, or capabilities which can be designed and developed indigenously.

Successive MND annual reports have explicated the principal elements of the required capabilities as follows:

- strategic early warning, i.e., capabilities for the detection of indications of attack preparations - e.g., changes in alert levels of particular force elements, movements of military units, changes in the patterns and intensity of signals traffic, etc.. Until the early 1980s, the provision of strategic early warning was essentially a US responsibility, but through the 1980s it devolved to the ROK/US combined intelligence system. Since the early 1990s, South Korea's efforts with respect to strategic early warning have been directed towards both the establishment of 'our own strategic early warning system' and increasing the South Korean contribution to 'ROK-US joint intelligence activities'.⁵
- tactical early warning, i.e., capabilities for detecting an actual attack before combat is joined - e.g., interception of missile launch orders or countdowns, or monitoring of aircraft takeoffs. South Korea is in the process of establishing 'our own tactical early warning system'.⁶
- battlefield surveillance, i.e., capabilities for monitoring the movement and actions of North Korean military units once actual combat is joined. A major South Korean effort is underway to improve both its airborne electronic surveillance and ground-based ELINT capabilities.

4 'MND to Upgrade Signals Intelligence Gear', FBIS-EAS-92-195, 7 October 1992, p.24.

5 Ministry of National Defense, Republic of Korea, *Defense White Paper 1992-1993* (Ministry of National Defense, Seoul, 1993), pp.26, 121.

6 *Ibid.*, p.121.

- electronic warfare (EW) capabilities. South Korea has recognised that EW has 'increased in importance in modern warfare',⁷ and EW capability has been accorded priority in South Korean force modernisation plans and programs.⁸
- maritime electronic warfare capabilities. South Korea is devoting special effort to the indigenous development of EW equipment for its major warships.⁹
- integration of command, control, communications and intelligence (C³I) systems. South Korea has developed automated systems 'that can integrate the elements of command, control, communication and intelligence'.¹⁰

Intelligence Capability Modernization Plan:

In 1992 the MND promulgated an ambitious plan to modernise South Korean intelligence collection capabilities, officially referred to as the Intelligence Capability Modernization Plan.¹¹ Under the first stage of the program (1993-98), the MND plans to acquire an Airborne Warning and Control System (AWACS) aircraft, a variety of unmanned reconnaissance vehicles, aircraft equipped with SIGINT and synthetic aperture radar (SAR) systems, and an intelligence collection ship. During the second stage of the program (1999-2004), development of a military intelligence satellite collection system is planned.¹²

The New SIGINT Aircraft Program:

The centrepiece of the first stage of the South Korean Intelligence Capability Modernization Plan is the acquisition of four

7 Ministry of National Defense, Republic of Korea, *Defense White Paper 1993-1994* (Ministry of National Defense, Seoul, 1994), p.106.

8 Ministry of National Defense, Republic of Korea, *Defense White Paper 1992-1993*, p.119.

9 Ministry of National Defense, Republic of Korea, *Defense White Paper 1989* (Ministry of National Defense, Seoul, 1990), p.165.

10 Ministry of National Defense, Republic of Korea, *Defense White Paper 1993-1994*, p.106.

11 *Ibid.*

12 'MND to Upgrade Signals Intelligence Gear', FBIS-EAS-92-195, 7 October 1992, p.24.; and Terrence Kiernan, 'S. Korea to Bolster Intelligence Abilities', *Defense News*, 29 March-4 April 1993, p.6.

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SIGINT-equipped aircraft, at a program cost of half a billion dollars. Four packages are currently being evaluated, including the Beech RC-350 *King Air*/Raytheon *Guardian* SIGINT system.¹³

In addition, South Korea is considering the acquisition of *Wild Weasel*-type EW aircraft. The German Government/Panavia, for example, have discussed with South Korea a program involving 24 Electronic Combat and Reconnaissance (ECR) variants of the *Tornado* aircraft.¹⁴

South Korea is also planning to acquire some four Airborne Warning and Control System (AWACS) aircraft, such as the Boeing E-767 AWACS currently being acquired by Japan.¹⁵ The ELINT/Electronic Support Measures (ESM) capability of such an aircraft is yet to be determined, but it is likely to be fairly sophisticated.

