

Notes

Introduction

1. John Miller, Jr.; Owen Carroll; and Margaret **Tackley**, *Korea, 1951–1953* (Washington: **Office** of the Chief of Military History, **1956**), pp. **102–110**; Command Report, Engineer Section, I Corps, May 1951, Narrative, pp. 12-13, contained in Box 1536, Entry 429, Record Group 407, Records of the Adjutant General's **Office**, National Archives, Suitland, Maryland. (All boxes listed in the notes to this Introduction are contained in the same record group, entry, and repository.)

2. Command Report, Engineer Section, I Corps, June 1951, **Narrative**, pp. **3–5**, Box 1543.

3. *Ibid.*, pp. **7–10**; Command Report, I Corps, Narrative Summary, June 1951, Box 1538.

4. Command Report; Engineer Section, I Corps, June 1951, Narrative, p. 10, and Annexes 22 and 23, Engineer Section Daily Journal, 22-23 June 1951; Command Report, Engineer Section, I Corps, July 1951, Narrative, p. 3, Box 1550; Walter G. **Hermes**, *Truce Tent and Fighting Front*, United States Army in the **Korean War** (Washington: **Office** of the Chief of Military History, Government Printing **Office**, **1966**), pp. **15–18**.

5. Command Report, Engineer Section, I Corps, July 1951, Narrative, pp. 9-12 and **15–19** with the quotation on page 15; Annexes 21-25, Engineer Section Daily Journal, 21-25 July 1951; and Annex 54, River Gauge Readings 19 thru 31 July 1951.

6. Command Report, Engineer Section, I Corps, August 1951, **Narrative**, pp. 3-9, Box 1557.

7. Command Report, Engineer Section, I Corps, August 1951, **Narrative**, pp. 3-5, **8–11**, 15, 16, 20, and 25-27; Command Report, 84th Engineer Construction Battalion, August 1951, Box 5077.

8. Command Report, Engineer Section? I Corps, August 1951, **Narrative**, pp. 16 and 23.

9. Command Report, I Corps, September 1951, Narrative **Summary**, pp. 10-19, Box 1559.

10. Command Report, Engineer Section, I Corps, September 1951, Narrative, pp. **9–10**, Box 1564; Command Report, 1169th Engineer Combat Group, September 1951, Narrative, pp. 2-3, Box 5160.

11. Command Report, I Corps, October 1951, Narrative Summary, pp. 6-49, Box 1566. Command Report, Engineer Section, I Corps, **October** 1951, Narrative, pp. 2-4; Attachment 35, Engr Opn 0 131, 18 October 51, items 3b (**11**) and (12); and Attachment 38, Engr Opn 0 134, 28 October 51, item 3a (**2**), Box **1571**. Command Report, Engineer Section, I Corps, November 1951, Attachment 38, Engineer Periodic Operations **Report 183**, 31 October-10 November 1951, item **3b**, Box

1578. Command Report, 1169th Engineer Combat Group, October 1951, Narrative, pp. 3-4, **Box 5161**.

12. Command Report, 84th Engineer Construction Battalion, **October 1951**, Narrative, Box 5078; Hermes, *Truce Tent*, pp. **112-113**.

13. Command Report, Engineer Section, I Corps, October 1951, **Narrative**, p. 4, and Attachment 38, items 3a **(2)** and **(3)**; Command Report, 1169th Engineer Combat Group, October 1951, Narrative, pp. 3-4; Command Report, Engineer Section, I Corps, November 1951, Attachment 31, Engr Opn 0 **135**, 1 November 1951.

14. Command Reports, 1169th Engineer Combat Group, September 1951, Narrative, **p. 3**, and October 1951, Narrative, **p. 1**, containing the quotation.

15. Command Report, Engineer Section, I Corps, November 1951, Narrative, **p. 3**.

16. *Ibid.*; Command Report, 1169th Engineer Combat Group, November 1951, Narrative, **p. 12**, Box 5161; Command Reports, **1092d Engineer [Combat] Battalion, November 1951**, Narrative, pp. 3 and 11, and December 1951, Narrative, **p. 3**, both in Box 5107; Command Report, 62d Engineer Construction Battalion, December 1951, Box 5058.

17. Command Report, **1092d Engineer Battalion, November 1951**, Narrative, pp. 4-5.

18. Command Reports, Engineer Section, I Corps, December 1951, Narrative, **p. 4**, Box 1585, and January 1952, Narrative, **p. 5**, Box 1595; Command Report, 1169th Engineer Combat Group, December 1951, Narrative, pp. **3-4**, Box 5161. A somewhat varying account is contained in Command Report, **1092d Engineer [Combat] Battalion, December 1951**, Narrative, **p. 3**.

