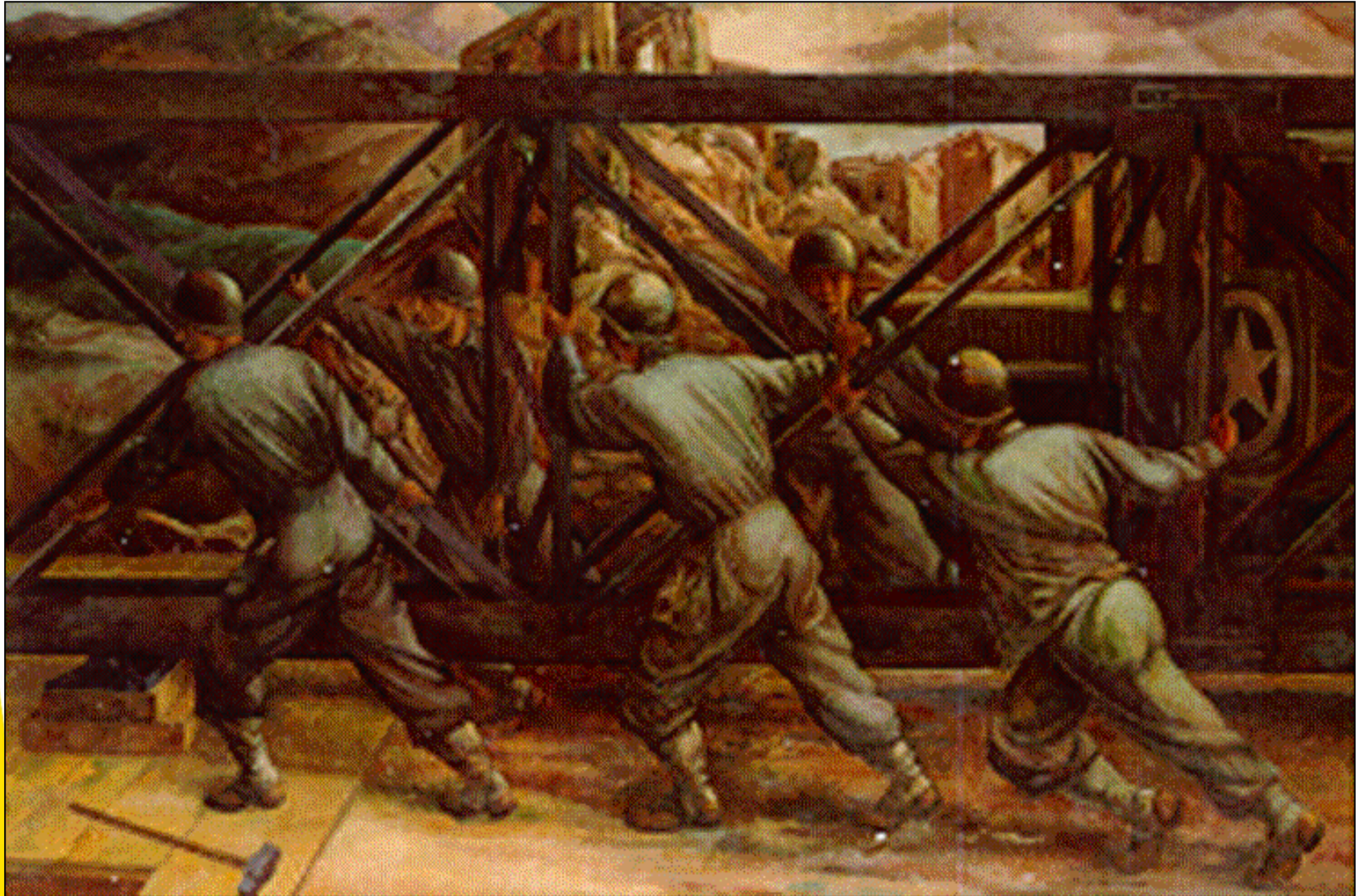


Bailey Bridge



Outline

History

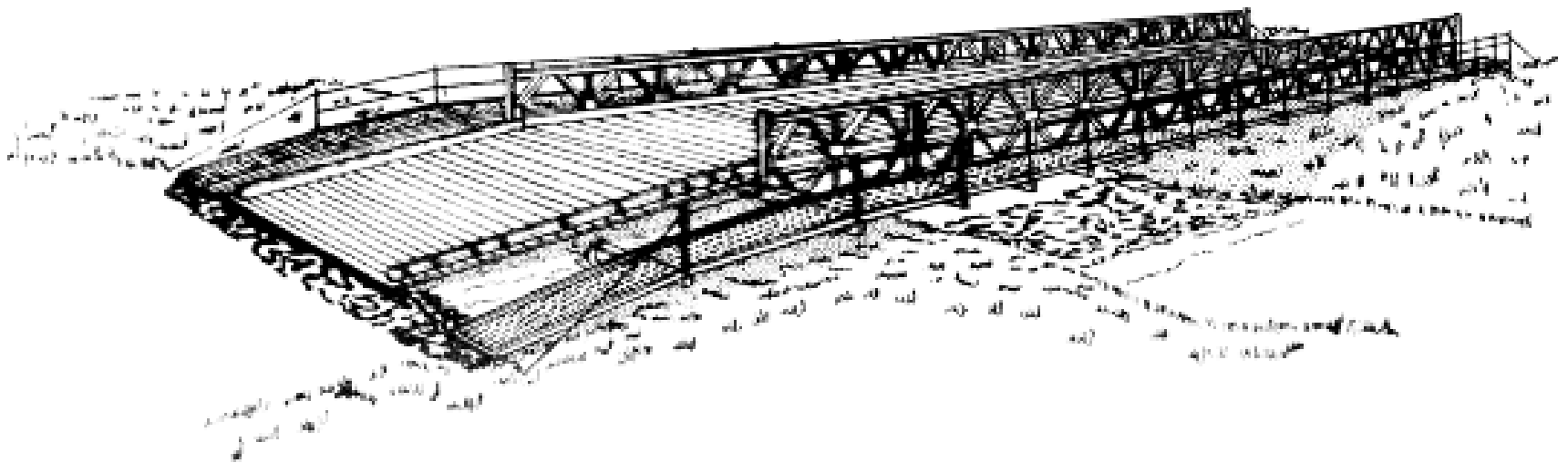
Assembly

Impact on WWII

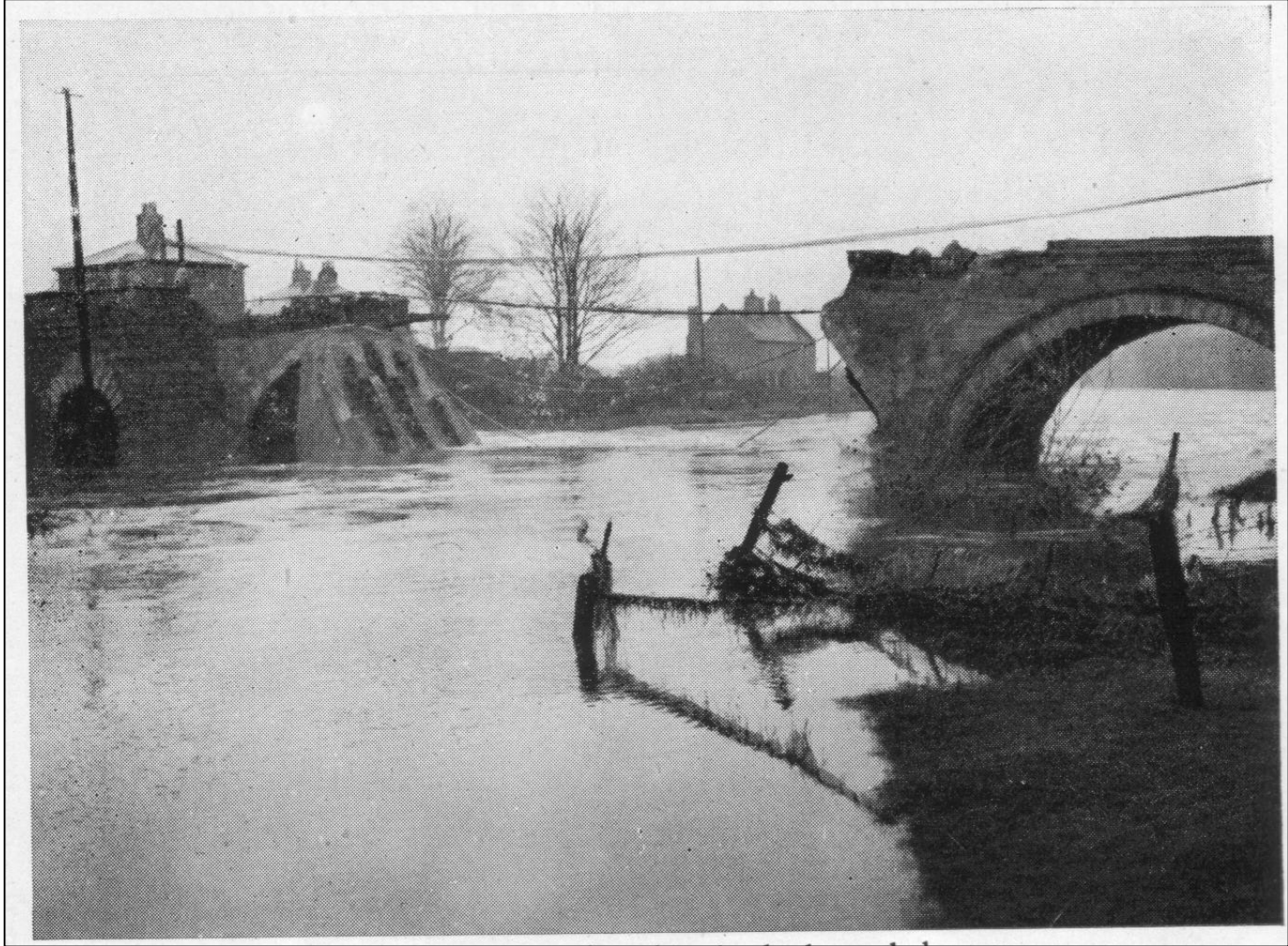
Versatility