Naval Electronic Warfare (EW) Capabilities:

Until the early/mid-1980s, the South Korean Navy lacked any modern electronic warfare (EW) capabilities. For example, the Navy's seven *Chung Buk* (ex-US *Gearing*) class destroyers, acquired from the US Navy in 1972-81, and which comprised the bulk of the Navy's surface combatant capability until the indigenously-built *Ulsan*, *Po Hang* and *Dong Hae* classes of frigates and corvettes entered service in the early 1980s, remain equipped with the obsolete AN/WLR-1 ESM/radar warning system.¹⁶

Over the past decade, however, all new surface combatants have been equipped with modern EW/ESM systems acquired from the UK or the US, or produced indigenously. For example, the *Ulsan* class frigates and the *Po Hang* class and *Dong Hae* class corvettes, commissioned through the 1980s (and, in the case of the last ten of the *Po Hang* class, into the early 1990s), are equipped with the British *Matilda* (Microwave Analysis Threat Indication and Launch Direction

13 Barbara Opall, 'Seoul Seeks Spy Plane Fleet', *Defense News*, 6-12 December 1993, pp.1,26; and 'ELINT Guardian', *Aviation Week & Space Technology*, 7 June 1993, p.29.

14 Nick Cook, 'Germany Prepares to Sign S. Korean MoU', *Jane's Defence Weekly*, 12 March 1994, p.14.

15 John Boatman, 'Saudis, S. Korea to be Briefed on E-767', *Jane's Defence Weekly*, 10 July 1993, p.5.

16 Captain Richard Sharpe RN (ed.), *Jane's Fighting Ships, 1991-92* (Jane's Information Group, Coulsdon, Surrey, 94th Edition, 1991), p.355.

Apparatus) radar threat warning receiver, which covers the 7.5-18 GHz frequency band.¹⁷ The South Korean Agency for Defense Development has also developed a radar intercept/jamming system for installation aboard the new frigates and corvettes.¹⁸

South Korea is currently building some 10 (and perhaps as many as 20) 3,800-ton KDX destroyers. These are to be equipped with AN/WLR-14, WJ 1140 and WJ 8958 radar intercept and DF systems produced by Watkins-Johnson Co. in the US. (The WJ 8958 DF system covers the 1 MHz-2 GHz band.)¹⁹

The South Korean Navy's 12 *Super Lynx* helicopters are equipped with the British Racal MIR-2 *Orange Crop* ESM system, which receives, analyses and displays radar signals in the 600 MHz to 18 GHz frequency range.²⁰

'New Operations Plan 5027':

It was disclosed in September 1993 that the US and South Korea had agreed upon a new defence strategy, designated 'New Operations Plan 5027', which accords higher priority to detection of North Korean war preparations and hence lengthening the expected warning time. The plan, which was reportedly tested in the joint US/South Korea *Team Spirit 93* field exercise and the *Ulchi Focus Lens* command post exercise earlier in 1993, involves the integration of 'indications and warning' intelligence from SIGINT and imagery satellites and aircraft and SIGINT ground stations, and reportedly promises to provide some one to four days warning (rather than 12-16 hours) of an invasion.²¹

17 Norman Friedman, *The Naval Institute Guide to World Naval Weapons Systems, 1994 Update* (Naval Institute Press, Annapolis, Maryland, 1994), p.60; and 'Matilda RWR', in Bernard Blake (ed.), *Jane's Radar and Electronic Warfare Systems, 1990-91*, p.414.

18 Norman Friedman, *The Naval Institute Guide to World Naval Weapons Systems, 1994 Update*, p.58.

19 *Ibid.*, pp.66, 68.

20 *Ibid.*, p.60; 'MIR-2 ESM System', in Floyd C. Painter (ed.), *The International Countermeasures Handbook* (13th Edition), p.144; and 'MIR-2 (Orange Crop) ESM Equipment', in Bernard Blake (ed.), *Jane's Radar and Electronic Warfare Systems, 1990-91*, p.435.