19. Command Reports, Engineer Section, I Corps, December 1951, Narrative, **p. 5**, and January 1952, Narrative, **p. 5**; Command Report, 84th Engineer Construction Battalion, January 1952, Narrative, **p. 1**, Box 5912.

20. Command Report, 84th Engineer Construction Battalion, **February 1952**, Narrative, **p. 1**, Box 5912; Command Report, Engineer Section, Eighth Army, March 1952, Narrative, **p. 12**, Box 1324.

21. Command Report, Engineer Section, I Corps, February 1952, Attachment 34, Engineer Periodic Operations Report 192, 31 **January-10 February 1952**, and Attachment 32, Engineer Periodic Operations Report **194, 20-29 February 1952**, Box 1601.

22. Command Report, 84th Engineer Construction Battalion, October 1951, Narrative and Annex K, **Pintail Bridge Plans**.

23. Command Report, 1169th Engineer Combat Group, October 1951, Narrative, pp. 4-5; Command Reports, 84th Engineer **Construction Battalion, November 1951**, Narrative, and December 1951, **Narrative and Annex L, As-Built Plans of the Teal Bridge**, both in Box 5079.

24. Command Report, 24th Engineer Construction Group, February 1952, Inclosure 4, Extract of Operations Order Number 9, Engineer, Eighth Army, 24 February 1952, Box 6013; Command Reports, 62d **Engineer Construction Battalion, March 1952**, Narrative, Box 5884,

and April 1952, Inclosure 15, Engineer Periodic Operations Report 11, 9–18 April 1952, Box 5885; Command Report, Engineer Section, I Corps, April 1952, Narrative, p. 5, Box 1613.

25. Command Reports, 62d Engineer Construction Battalion, April 1952, containing Engineer Periodic Operations Report 12, 19–29 April 1952; May 1952, containing Engineer Periodic Operations Reports 13–15, 30 April–28 May 1952; June 1952, containing Engineer Periodic Operations Reports 16–18, 29 May–29 June 1952, all in Box 5885; and July 1952, containing Engineer Periodic Operations Reports 19–21, 29 June–28 July 1952, Box 5886. Command Report, Engineer Section, I Corps, July 1952, pp. 1 and 7, Box 1633. Command Report, 24th Engineer Construction Group, February 1952, Inclosure 4.

26. Command Report, Engineer Section, I Corps, May 1952, Narrative, p. 6, Box 1619; Command Report, 84th Engineer Construction Battalion, June 1952, Narrative, p. 1, Box 5914.

27. Command Reports, 84th Engineer Construction Battalion, February 1952, Narrative, p. 2, Box 5912, and July 1952, Narrative, p. 1, Box 5914; Command Reports, Engineer Section, I Corps, May 1952, Narrative, p. 7, and July 1952, Narrative, p. 7; Command Report, Engineer Section, Eighth Army, March 1952, Narrative, p. 13.

28. Command Reports, Engineer Section, I Corps, April 1952, Narrative, Box 1613; May 1952, Attachment 33, Engr Opn 0 159, 13 May 1952, Box 1619; and June 1952, Narrative, p. 5, Box 1625. Flood Report, 1 July–15 September 1952, Engineer Section, I Corps, p. 2, Box 1633.

29. Flood Report, 1 July–15 September 1952, Engineer Section, I Corps, pp. 2–4; Command Report, Engineer Section, I Corps, July 1952, Narrative.

30. Flood Report, 1 July–15 September 1952, Engineer Section, I Corps, pp. 3–5, with the quotation on page 5; Command Report, Engineer Section, I Corps, July 1952, Narrative, p. 1.

31. Flood Report, 1 July–15 September 1952, Engineer Section, I Corps, pp. 1 and 6.

32. Command Reports, Engineer Section, I Corps, September 1952, Narrative, pp. 4–5, Box 1645, and October 1952, Narrative, p. 3, Box 1651.

Construction of Libby and Teal Bridges, Imjin River, October 1952 to July 1953

Preface

1. As-Built Plans of the Libby Bridge, prepared on 3 July 1953, are contained in the Papers of William C. Carter, Jr., Office of History, Headquarters, U.S. Army Corps of Engineers, **Kingman** Building, Fort Belvoir, Virginia, and at Tab 11 of the typescript version of this study contained in file 8–5.1A/DK, Historical Resources Branch, U.S. Army

Center of Military History, Washington, D.C. A photocopy of the type-script study, less **Tab 11**, is contained in file XII-7-9, Military Files, **Office** of History, Headquarters, U.S. Army Corps of Engineers.