Future

Questions

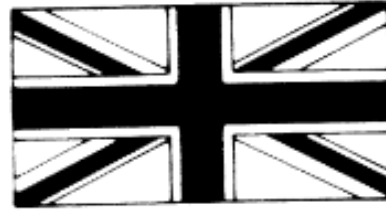


Problem





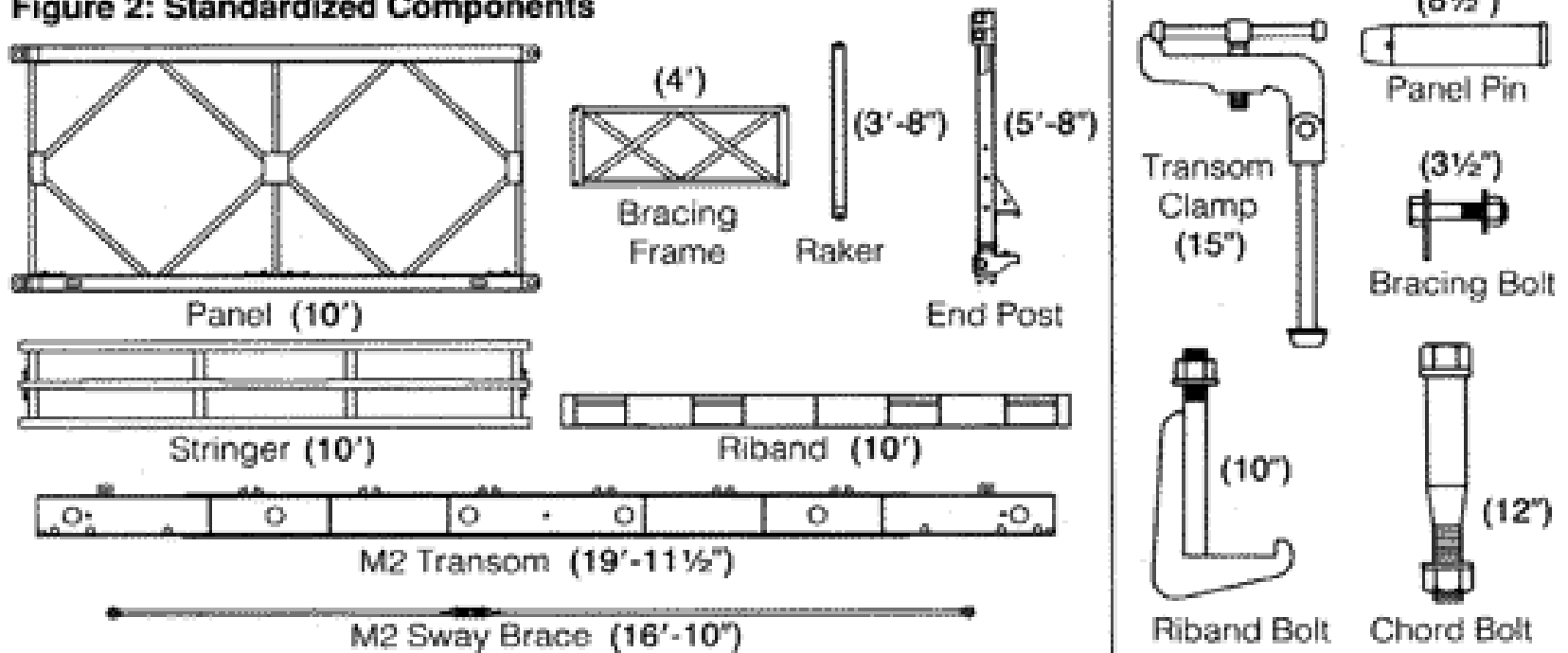
Donald Bailey , Kt, OBE, D Eng,
1901 C Eng, MICE,
1985 MI Struct E, JP



