

# **North Korean Infiltration Tunnels and Clandestine Tunnel #4**

Mark Lavin and J. David Rogers

# OUTLINE

- **The Korean War: 1950-1953**
- **Terrain and Geology**
- **Tunnel Characteristics**
- **Discovery**
- **Military Significance**
- **Conclusion**



Kim-Il-Sung: Premier of the Democratic People's Republic of Korea recognized by China and the Soviet Union in 1948 as the legitimate leader of North Korea.



# Map of Korean Peninsula

June 25, 1950: NKPA Attacks  
7 IN DIV, 1AR BDE

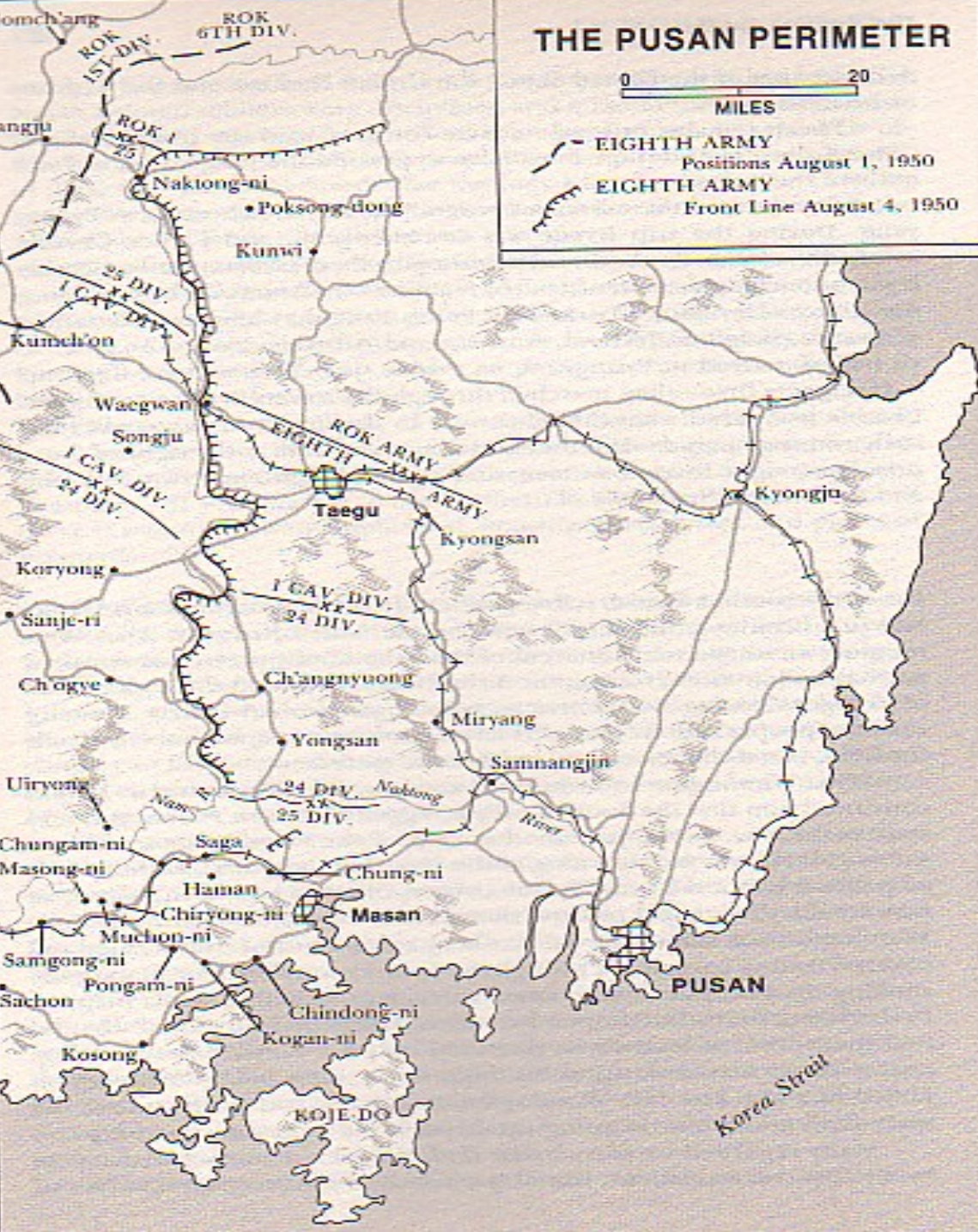
50% Attack along Uijongbu Corridor (Targets: Kaesong, Munan, Seoul)

June 28, 1950: Seoul Captured

July 20, 1950: Taejon Captured

Aug 25, 1950: MGEN W.F. Dean, CO of 24th IN DIV captured after evading NKPA forces for 36 days





August 1, 1950: Pusan Perimeter established

Consolidate defenses while NKPA logistical tether grows strained

United Nations Security Council debates involvement

Soviets walk out of Security Council; UN votes to intercede in Korea

September, 1950: UN forces attack; led by 1<sup>st</sup> Marine Division landing at Inchon; major breakout ensues