21 'New Plan to Defend S. Korea', *Sydney Morning Herald*, 14 September 1993, p.7; and 'New Defense Plan For S. Korea: Report', *Pacific Stars and Stripes*, 15 September 1993, p.7.

CHAPTER 6

THE 1994 CRISIS

Through the last half of 1993 and the first half of 1994, the US enhanced its intelligence capabilities in South Korea and increased the readiness of its indication and warning systems. A significant augmentation occurred in May-June 1994, as the crisis peaked over North Korean nuclear developments and the possibility of a war on the Peninsula became very real.

These developments occasioned some debate in the US about the adequacy of US intelligence and warning capabilities in South Korea, but the criticisms are difficult to evaluate. Claims concerning the inadequacy of particular capabilities must be assessed against a moving picture of sustained enhancement - what might have been a deficiency in May 1994 might have been addressed in June! Much of the debate concerned the warning times that the US/ROK forces might reasonably expect. The estimates are not easy to reconcile, partly because they refer to different things (e.g., indications of a North Korean decision to attack South Korea, as compared to tactical warning of an actual invasion).

Official US statements at the beginning of 1994 seemed fairly comfortable concerning US/ROK indication and warning capabilities. In February 1994, for example, General Robert Rutherford, Commander of Pacific Air Forces (PACAF), stated in an address to the Air Force Association in February 1994 that:

[North Korea] is the most surveilled piece of real estate in the world today. I think we will have some warning if they elect to move south.¹

And General Gary Luck, Combined Forces Commander, testified before the Senate Armed Services Committee on 2 March 1994 that:

¹ Cited in Tony Capaccio, 'Intelligence Shortfalls in Korea, Say Reps', *Defense Week*, 23 May 1994, p.1.

Both ROK and U.S. forces have been closely monitoring the situation with some of the best surveillance and warning systems and most skilled military analysts in the world.²

However, on 6 May 1994, following a six-month study of US/ROK readiness issues by the General Accounting Office (GAO), the ranking members of the Readiness Subcommittee of the Armed Services Committee of the House of Representatives wrote to William J. Perry, the Secretary of Defense, as follows:

The lack of intelligence capability to forecast [North Korean] military intentions represents a major deficiency of the combined U.S.-ROK military force....

The inability to tell when an attack will take place or under what circumstances has reduced the warning time to about 24 hours or less....

A short-warning attack by the Democratic People's Republic of Korea would cause major losses to the combined U.S.-Republic of Korea ground forces.³

In May-June 1994, senior US Defense officials averred that there had been a significant increase in US intelligence capabilities concerning Korea. For example, Secretary of Defense, William Perry, during a visit to South Korea in May, stated that US intelligence capabilities had been increased 'significantly'.⁴ And Dr Ashton Carter, Assistant Secretary of Defense for Nuclear Security and Counter-proliferation, stated on 10 June 1994 that:

We are significantly increasing our intelligence assets in the region.⁵

On 14 June, the *Washington Times* reported (citing 'Pentagon sources') that:

² General Gary E. Luck, 'Prepared Statement of General Gary E. Luck, Commander in Chief, United Nations Command/Commander in Chief, ROK/U.S. Combined Forces Command/Commander, United States Forces Korea', Senate Armed Services Committee, U.S. Congress, Washington, D.C., 2 March 1994, para.11.

³ Cited in Tony Capaccio, 'Intelligence Shortfalls in Korea, Say Reps', *Defense Week*, 23 May 1994, p.1.

⁴ *Ibid.*

⁵ 'Russia Backs Sanctions Against North Korea', *International Herald Tribune*, 11-12 June 1994, p.1.

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To increase monitoring of North Korea, U.S. intelligence agencies have sent additional personnel to the region....

The personnel will assist in processing and analysing the large amounts of electronic and photographic intelligence produced daily by an array of spy satellites, reconnaissance aircraft and listening posts on land and sea.⁶

At the same time, press reports from Seoul (citing MND officials) stated that:

An allied monitoring system was in full swing, with US and South Korean experts analysing daily data from surveillance and spy planes....