- **Education-** Leys School, Cambridge, and Sheffield University (Doctorate of Engineering)
- **Career-** Sheffield City Engineer Department, Experimental Bridging Establishment (1928), First Director of the Military Engineering Experimental Establishment
- **Knighthood** in 1946

Design employed prefabricated panels and parts
Can be carried by trucks and assembled using manpower alone
Erection using simple tools (ropes, pulleys, jacks and hammers)
Can be moved, rebuilt, or replaced in several hours, even under enemy fire

Figure 2: Standardized Components



Incredible Versatility



How it works

- 1-Recon Site
- 2-Determine construction requirements

Table 14-1 Classes of Bailey bridge M2 (reinforced with partial stories)

TYPE OF CONSTRUCTION SIMPLE SPANS (ft)	DS			TS			DD			TD			
	BAYS REINF	CLASS W T		BAYS REINF	CLASS W T		BAYS REINF	CLASS W T		BAYS REINF	CLASS W T		
90	0 3	35 40	40 45	0 5	65 70	65 75							
100	0 6	30 35	30 45	0 4 6	50 55 65	55 60 70	0 4	80 90	80 90				
110	0 7	20 35	40	0 5 7	35 45 55	40 55 65	0 5 7	65 75 80	70 80 90*				
120	0 6 8	16 24 30	35	0 6 8	30 40 55	35 45 60	0 6 8	45 70 75	55 75 85	0 4 6	65 75 100*	70 80 90*	
130	0 7 9	12 20 30	30	0 7 9	20 35 50	20 35 55	0 5 7 9	35 40 60 65	45 50 65 70	0 5 7	55 70 90	60 70 90*	
140	0 8 10	8 16 24		0 8 10	16 30 40	16 30 45	0 6 8 10	30 35 50 65	35 40 60 65	0 6 8	45 60 80	55 65 90*	
150				0 9 11	12 24 35	12 30 40	0 7 9 11	24 30 45 60	24 35 55 60	0 7 9 11	35 45 70 85	45 55 80 80	
160				0 8 10 12	8 12 20 24	8 12 30	0 8 10 12	16 24 40 50	16 30 50	0 8 10	30 40 65	35 50 75	
170							0 9 11 13	12 20 35 40	12 20 40 45	0 9 11	20 35 60	40 70	
180							0 10 12 14	8 12 30 35	8 12 40	0 10 12	16 30 50	35 60	
190										0 11 13	12 24 45	30 50	

Note:
W represents wheeled-load class
T represents tracked-load class

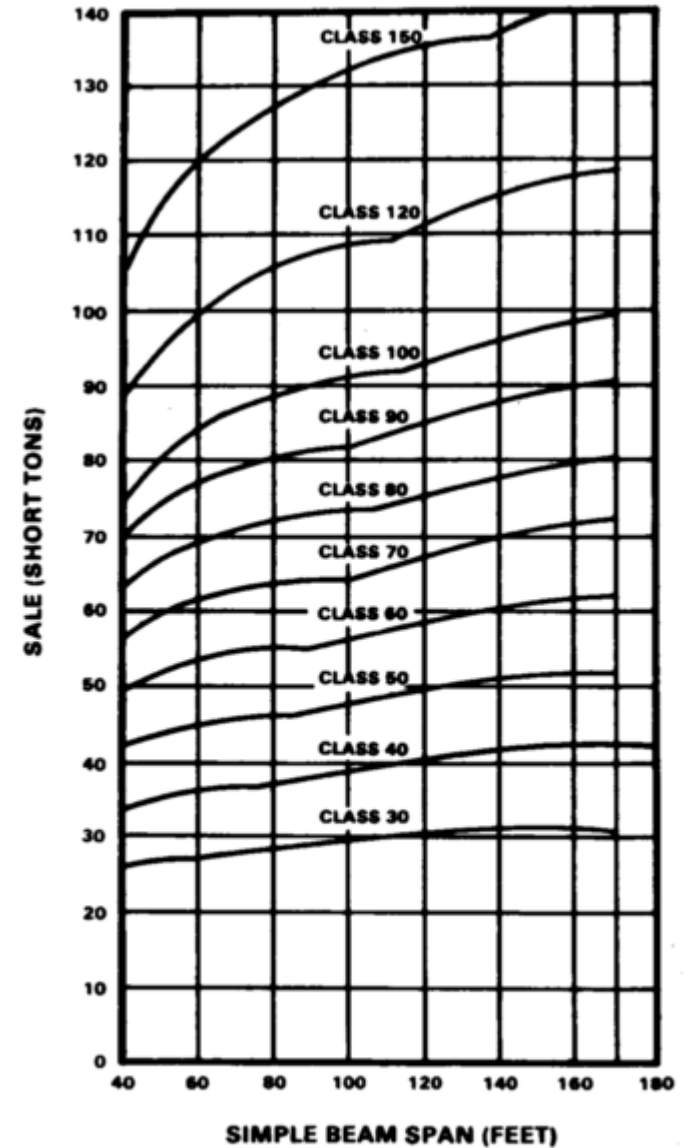
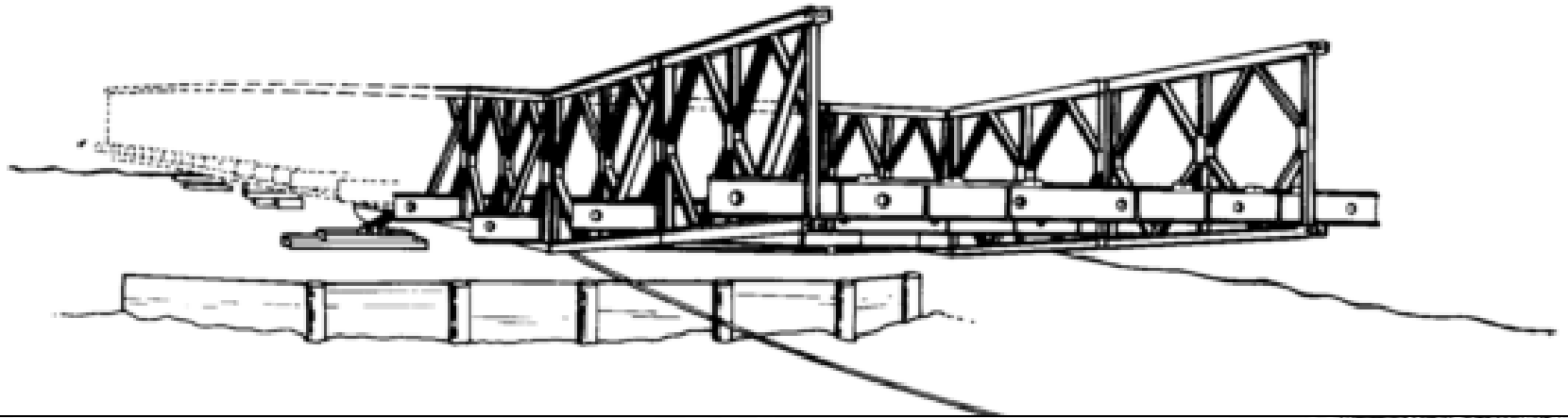