Counteroffensive operations





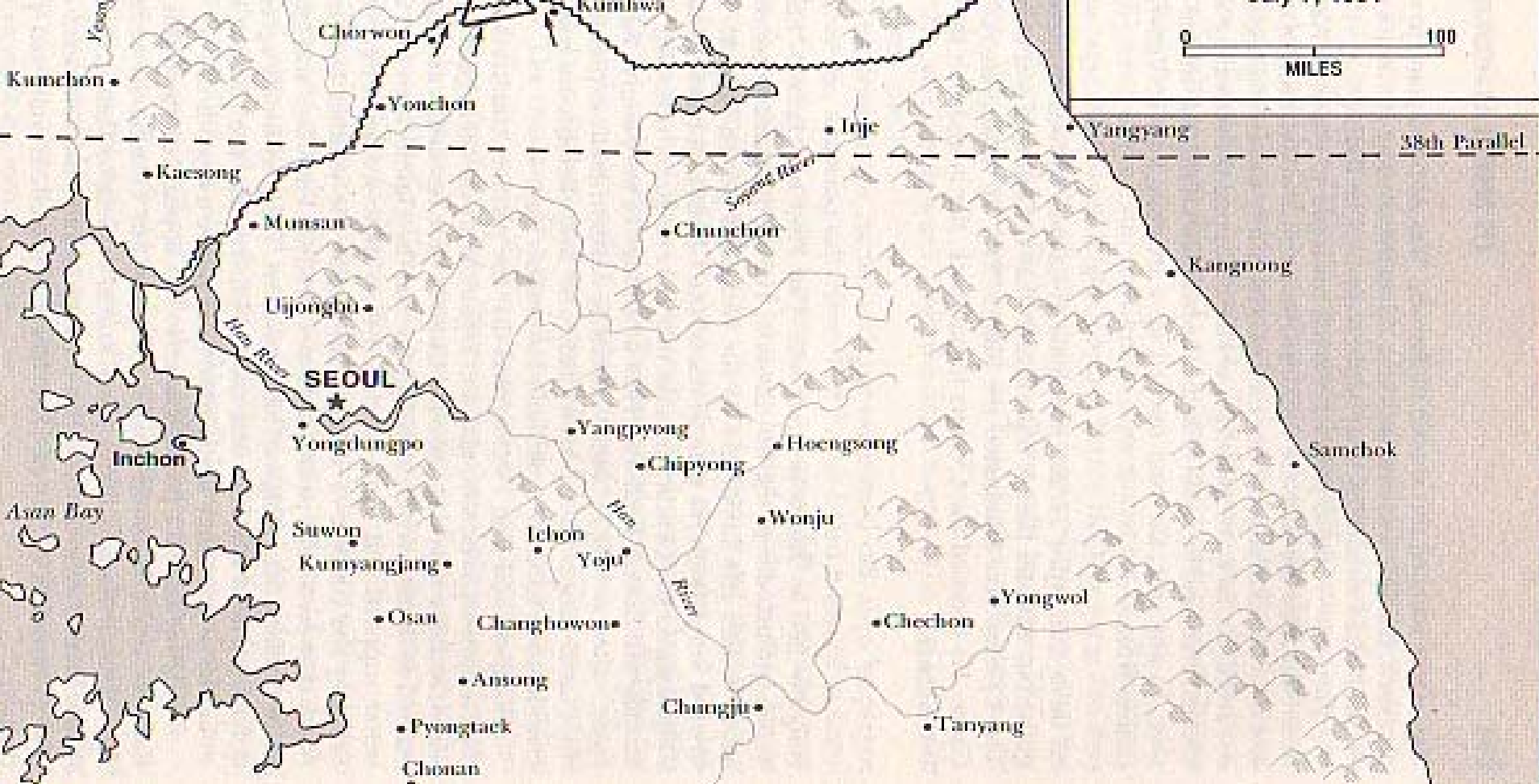
## SEE-SAW CONFLICT

October, 1950: UN line established along the Han River

November 25th, Communist Chinese Attack across the Yalu River with approximately 9 Divisions (740,000 soldiers)

Six Chinese Offensives ensue, with UN forces and American counterattacks.

Seoul is captured twice, between December, 1950 and June, 1951.



May, 1951 Final Chinese Offensive; UN forces hold the line.

1951-1953 United Nations and North Korea engage in ceasefire negotiations while front becomes quasi-static

Bloodiest battles fought near the Iron Triangle over Key Terrain: Heartbreak Ridge; Punchbowl is 10km East

On July 25, 1953 the Korean War ceasefire is signed, establishing DMZ





# TERRAIN

Three basic  
Movement  
Corridors through  
the Peninsula:  
Eastern; Central;  
and Western





China

North

Central

South

West

Sea of Japan

Yokohama Bay

Yellow Sea

Japan

East: Rugged-Light Infantry  
Central: Less Rugged-Light Armored  
West: More Open, Heavy Armored Movement