Chapter I

1. **Engineering Report** on Bridge Study and Design, Teal Site, Imjin River, **2d Engineer Construction Group**, **14 September 1952**, printed at Appendix B below.

2. **Ibid.** This is the official opinion based on studies made by Japanese and Korean engineers. Major William C. Carter, **S-3, 84th Engineer Construction Battalion**, found evidence indicating that this was not true of the Libby bridge site. See the interview of Major Carter by Major William R. Farquhar, Jr., **5** and **20 July 1953**, a copy of which is attached to the original study at **Tab 2**. Japanese officials entered Korea after their nation's victory in the Russo-Japanese War, and Japan formally annexed Korea in 1910. It retained control of the peninsula until its surrender at the end of World War II.

3. Letter, Headquarters, **2d Engineer Construction Group**, **20 August 1952**, subject: Preliminary Analysis of Danger to **Imjin River Bridges** During the Flood of **30 July 1952**.

4. **Eighth Army Staff Study**, **Imjin River Bridges**, **24 September 1952**, printed in Appendix A below.

5. Flood Report, **1 July-15 September 1952**, **Engineer Section, I Corps**, p. 1.

6. **Ibid.**, p. 3.

7. **Ibid.**, p. 4.

8. **Ibid.**, p. 6.

9. Major General (later Lieutenant General) Paul W. **Kendall** commanded I Corps, and General James A. Van Fleet commanded Eighth Army.

10. Brig. Gen. John K. Waters, Chief of **Staff**, I Corps, to Commanding General, Eighth Army, **2 August 1952**; 1st Indorsement of above letter, Commander, Eighth Army, to Commander, I Corps, **11 August 1952**; and Waters to Commanding General, Eighth Army, **14 September 1952**, all printed in Appendix A below.

11. Colonel William C. Baker, Jr., was Eighth Army Engineer.

12. The **2d Engineer Construction Group**, commanded by Colonel Henry J. Kelly, was attached to Eighth Army.

13. Colonel Merrow E. Sorley was I Corps Engineer.

14. Eighth Army Staff Study, **Imjin River Bridges**, **24 September 1952**, and Lt. Col. C. W. Burleson, Assistant Adjutant General, Eighth Army, to Commander, I Corps, **29 September 1952**, both printed in Appendix A below.

15. **Engineering Report** on Bridge Study and Design, Teal Site, **Imjin River**, **2d Engineer Construction Group**, **14 September 1952**; **Eighth Army Staff Study**, **Imjin River Bridges**, **24 September 1952**; and Burleson to Commander, I Corps, **29 September 1952**.

16. Interview of Lt. **Col.** James R. O'Grady, Commanding Officer, 84th Engineer Construction Battalion, by Major Farquhar, 20 July 1953, summarized at **Tab 5** of the original study.

Chapter II

1. Interview of Lt. Col. James R. O'Grady; General Description, **Teal**. Low-Level Bridge [84th Engineer Construction Battalion, 31 July 1953], reproduced at **Tab 6** of the original study.
2. General Description, Teal Low-Level Bridge.
3. Interview of Lt. **Col.** James R. O'Grady.
4. *Ibid.*
5. General Description, Teal Low-Level Bridge.
6. Interview of Lt. Col. James R. O'Grady.
7. *Ibid.*
8. General Description, Teal Low-Level Bridge.
9. *Ibid.*
10. *Ibid.*
11. Interview of Lt. **Col.** James R. O'Grady.
12. General Description, Teal Low-Level Bridge.
13. Interview of Lt. Col. James R. **O'Grady**. The 2d Infantry Division relieved the 1st Commonwealth Division in late January 1953. See Hermes, *Truce Tent and Fighting Front*, p. 389.
14. Interview of Lt. Col. James R. O'Grady.

Chapter III

1. Log of Libby Bridge, 84th Engineer Construction Battalion, entry for 9 November 1952, printed at Appendix D below.
2. Interview of Maj. William C. Carter, Jr. Much of the material contained in the summary of this interview also appears in a mimeographed article by Major Carter, "Freedom for all Peoples," a copy of which is in the Papers of William C. Carter, Jr.
3. Interview of **Maj.** William C. Carter, Jr.
4. Interview of Lt. Col. James R. O'Grady.
5. *Ibid.*
6. *Ibid.*
7. Interview of Maj. William C. Carter, **Jr.**
8. Log of Libby Bridge, 12 and 20 March and **11, 12,** and 14 May 1953.
9. Interviews of Lt. **Col.** James R. O'Grady and Maj. William C. Carter, Jr.
10. Log of Libby Bridge, 2 and 9 February 1953.
11. Interview of Maj. William C. Carter, Jr., and Log of Libby Bridge, 3, 4, and 16 March 1953. The Eighth Army Engineer was Colonel Louis J. Rumaggi. Colonel Rumaggi had replaced Colonel Baker in that position in October **1952**.