The monitoring system had been in place since last autumn, but a spokesman added: 'We might be paying more attention'.⁷

North Korea is not an easy target for SIGINT collection, particularly with respect to indications and warning intelligence. Because of the generally high levels of national mobilisation and military alert sustained by North Korea even during 'normal' periods, many of the standard warning indicators have either been bypassed or are at least severely truncated. Moreover, at the strategic level, the utility of COMINT operations is limited by the North Korean reliance on underground cables rather than microwave communications.⁸ There is, of course, extensive use of HF and VHF radio communications by North Korean military units, and this does provide some indications and warning intelligence. For example, one of the 'indications of a heightened state of readiness' in the North Korean Army cited by US intelligence officials in April 1994 was the 'testing of its communications patterns with field commanders on the tactical level'.⁹

In addition to the provision of indications and warning intelligence concerning the imminence of a North Korean attack, the

6 Bill Gertz, 'Pentagon Plans For Buildup in the South', *Washington Times*, 14 June 1994, p.1.

7 'S. Korea Stages Massive Civil-Defence Drill', *The Straits Times*, 16 June 1994, p.4.

8 Louise Lief, Peter Cary and Susan V. Lawrence, 'Solving a Mystery Without Any Clues: U.S. Intelligence Is No Match For North Korea', *U.S. News & World Report*, 7 February 1994, p.43.

9 John Wallach, 'Attack Not Imminent, But North Prepares', *Pacific Stars and Stripes*, 15 April 1994, p.6.

US/ROK SIGINT capabilities provide direct support for campaign planning and targeting activities. In the event of a war, a principal element of US strategy involves the rapid destruction or at least disruption of the North Korean command, control, communications and intelligence (C³I) structure, which is generally assessed as being extremely hierarchical and quite brittle.¹⁰ Priority targets would include the major headquarters complexes of the Korean Worker's Party (KWP), the Ministry of the People's Armed Forces (MPAF), the General Staff Department and the major military commands in Pyongyang; the communications facilities in and around Pyongyang; air defence command centres; and other major North Korean command and intelligence centres. As in the war against Iraq in January-February 1991,¹¹ the US objective would be to sever the connections of the high command in Pyongyang with the North Korean forces, to curtail the flow of intelligence to the North Korean high command, and to provide US/ROK commanders with superiority in terms of battlefield electronic warfare capabilities. For targeting purposes, COMINT provides both a picture of the North Korean command and control architecture, and, through DF activities, the location of the important communications facilities. Other SIGINT activities are responsible for the maintenance of up-to-date electronic order of battle (EOB) tables on North Korean electronic (radio and radar) emitters, including data on their locations, frequencies and technical characteristics (e.g. signal strengths, pulse widths and lengths, etc.) in order to identify and target sites such as command centres, air defence centres, missile launch facilities, and major North Korean Army signals units.

An important part of the increase in US intelligence capabilities in South Korea in May-June 1994 involved the augmentation of staff activities concerning war planning and the preparation of targeting plans. For example, in mid-June, HQ US Forces Korea (USFK) asked the Pentagon for 170 additional specialists

¹⁰ Joseph L. Galloway and Bruce B. Auster, 'The Most Dangerous Place on Earth', *U.S. News & World Report*, 20 June 1994, p.56.

¹¹ See Desmond Ball, *The Intelligence War in the Gulf* (Canberra Papers on Strategy and Defence No.78, Strategic and Defence Studies Centre, Australian National University, Canberra, 1991), pp.78-82.

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(with expertise in electronic intercept activities, intelligence and war planning) to augment its staff in Seoul.¹²

12 'Washington Outlook', *Aviation Week & Space Technology*, 20 June 1994, p.19.

CHAPTER 7

CONCLUSIONS

South Korea has the most dense concentration of SIGINT activity in the world today, involving some of the most advanced SIGINT systems currently operational. Most of this activity is maintained by US SIGINT authorities and units, but South Korean capabilities for both independent and joint SIGINT activities have increased greatly over the past decade.

At the strategic level, South Korea is host to TR-1A/U-2R strategic reconnaissance aircraft, a link facility in the US Navy's Pacific HF DF and cryptologic net, US Army INSCOM operations, and the NSA station at Taegu. But the depth of the SIGINT activity in South Korea lies at the operational and tactical levels.