Terrain typifying the western lowlands



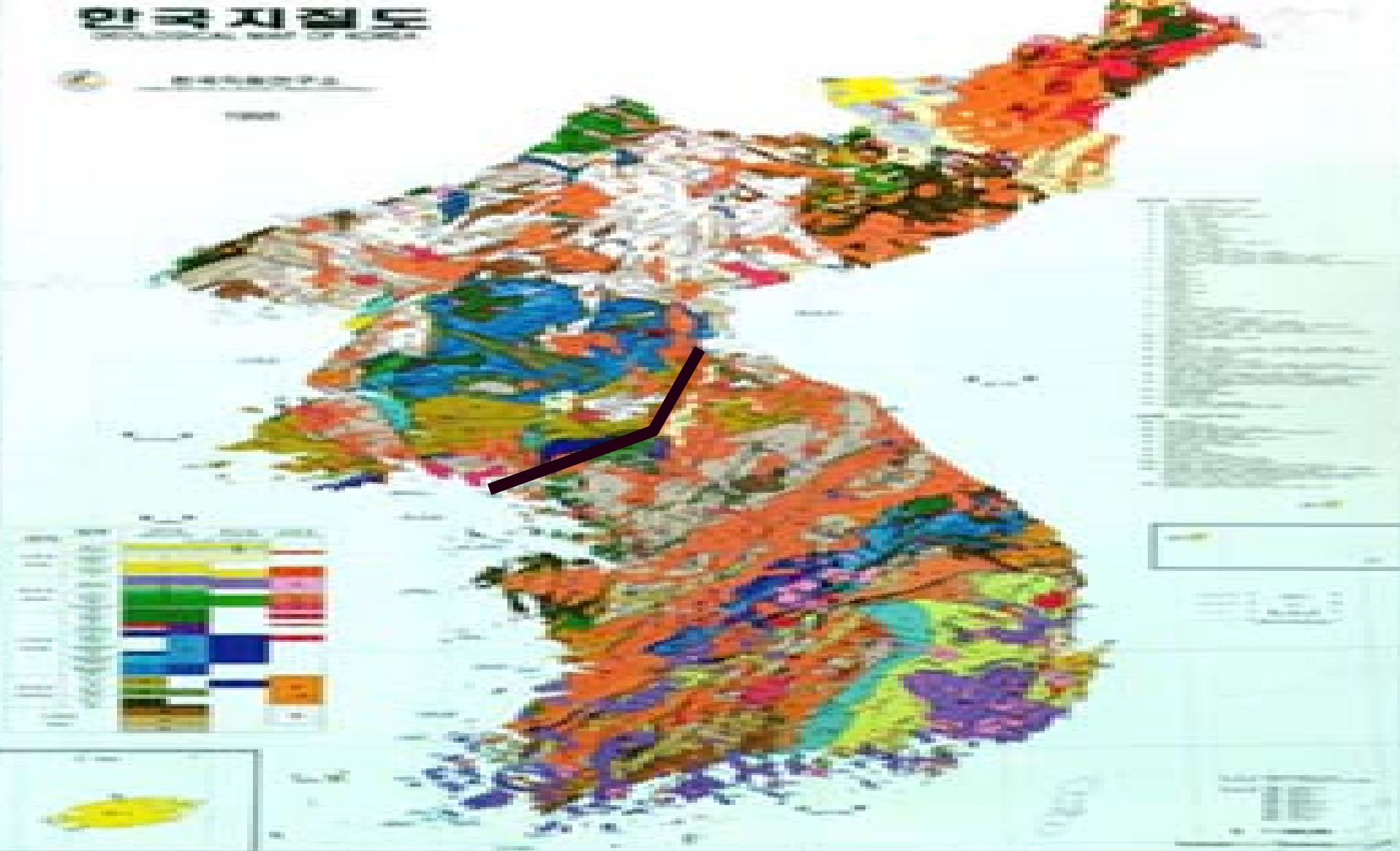


Terrain typical of the central mountains





Terrain typical of the eastern mountains, which are very rugged



Geology: Created at converging plate boundaries. Metamorphic bedrock with large igneous granite and granodiorite intrusions. Formations trend northwest to southeast, with numerous faults. Plutonic rocks orthogonally jointed.