12. Interview of Maj. William C. Carter, Jr., and Log of Libby Bridge, 14 and 15 February 1953.

13. Interview of Maj. William C. Carter, Jr.

14. Ibid.

15. Ibid.

16. Ibid.

17. Ibid.

18. Ibid.

19. Col. Louis J. Rumaggi, Engineer, Eighth Army, to Commanding Officer, 2d Engineer Construction Group, 24 April 1953, reproduced at Tab 8 of the original study.

Appendix A

1. Lieutenant Colonel William J. Himes, S-3, Engineer Section, Eighth Army.

2. Colonel Ellsworth B. Downing, Deputy Engineer, Eighth Army.

3. Colonel William C. Baker, Jr., Engineer, Eighth Army.

Appendix B

1. The coordinates stated are those of the Spoonbill site.

2. Paragraph 17 described a two-way bridge that it termed "basically similar to the one-way bridge described in paragraph 16."

3. The paragraph below contains the one relevant work order among the substantial number assigned to the 2d Engineer Construction Group in this document.

4. Major John D. Pusey was chief of the Technical Intelligence Branch, Engineer Section, Eighth Army.

5. Major Edward G. Anderson, Jr.

6. Yongsan-ni Ferry was located on the Imjin River near the X-Ray site.

7. Judging by its location in the chart, this entry apparently should be dated 1 August 1923.

Appendix D

1. Colonel Henry J. Kelly commanded the 2d Engineer Construction Group. He would be succeeded by Colonel Raymond W. Beggs on 18 November 1952.

2. The Supply Section, or S-4, 2d Engineer Construction Group.

3. Concrete mixers and pavers were numbered to indicate their capacity in cubic feet. Thus the 14 S mixer had a capacity of 14 cubic feet, a 16 S mixer had a capacity of 16 cubic feet, a 27 E mixer had a capacity of 27 cubic feet, and a 34 E paver had a capacity of 34 cubic feet.

4. Herman Nelson produced gasoline and kerosene forced-air heaters.

5. A copy of Operations Order **84-376, 2d Engineer Construction Group, 25** October 1952, is at Inclosure **5** of the group's Command Report for October 1952, contained in Box 6001, Entry 429, Record **Group 407, Records** of the Adjutant General's **Office**, National Archives, Suitland, Maryland.

6. Each pile was a **16-inch** diameter pipe manufactured by the **Armco** Steel Company.

7. A cross-section of the pier column indicated on the bridge plans.

8. Major Daniel O. Stoudemire.

9. No template was actually used to drive the sheet piling.

10. Major William C. Carter, Jr., **S-3, 84th Engineer Construction Battalion**, joined the unit on 22 November 1952.

11. Lieutenant Colonel Howard K. Eggleston, Jr., Executive **Officer**, 2d Engineer Construction Group.

12. The concrete curing cabins used on the Libby Bridge piers were named for the enlisted man in the 84th Engineer Construction Battalion who developed them.

13. Group Equipment **Officer**.

14. Seoul Municipal Airfield.

15. Yokohama Engineer Depot.

16. Before sheet piling could be sunk, it had to be covered with a female-shaped sheet pile head, and an adapter had to be attached to the pile driver.

17. The $\frac{1}{2}$ -cubic-yard pan range of the plant was the area around it in which a D7 Caterpillar tractor pulling a trailer of that capacity could profitably operate.

18. Willard Norris had just been promoted to lieutenant colonel. He would leave the 2d Engineer Construction Group in late December 1952 to assume command of the 76th Engineer Construction Battalion at Yongdungp'o, near Seoul.

19. Eight-and-a-half percent of the aggregate was fine enough to pass through a number 80 screen.

20. Fifteen feet above mean sea level.

21. A **2,100-gallon-per-minute** pump.

22. Station 12 + 51 refers to a location 1,251 feet west of the center of the bridge, or some **200 feet** beyond the west abutment.