Most of the US SIGINT agencies and units in South Korea have a direct historical lineage to units which were established during the Korean War and which served with great distinction in that War (e.g., the 501st Military Intelligence Brigade at Camp Coiner, Yongsan; the 102nd Military Intelligence Battalion at Camp Hovey, Tongduchon; and the 332nd Military Intelligence Company (EW) at Camp Red Cloud, Uijongbu). They have remained at very close to a war footing since the armistice was signed in 1953.

US SIGINT capabilities were completely amiss when North Korea invaded South Korea in June 1950 and when the Chinese Communists intervened in October-November 1950. They are now expected to provide some one to four days warning of a North Korean decision to invade the South and some 12-16 hours warning of an actual invasion. US Army SIGINT units took some 12 months (from June 1950 to July 1951) before they were able to provide effective support to the Eighth Army. They are now expected to provide essential targeting intelligence and operational support for counter-air, strike and strategic interdiction operations immediately following the outbreak of war, and to support subsequent battlefield operations.

The provision of Indications and Warning (I&W) intelligence is unusually difficult because of the very high levels of mobilisation of

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the North Korean government and military forces. Much of the country is 'normally' maintained on essentially a war-footing. Much of the I&W intelligence that is relied upon to provide strategic warning in other theatres - such as the level of activity at national command centres and headquarters, full alert of air defence systems, the level of traffic over signals nets, and concentration of forces along attack routes - has already been generated. As Lt. Gen. James Clapper, then the Director of the Defense Intelligence Agency (DIA), stated in written testimony to the Defense Appropriations Subcommittee of the House of Representatives in January 1994:

The intelligence community is unable to decipher North Korea's political intentions because of the paucity of human sources and lack of insight into the political decision making process in North Korea.

Pyongyang's military disposition and militaristic society make warning of war in Korea difficult. Many of the traditional indicators that provide the intelligence community with warnings of war, such as movement of forces forward and diversion of civilian and economic assets to the military, already exist in North Korea.

North Korea's military forces and logistics are forward deployed, minimizing the requirement for additional movement and enabling the North to quickly transition from peacetime footing to war. These developments will impede the U.S. intelligence community's ability to provide timely warning of war on the peninsula.¹

Some 700,000 North Korean troops (or 65 per cent of the North Korean Army, as compared to 45 per cent a decade ago), equipped with large numbers of artillery and small-calibre rocket systems, are now deployed in well-concealed and protected attacking positions close to the DMZ.

SIGINT is of course not the only source of intelligence available to the US and South Korean command authorities. The strategic level SIGINT operations are paralleled by imagery collection by satellite and airborne systems - including the US KH-11 *Kennan* and

¹ Cited in Tony Capaccio, 'CIA: Intell Community Hard Pressed to Support Two War Strategy', *Defense Week*, 21 November 1994, p.2.

Advanced KH-11 imaging satellites, the *Lacrosse* radar satellites, and the U-2 aircraft with both camera and synthetic aperture radar (SAR)/moving target indicator (MTI) systems. At the operational and tactical levels, imagery is provided by RF-4C *Phantom* reconnaissance aircraft equipped with cameras, a side-looking airborne radar (SLAR) and infra-red imaging systems, OV-1D *Mohawks* with SLAR and MTI systems, and a variety of helicopter-borne optical and infra-red imaging systems. Planning has undoubtedly been assisted by human intelligence (HUMINT) sources, especially North Korean defectors, but the 'paucity of human sources' in Pyongyang evidently rules out early warning from HUMINT sources.² Imagery would provide invaluable intelligence on order of battle deployments and movements, and attack assessment, once conflict is joined. However, SIGINT must have the burden of responsibility for I&W intelligence.

The US and South Korean policy-makers and command authorities are fairly sanguine about their preparedness and capabilities for repelling a North Korean invasion. The US/ROK Combined Forces Command (CFC) consists of well-trained and equipped forces, with the US Army's Second Division and strong air and naval support. At the outset of war, the US would rapidly proceed with air strikes against the North Korean C³I structure in and around Pyongyang, the north-south transportation routes and logistic support lines, and North Korean second-echelon forces. The damage inflicted on Seoul and the South Korean economic infrastructure would be enormous, even in a short war (i.e., one lasting weeks rather than months), but the Combined Forces Command should be able to hold the North Korean forces until reinforcements arrive. It would take some 21 days for large numbers of troops and heavy equipment to be shipped across from the US mainland, but more immediate assistance would be provided by US forward-based forces in Japan, Alaska and Hawaii.