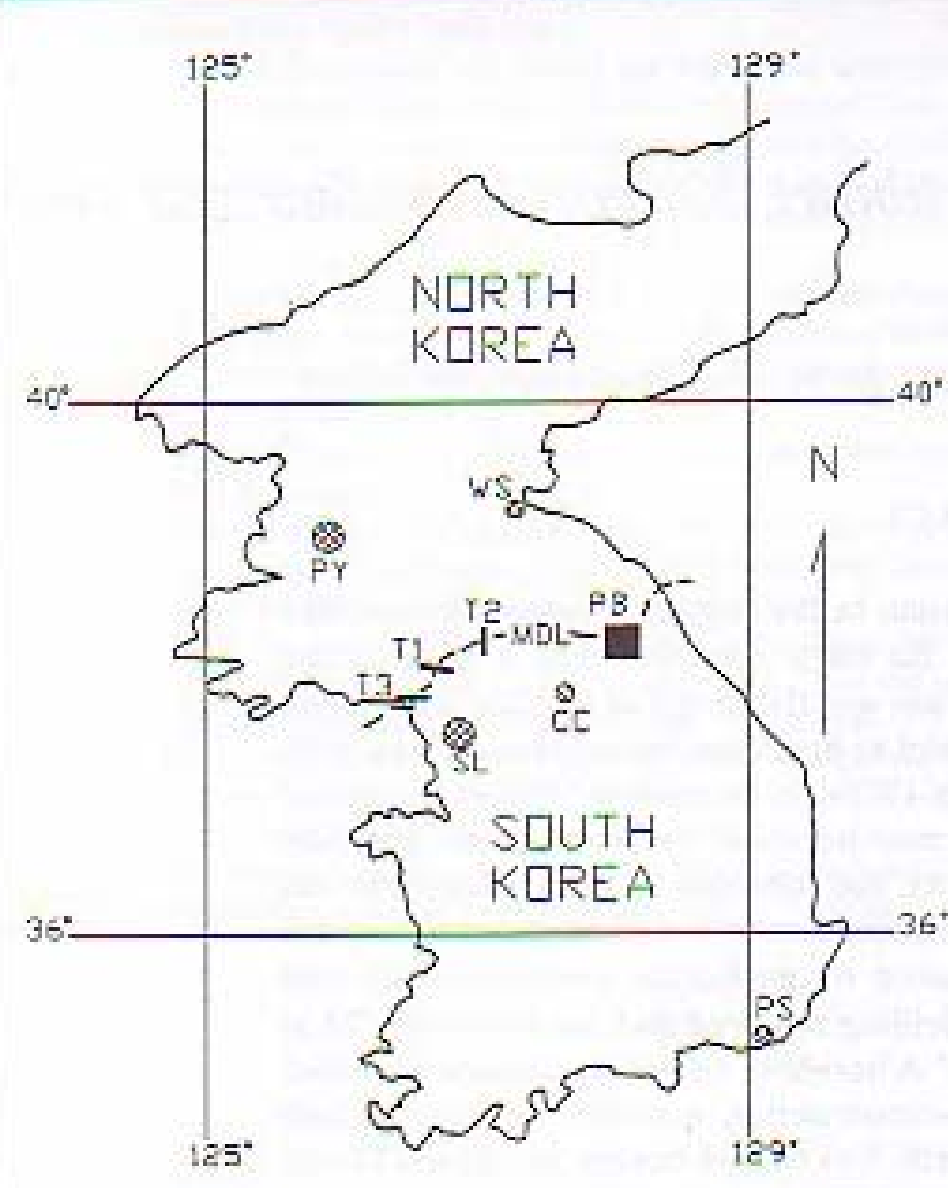


Fault Line Near Punchbowl



Metamorphic Migmatite





Locations of North Korean Infiltration/Invasion Tunnels 1 thru 4

# Comparison of Tunnel Characteristics and Dimensions

	1st Tunnel	2nd Tunnel	3rd Tunnel
Date of Discovery	Nov. 15, 1974	Mar. 19, 1975	Oct. 17, 1978
Location	8km northeast of Korangp'o	13km north of Ch'orwon	4km south of P'anmunjŏm
Size	Height 1.2m Width 90cm	Height 2m Width 2m	Height 1.95m Width 2.1m
Depth from Surface	45cm	50-160m	73m
Total Length	5.5km	3.5km	1,635m
Length South of MDL	1,000m	1,100m	435m
Tunnel Lining	Concrete	None	None
Troop Movement	1 Regiment	30,000 Armed Troops Plus Heavy Guns and Equipment	
Projected Invasion Route	Korangp'o-Ul- jŏngbu-Seoul (Total 65km)	Ch'orwon-P'o- ch'ŏn-Seoul (Total 101km)	Munsan-Seoul (Total 44km)



Tunnel #1



Tunnel #2





Tunnel #3: Notice the rails for muck cars and water lines emplaced by the North Koreans

# Tunnel #4 Characteristics and Dimensions

Discovery: 24 DEC 89

Agencies Involved: ROK Army and Geological Engineers  
US Army Tunnel Neutralization Team (US TDA Unit)

416<sup>th</sup> ENCOM :

- Geological surveying and mapping to determine the character of the granite and granodiorite

- Geophysicists using moderate to high frequency seismographs to search depths between 100-500 feet and parallel to regional faults cutting the ridge

Depth: 145 meters

Support Structure: None

Size: Height- 1.6 meters; Width- 2.6 meters

Length: 2.5 to 3 kilometers from **suspected** start point

Slope: Average of 2.3%; High of 3.5% and Low of .01%

Construction: Drill and Blast method, estimated rate of advance was about 4 meters/day