Figure C-9 Standard class curves (moment), 30 to 150

3-Build it



Lay Ho Heave

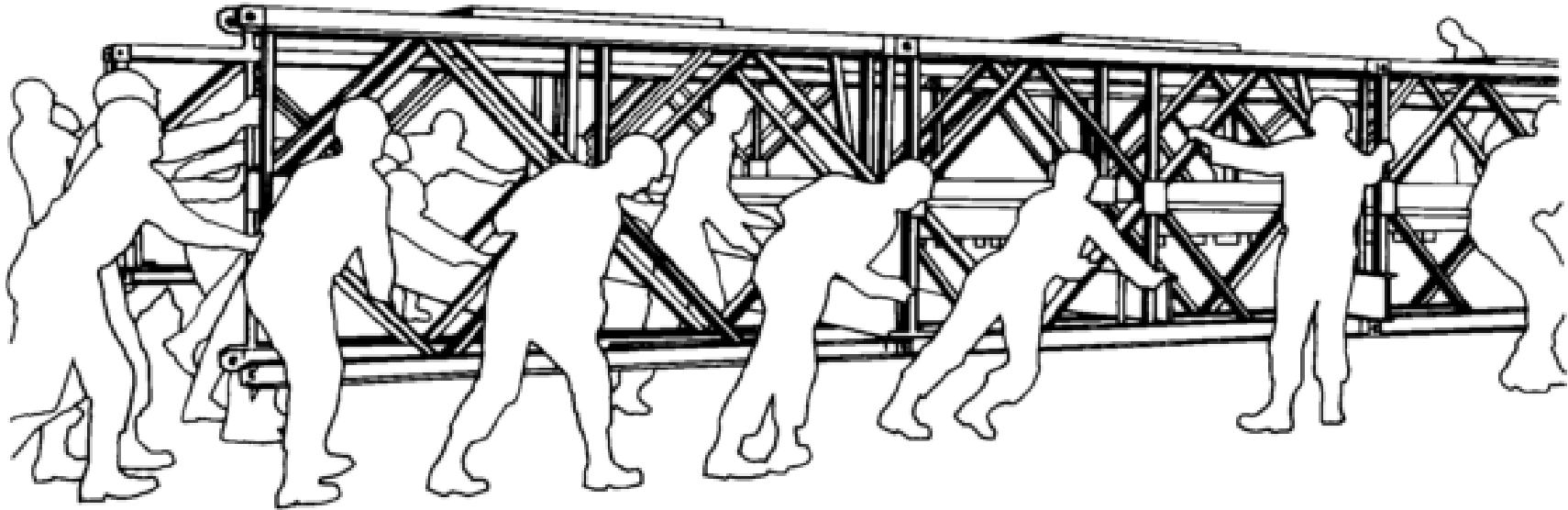


Figure 6-23 Pushing bridge over gap

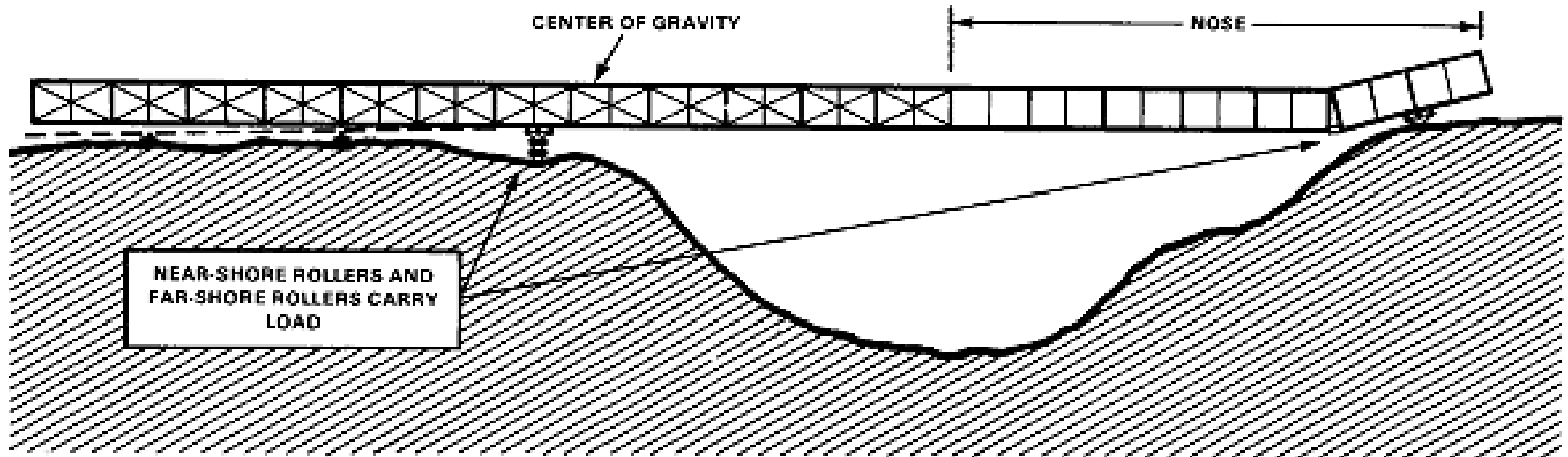


Figure 6-22 Position of rollers

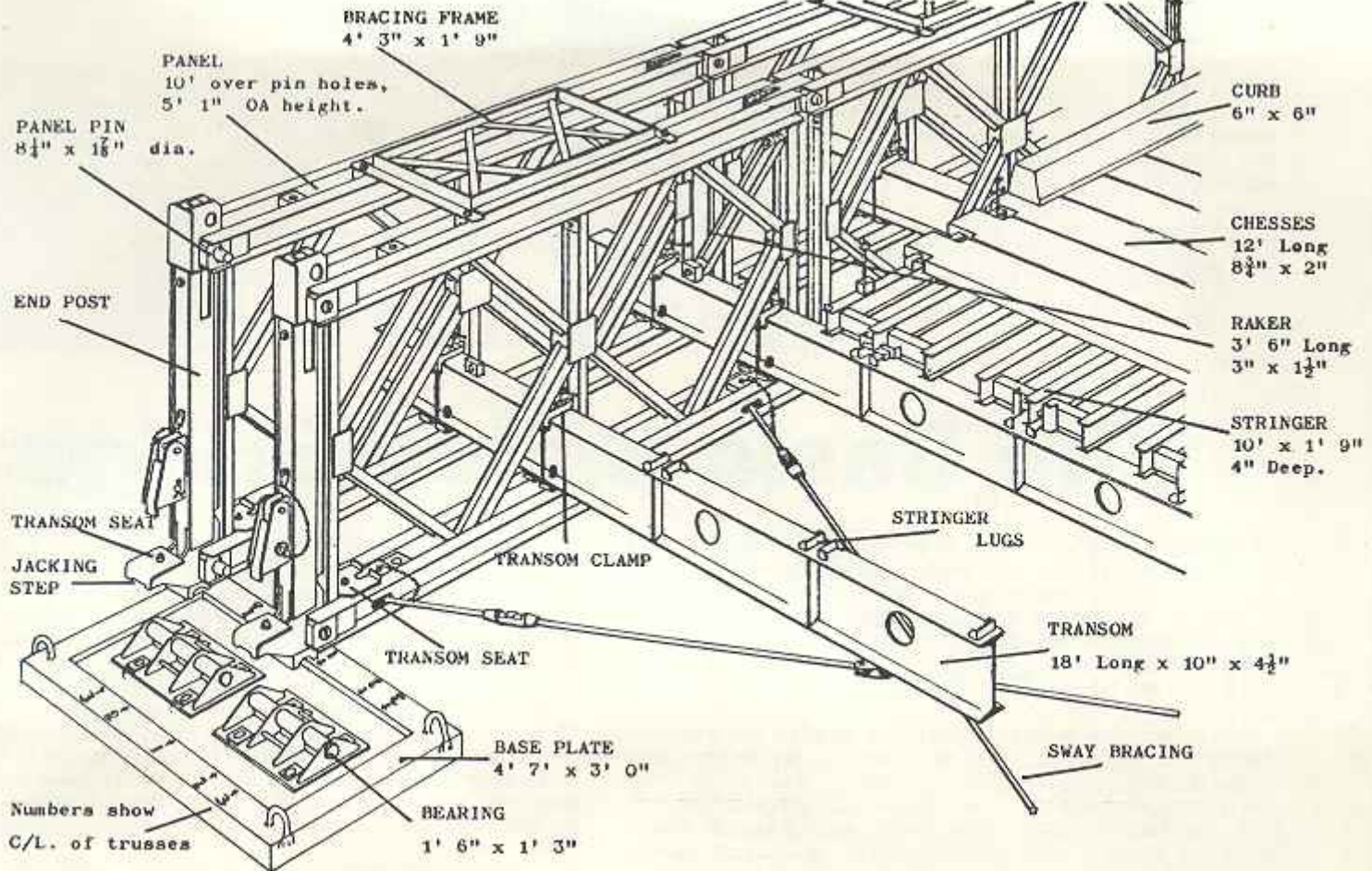
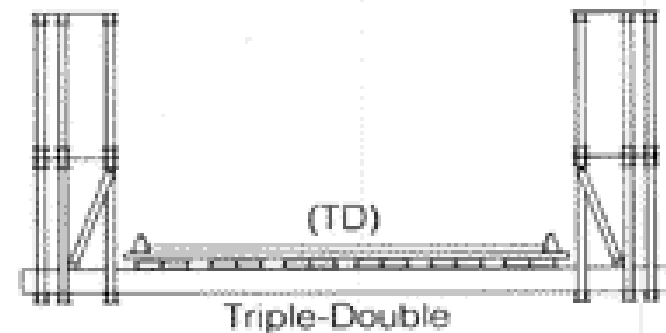