23. First Lieutenant **Melford Dameron, Jr.**, is identified in a memorandum sent by Colonel Raymond Beggs, commander of the 2d Engineer Construction Group, to Brigadier General Frank Bowman, Engineer, Army Forces in the Far East, on 22 October 1953, as one of the officers in the group headquarters who should receive proper recognition for his role in designing and constructing Libby bridge. This memorandum is in the Papers of Rank Otto Bowman, Hoover Institution, Stanford, California. A "Lt. **Damron**" appears occasionally in the daily **staff** journals of the group contained in Boxes 60006004, Entry 429, Record Group 407, National Archives, Suitland, Maryland, and Major Carter sometimes spells the name that way subsequently in the log, but these apparently refer to the same **Melford Dameron, Jr.**

24. The clutch on a **500-cubic-foot-per-minute-capacity** air compressor.
25. A steam-operated asphalt bath unit capable of heating up to three railway tank cars of asphalt.
26. At this time Colonel Raymond Beggs was the commander of the 2d Engineer Construction Group, and Lieutenant Colonel James **R. O'Grady** commanded the 84th Engineer Construction Battalion.
27. An internal bracing made from a ten-inch **H-beam**.
28. Four feet above mean sea level.
29. A concrete composed of a ratio of one part cement, two parts coarse aggregate, and three parts sand.
30. D7 Caterpillar tractors.
31. Colonel Henry J. Kelly, who had commanded the 2d Engineer Construction Group, became Operations **Officer, S-3**, Engineer Section, Eighth Army, on **8** December 1952. He replaced Lieutenant Colonel William Himes in that position.
32. Lieutenant Colonel Edward J. Ribbs.
33. KATUSA Corporal Kim Ho Duk.
34. Brigadier General Frank O. Bowman, Engineer, Army Forces in the Far East.
35. Flatbed trailer.
36. The paver was able to park on the bulkhead right above the hopper on the pumpcrete.
37. On 10 February Company B, 84th Engineer Construction Battalion, moved from the Teal bridge site to **Tongduchon-ni**, a town some 12 miles east of the X-Ray bridge site, to construct living and operating facilities for the 78th Engineer Field Maintenance Company.
38. Teeth built **flush against** the inside of the drill.
39. A bucking tool, or bucker, was used to form a backstop for a rivet **gun**.
40. Lieutenant Colonel John R. Parker was in the **32d** Engineer Construction Group stationed at Wonju, Korea, and he became its **com-**mander on 13 March 1953. The 34th Engineer Group was stationed at Camp Roberts, California, in this period.
41. Failing was a brand name.
42. The Yawata Steel Company **was** a Japanese manufacturer.
43. Installing cross braces to **form** girders.
44. In addition to the horizontal middle stiffener, C pour **included** a low pedestal, rising a short height above the stiffener, on each **of** the vertical legs of the pier. The pedestal on the downstream column of pier **7** was removed with jackhammers due to **bad** concrete production.
45. Tides at Inch'on were derived from a published tide table and then compared with observed tides at the X-Ray site.
46. First Lieutenant James J. Scott, Jr.
47. A large steel box.
48. The motor park had for a period been mired in mud.
49. Major Keith E. Eiler was chief of the Plans and Requirements Branch, Engineer Section, Eighth Army.

50. Major General Patrick Henry **Tansey**, a career engineer **officer**, was outgoing chief of the Supply Division, **Office** of the Assistant Chief of Staff, G-4, General Staff, U.S. Army.

51. Detached service.

52. First Lieutenant Curtis W. **Badman** was a platoon leader in Company B, **84th** Engineer Construction Battalion.

53. Private **O'Grady's** body was recovered on 22 April 1953.

54. Engineer supply point.

55. Cross diaphragms.

56. Major General Bruce C. Clarke.

57. Roughly one lane in width.

58. This movable scaffold was named after the maintenance **officer** of the **84th** Engineer Construction Battalion, Warrant **Officer** Peter Jackson, who designed it.

59. The receipt of ten oxyacetylene torches enabled the battalion to return the torches it had borrowed under Memos of Receipt from other units.

60. Chinese shelling of I Corps defensive positions near the **X-Ray** site increased beginning on 25 May as the enemy prepared for ground assaults on 28-29 May that netted it Outposts Carson, Elko, and Vegas. These outposts were located about four miles northwest of the **X-Ray** site atop hills forward of I Corps' main line of resistance.

61. The enemy round **exploded** near an emplacement of four **.50**-caliber machine guns manned by the 21st Antiaircraft Artillery Battalion, an element of the 25th Infantry Division. This division had relieved the 1st Marine Division on the western flank of the I Corps front on 5 May 1953.

62. Headquarters, Division Artillery, 25th Infantry Division.

63. The last minute cut-outs would replace bad rivets.

64. Colonel Hoy D. Davis, Jr., was an Engineer **officer** serving at Headquarters, Eighth Army.

65. The visitors from the Army of the **Republic** of Korea were Brigadier General Min Byong Kwon, the Adjutant General, and Brigadier General Urn Hong Sub, the Chief Engineer.