Intelligence would be crucial to the outcome of the war. The level of preparedness of the Combined Forces Command (CFC) along the DMZ and of the reinforcement process abroad is critically dependent upon the provision of Indications and Warning (I&W) intelligence. The effectiveness of the air campaign against the North Korean C³I structure, including the destruction of national

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headquarters and command centres, severance of the signals links connecting the higher command centres with the forces, and impairment of efforts at reconstitution, is dependent (given the availability of precision munitions) on the mapping by SIGINT assets of North Korean command and control centres, communications facilities and nets, and other lines of signals activity. At the operational level, the success of CFC manoeuvre and holding operations would be determined to a significant extent by the availability of real-time intelligence concerning the deployment, movements, equipment and signals of North Korean forces. The most advanced battlefield SIGINT systems currently available are now connected directly with an extensive array of US/ROK command levels and unit operations centres, to support both campaign planning and direct targeting of North Korean positions by US/ROK fire support elements.

The range and weight of the intelligence responsibilities are broad and heavy. However, the US has invested about \$(US)25 billion worth of intelligence collection equipment in South Korea, and spends about \$2 billion a year to operate and maintain this equipment.³ The deployed capabilities include some of the most sophisticated SIGINT systems available, at both the strategic and battlefield levels.

Enhancements are now being provided through South Korean programs for increasing self-reliance as well as through US modernisation programs. And equipment, personnel and procedures are in place to ensure the real-time availability of SIGINT for planning and directing operations. The responsibilities are great, but the challenge is being met. So long as this remains the case, SIGINT activity will remain a key element of the structure of deterrence and South Korean confidence that underlie the maintenance of peace on the Korean Peninsula.

³ 'MND to Upgrade Signals Intelligence Gear', FBIS-EAS-92-195, 7 October 1992, p.24.

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The Korean Peninsula is the most serious flashpoint in the Asia-Pacific region. Across the Demilitarized Zone (DMZ) separating North and South Korea, only 40 km from Seoul, South Korea faces a virtually fully mobilised, obdurate communist regime, with active armed forces of some 1.13 m personnel and a resolute nuclear weapons development programme.

South Korea now maintains the most intense signals intelligence (SIGINT) activity in the world, involving some of the most advanced SIGINT systems currently operational. Most of this activity is maintained by US SIGINT authorities and units, but South Korean capabilities for both independent and joint SIGINT activities have increased greatly over the past decade.

At the strategic level, South Korea is host to TR-1A/U-2R strategic reconnaissance aircraft, a link facility in the US Navy's Pacific high-frequency direction-finding and cryptologic net, and US Army SIGINT operations. But the depth of the SIGINT activity in South Korea lies at the operational and tactical levels.

Most of the US SIGINT agencies and units in South Korea have a direct historical lineage to units which were established during the Korean War. US SIGINT capabilities were completely amiss when North Korea invaded South Korea in June 1950 and when the Chinese Communists intervened in October–November 1950. They are now expected to provide some one to four days' warning of a North Korean decision to invade the South and some 12–16 hours' warning of an actual invasion. US Army SIGINT units took some 12 months (from June 1950 to July 1951) before they were able to provide effective support to the Eighth Army. They are now expected to provide essential targeting intelligence and operational support for counter air, strike and strategic interdiction operations immediately following the outbreak of war, and to support subsequent battlefield operations.

This monograph describes the history of SIGINT activity in South Korea since 1950; the principal US SIGINT stations, deployments and operations; and the advanced battlefield SIGINT systems and capabilities currently operational in South Korea. It discusses the South Korean programme for increased self-reliance with respect to intelligence, and the impact of the crisis in mid-1994 over North Korean nuclear developments, when the possibility of a war on the peninsula became very real. It concludes with a brief assessment of the ability of South Korea's SIGINT capabilities to satisfy current strategic and military demands.