View inside Tunnel #4



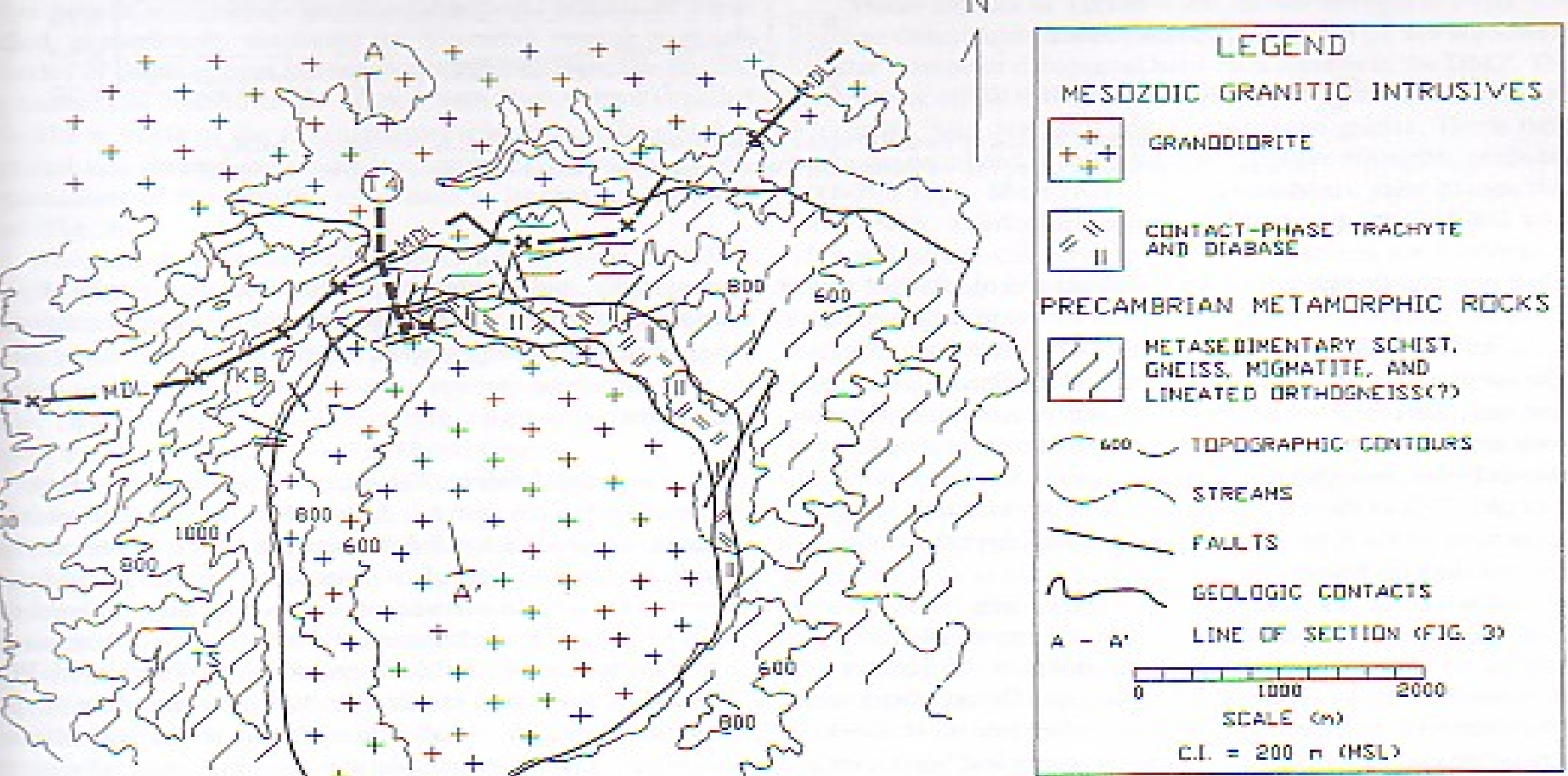


Figure 2. Geologic map of the Punchbowl. Abbreviations: MDL—Military Demarcation Line; KB—Kach'il Bong; TS—Taen San; T4—Clandestine Tunnel-4.

Geology of the Punchbowl along the DMZ: Igneous granodiorite surrounded by migmatite and metamorphic gneiss. Geologic feature is a basin; bordered by multiple faults and differential erosion.

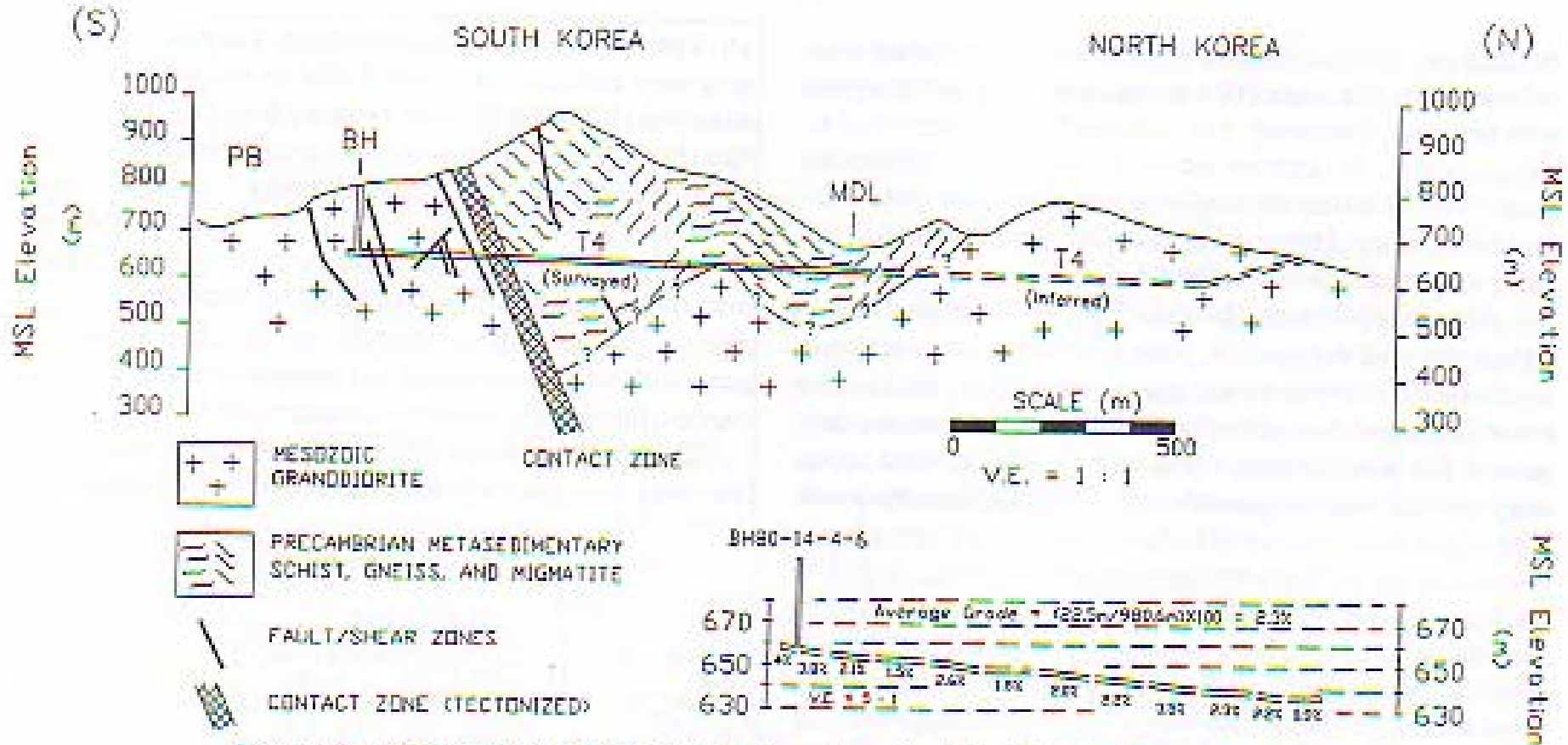


Figure 4. Longitudinal section of Tunnel-4 under the northwest Punchbowl rim. Abbreviations: MDL—Military Demarcation Line; PB—Punchbowl; T4—Clandestine Tunnel-4; BH—Discovery borehole 80-14-4-6.