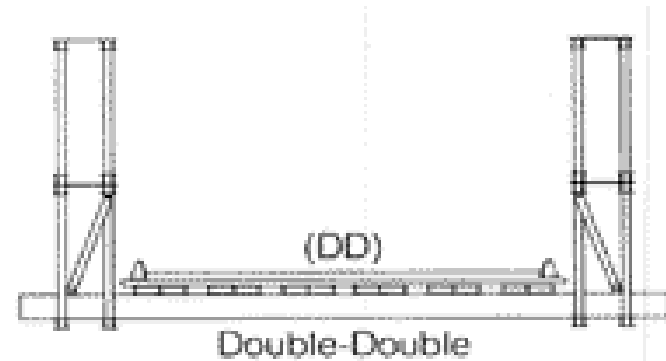
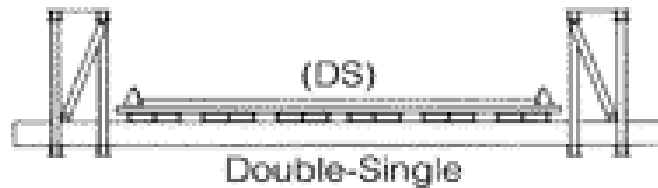


DIAGRAM OF DOUBLE TRUSS - SINGLE STOREY (DS)

MULTIPLE CONFIGURATIONS

Figure 4: Bailey Configurations



- Identical panels can be mated and stacked to increase span or load capacity or both