Longitudinal section of Tunnel #4. Inspections could not proceed beyond the North Korean border.

# Discovery Methods and Techniques

SGT John Rogers of TNT. Credited with discovery of Tunnel #4

Seismograph data modeled

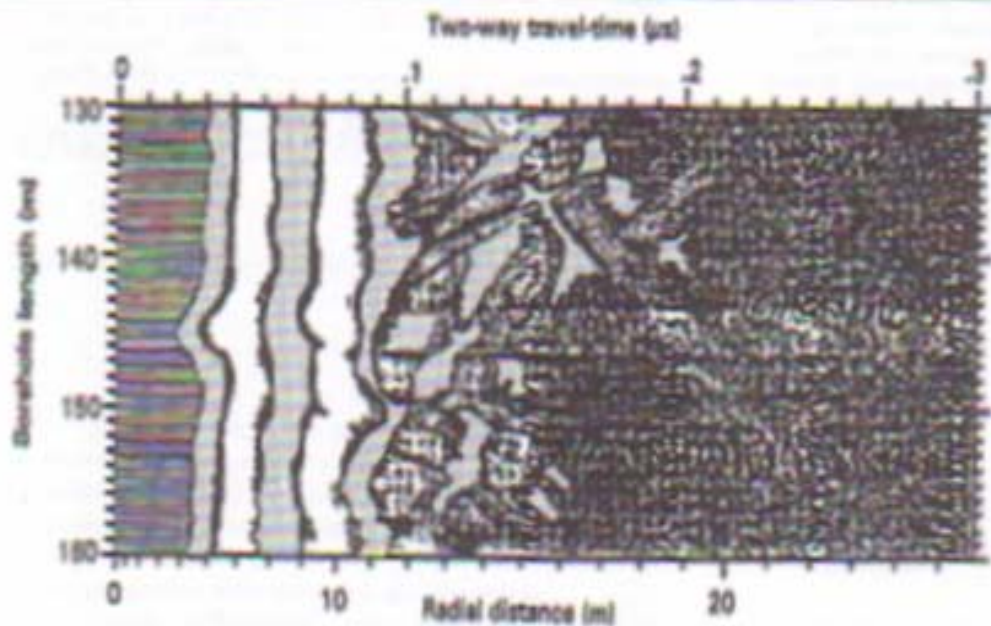
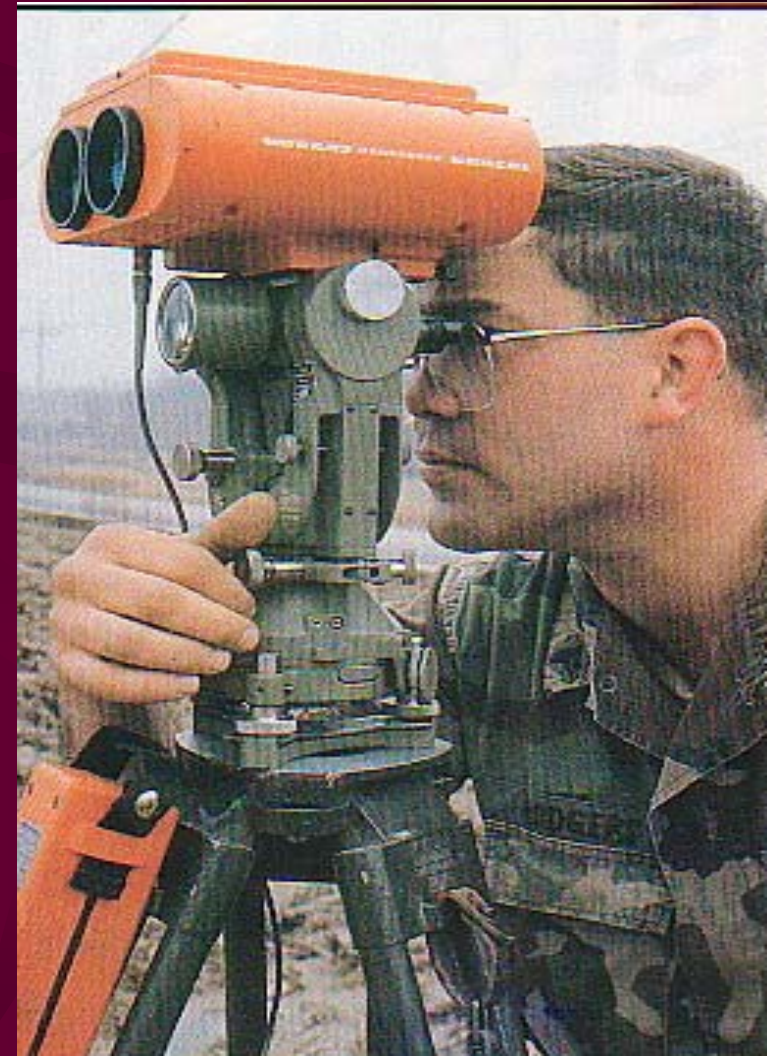
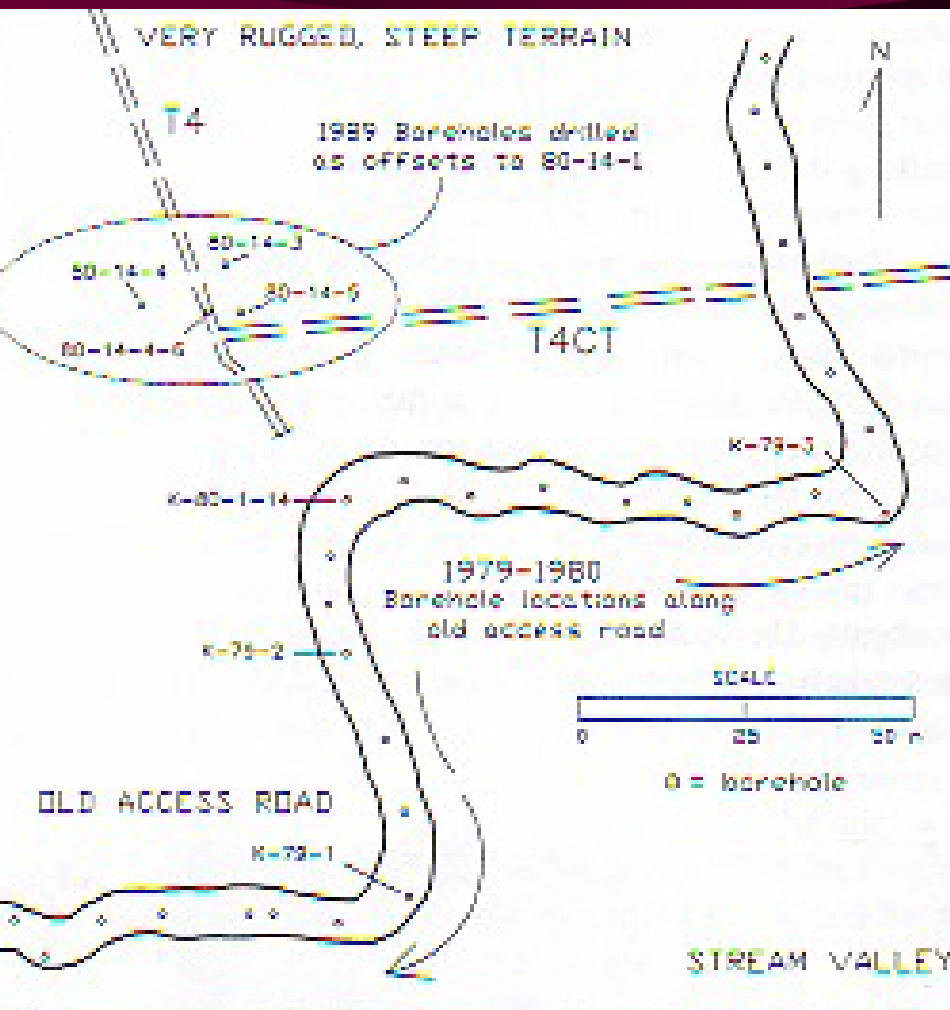