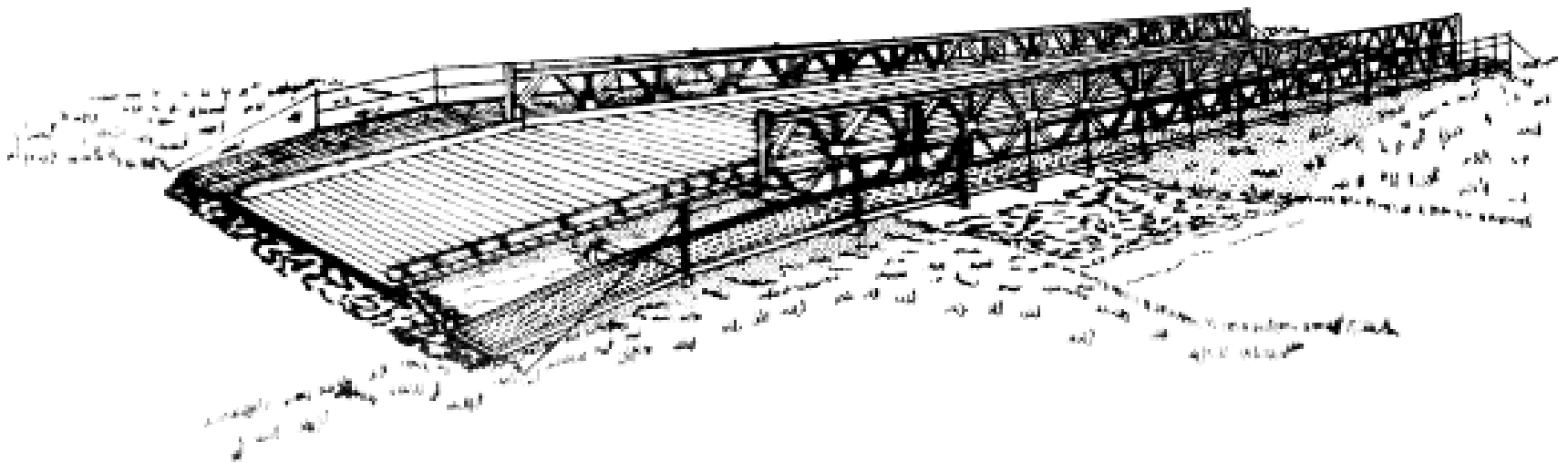
How a bridge won WWII

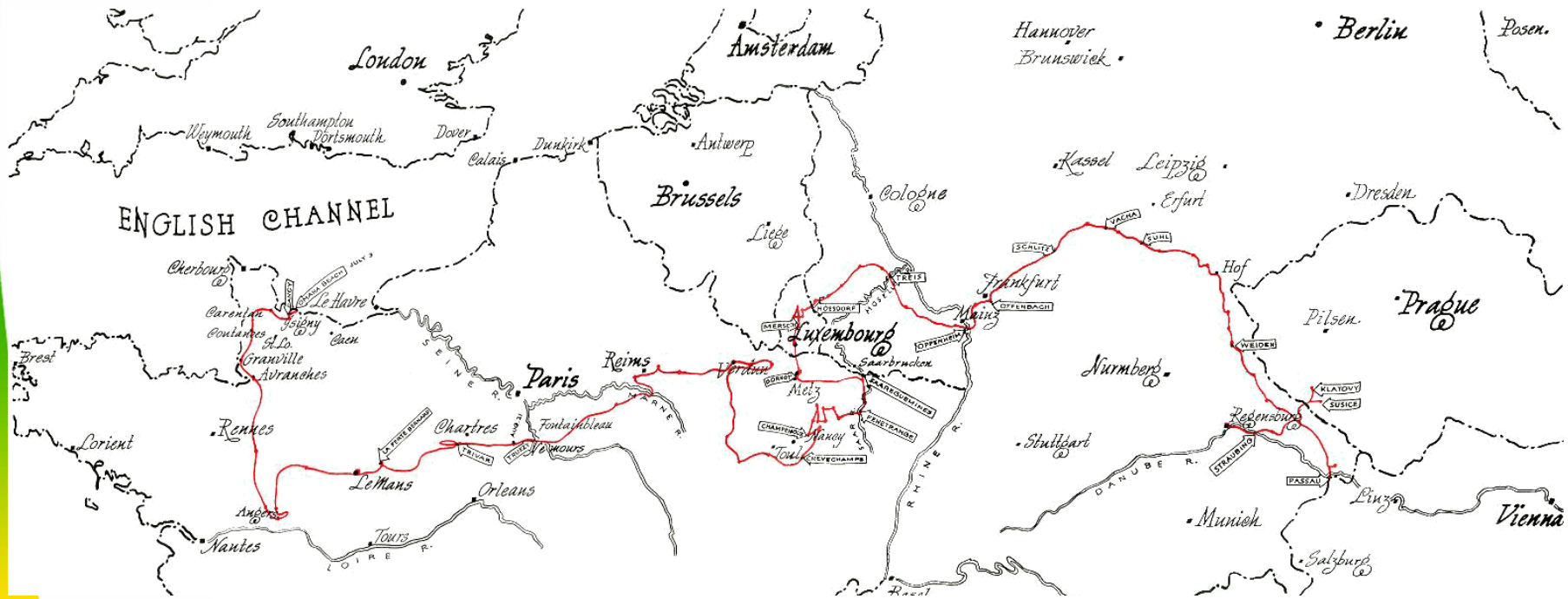
Without the Bailey Bridge, we should not have won the war. It was the best thing in that line that we ever had.”

Field Marshal Lord Bernard L. Montgomery

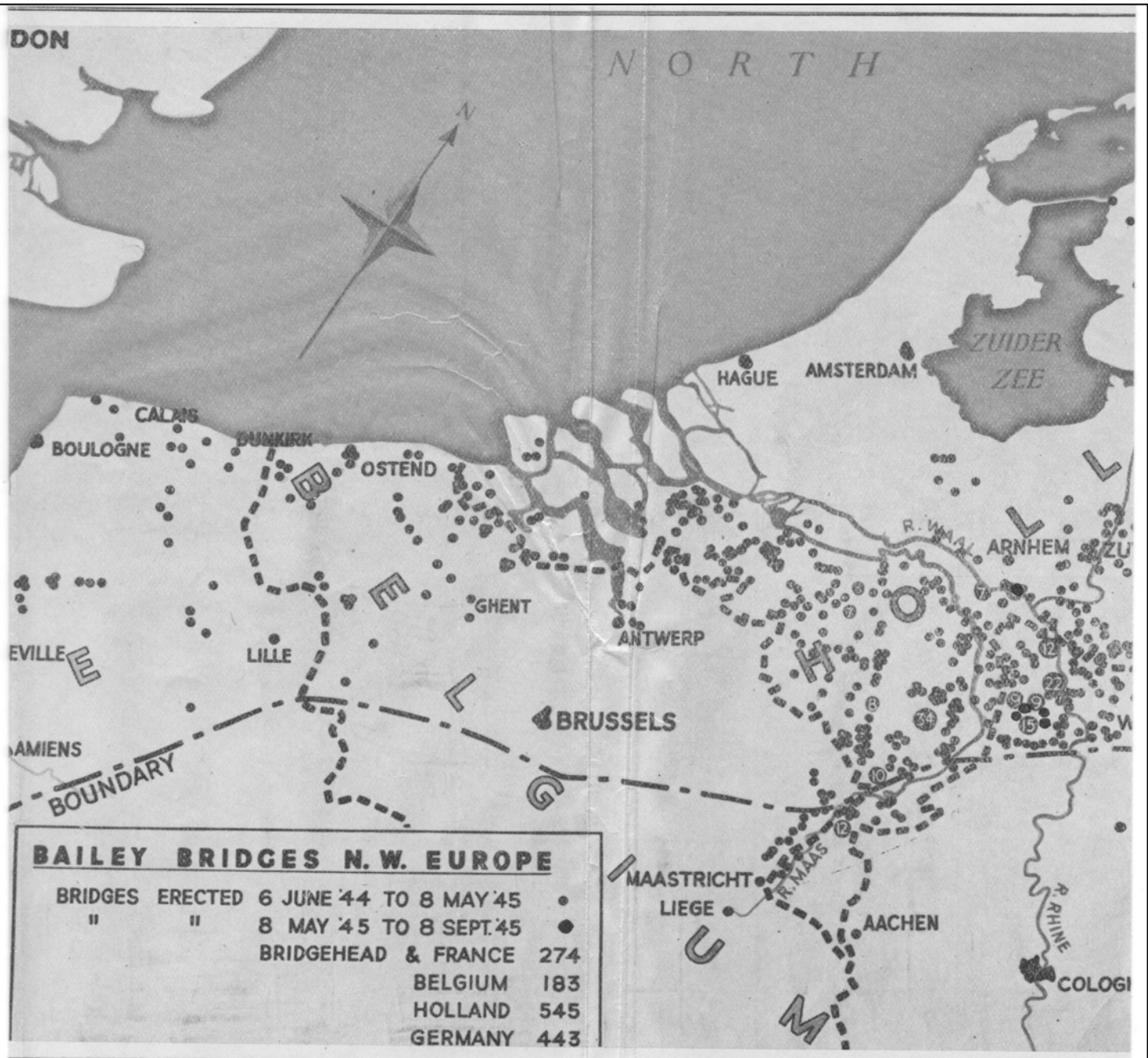
“...one of the three pieces of equipment that most contributed to our victory in Festung Europa.”

General Dwight Eisenhower





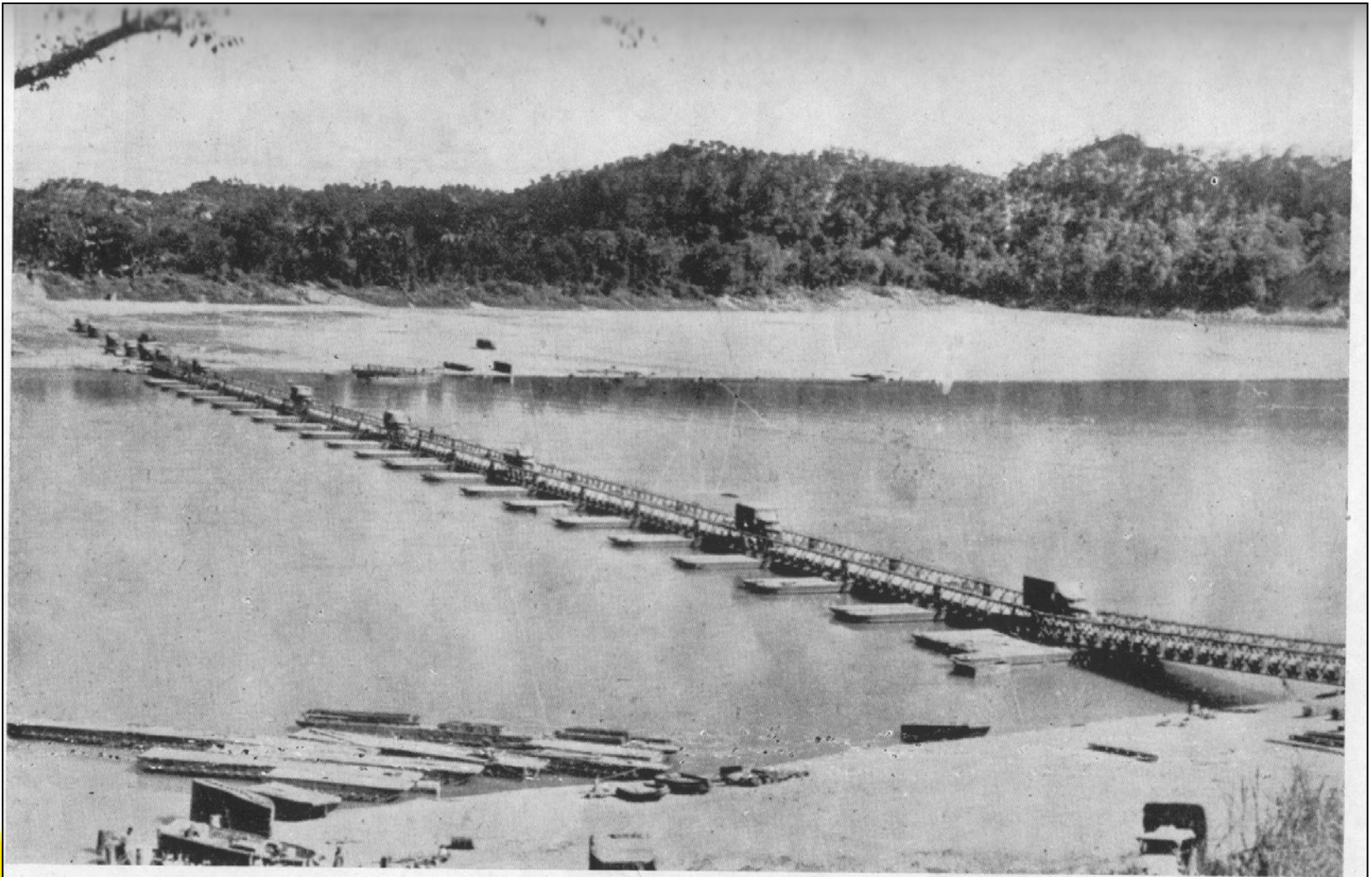
150th Road to Victory



BAILEY BRIDGES N.W. EUROPE

BRIDGES ERECTED	6 JUNE 44 TO 8 MAY 45	●
"	" 8 MAY 45 TO 8 SEPT. 45	●
	BRIDGEHEAD & FRANCE	274
	BELGIUM	183
	HOLLAND	545
	GERMANY	443

Versatility of the Bailey



GRUB BRIDGE.