Figure 12. PFMSS data record (filtered-level view) for borehole pair 80-14-4 to 80-14-3. Tunnel-4 is clearly indicated by the strongly anomalous early arrival of the PFMSS signal at 145 m. Borehole separation is approximately 1 m at the tunnel depth. From Allerton et al. (1993).

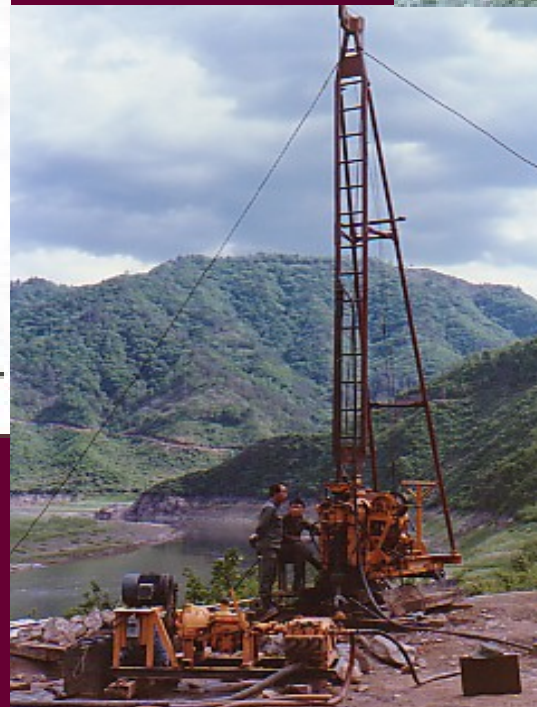




# Discovery Methods and Techniques

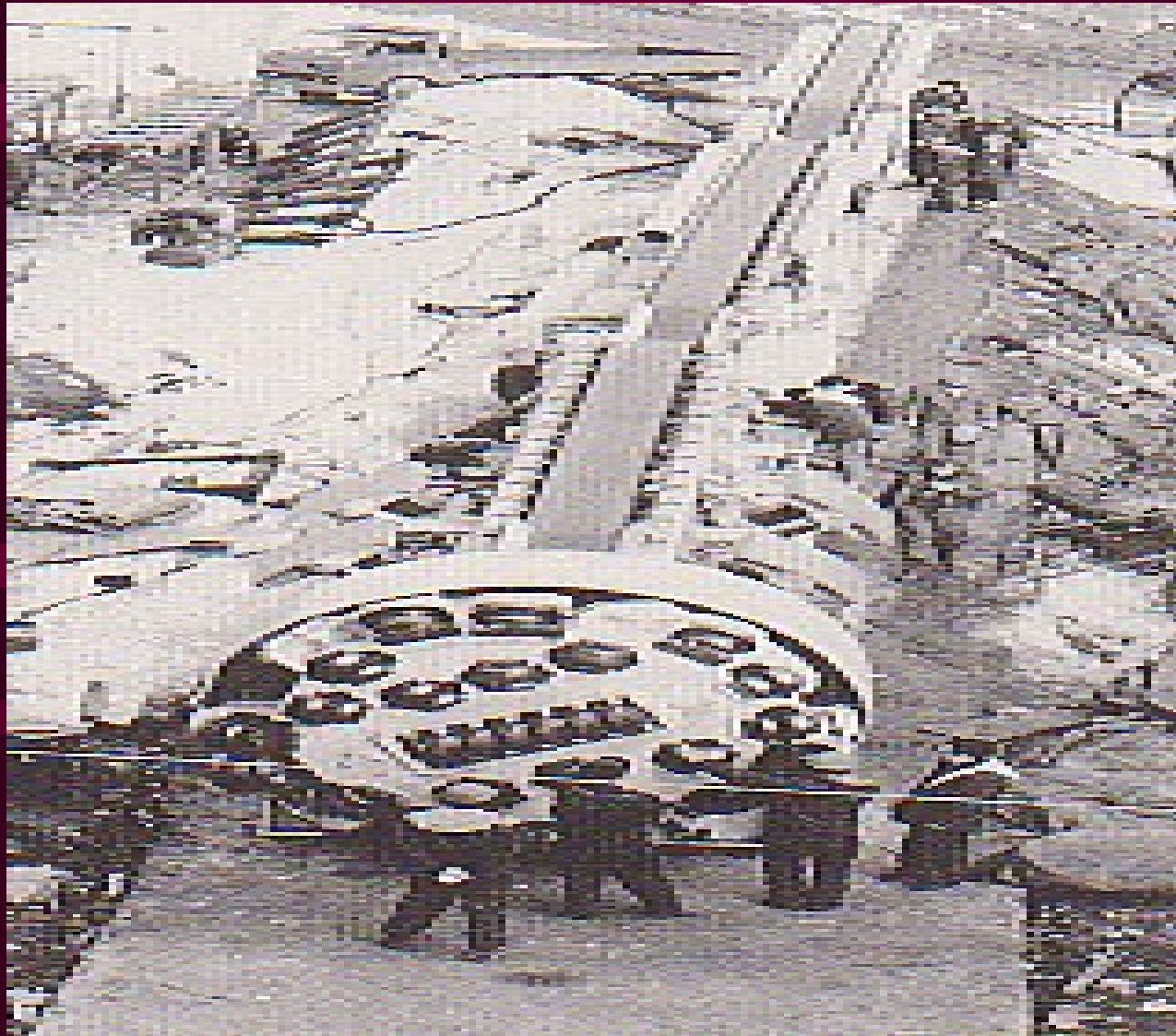


ROK truck  
Mounted  
drill rig  
used on the  
old access  
road



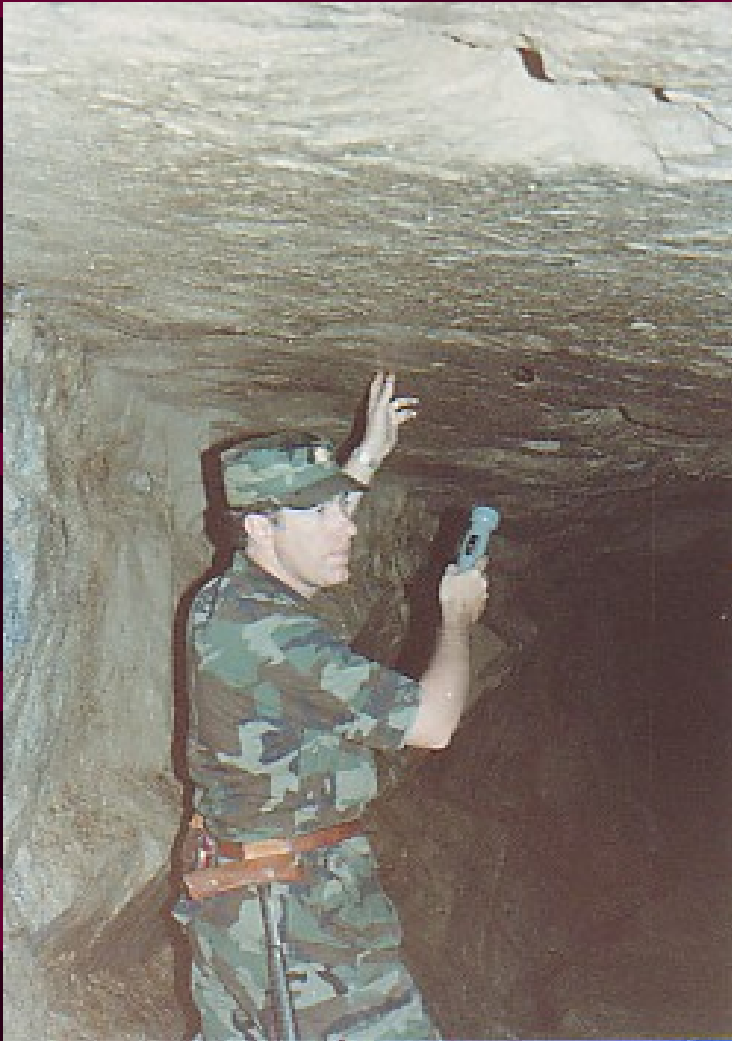
U.S. mobile  
(skid) drill  
rig used in the  
rugged steep  
terrain

Boreholes used in exploration  
for Tunnel #4 and the intercept  
adit constructed by allied forces



German 3 meter diameter tunnel boring machine (TBM)

# Rolla Scientists Who Helped Find Tunnel 4



Reserve MAJ Keith Wedge, 416<sup>th</sup> ENCOM Geologist; employed by Missouri Geological Survey



UMR Geophysics Professor Dick Rechtein, 416<sup>th</sup> ENCOM civilian geophysicist



# References

- BG Keith Wedge, Provided personal pictures and was interviewed by CPT Mark Lavin on 17OCT02.
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