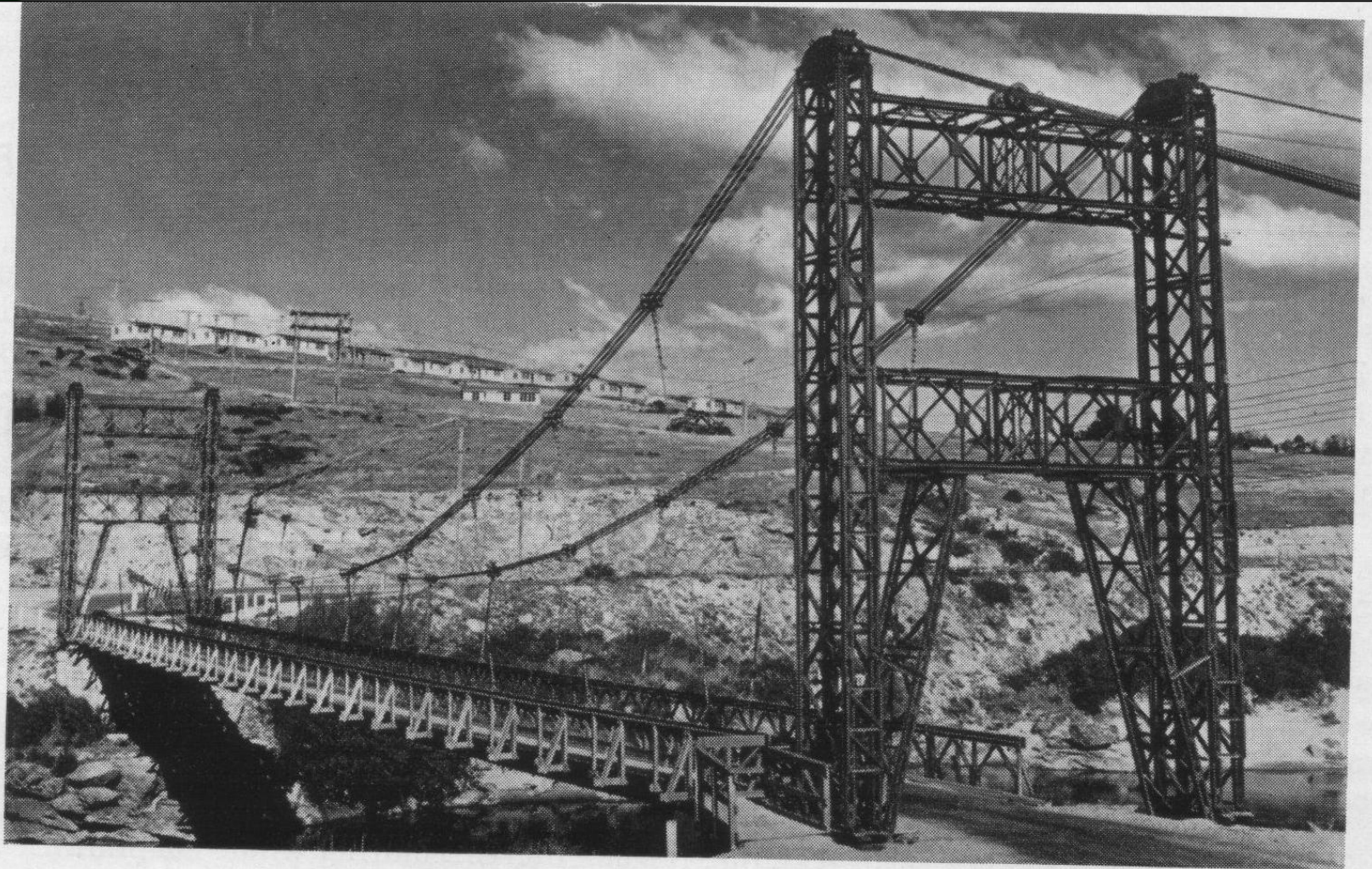


Bailey Towers and Trestle Supports for Conveyor at Des Joachims Dam

**Post-War
construction
applications**

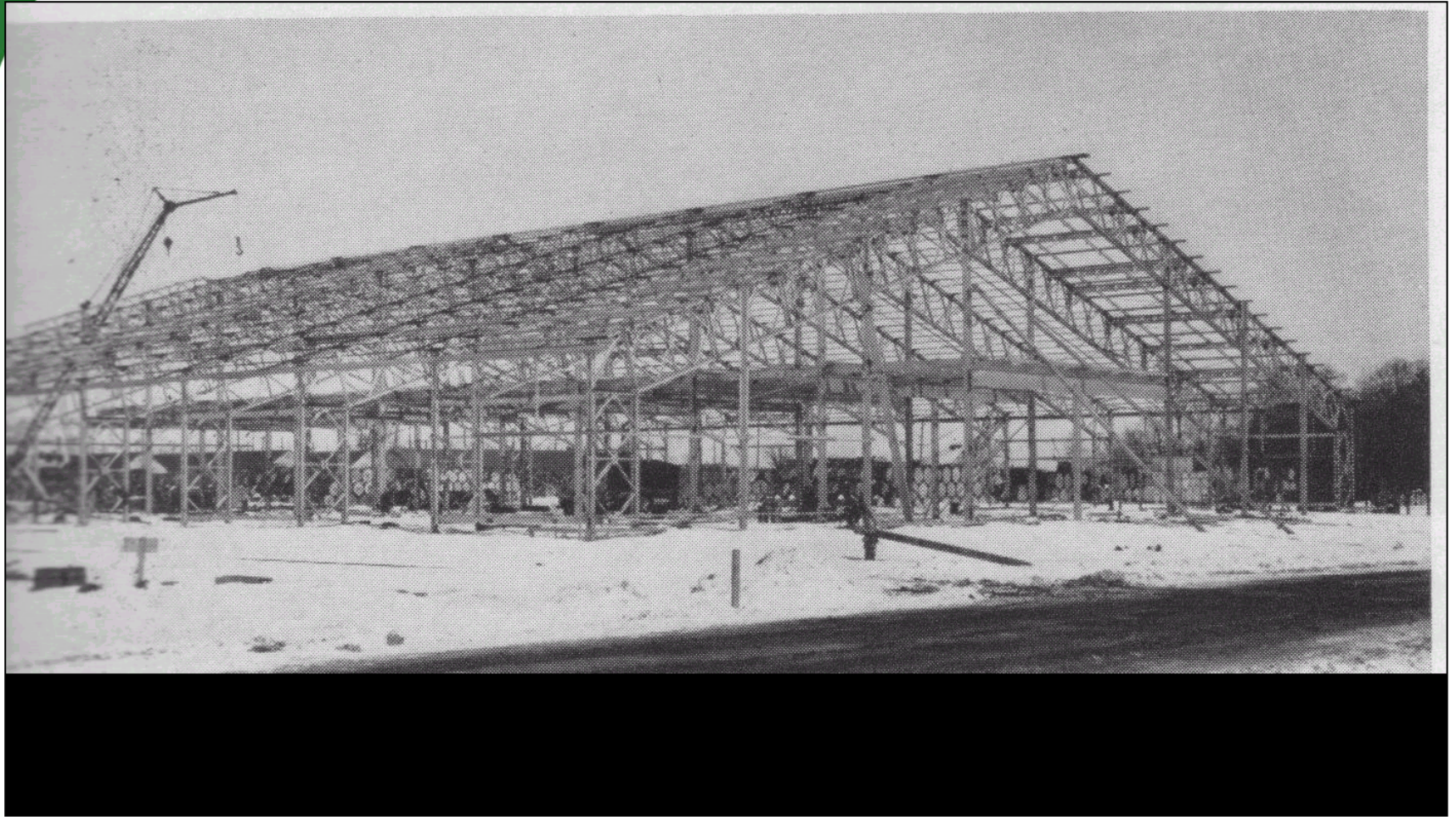
**Bailey Bridge
components
were sold as
surplus after
World War II**

**Used here in
erecting a
concrete
gravity dam
in Quebec**



Suspension Bridge over the River Clutha in New Zealand

- Bailey suspension spans were widely used in Asia during and after the Second World War because of their wide availability and low cost



- **Bailey Bridge panels being used as roof trusses for a factory building in South Africa during the 1950s**

What of the name Bailey now?

Donald Bailey lived his life in relative obscurity.

During the 1960s Thomas Storey Engineers Ltd of London marketed Bailey Bridges under the name Bailey-Uniflote all over the world

Today, another English firm, Mabey Johnson, fabricates the same style component steel segmented truss bridges using higher strength, lower weight structural steel

