

History of Technology

Bailey Bridge



Sir Donald Coleman Bailey
(1901 — 1985)

The engineer Donald Bailey, an officer in the British war ministry invented in the year 1941 a bridge system which was as per his name was named Bailey bridge. This bridge was simply constructed of steel and economized to match with the limited production cost. Till the end of the second world war the Bailey bridge components of a weight of around 0.5 million tons were produced. Donald Bailey was awarded knighthood because of his outstanding invention of this type of economical bridge. This type of bridge is till today constructed in case of emergency and indispensable tool for transportation where needed.

For the later US President Dwight Eisenhower the Bailey bridge together with radar and land bombers was one of three important development of the Second World War. Allied troops crossed over with the help of Bailey bridge from Normandy upto the Rheine at Wesel all important rivers which made an obstruction in the liberation of Europe. The US army used this bridge tool still in the year 1980.

The facts about Bailey bridge:

- The Bailey bridge is a system bridge. The concept indicates bridges which are

constructed with pre-fabricated elements of necessary length and carrying capacity.

- It was one of the first constructions of these types. Previously makeshift bridges were of timber beams.
- The production became successful in standard methods with agreement per executors all elements are standardized and with that interchangeable with one another.
- The heaviest part, the side railings weigh 259 kg and are carried by six labourers. Also the biggest component matches with 3 ton lorry of 1940.
- The transport and the assembly are very easily executed.
- The piers can be built with the help of bailey elements. In combination with pontoons a floating bridge is possible with motorized floating body in the application as ferry.



Bailey bridge in Ladhak

Massive cantilevers bridges with pillars and roadway girders of Bailey bridge components were already built.

- In Australia the Bailey bridge built of length 788 metre was the longest at that time was in execution from 1975 to 1977.
- The highest erected bridge of the world is a bailey construction at 5600 metre height in the Indian part of the Himalayas.

Photo caption:

Stable and flexible. In 1944 as a test case a bailey bridge was set up over a river. The photo demonstrates the manifold variants of the construction. As pontoons are lightly used the bridge rest on pillars which are set up on loading spaces

Manual labourers replace the crane:

The labourers assemble the railings of a bailey bridge. As an insertion the Bailey bridge is

used frequently in road construction work. With manual labour the quick makeshift bridges are made in a compound in which to lift it is difficult and also costly with a crane. For the construction of the system bridge the THW is authorized by the federal government. In foreign country the THW built up bailey bridges in Honduras, Ruanda and Tunisia.

The first rigid bridge over the Rheine after the Second World War was a bailey construction near cologne. It was made so high over the river that with high tide the ship could pass unobstructed. Also as a result of the collision with a tractor the construction could not be worn out.

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Indian Science Cruiser

Ref: VDI nachrichten,
16 December 2016, Nr. 50/51/52



Prof. Utpal Kumar De

31st Aug, 1944- 26th Sep, 2017

Dr. Utpal Kumar De, retired professor, School of Environmental Studies, Jadavpur University passed away on 26th Sep, 2017, at his residence in Salt Lake, Kolkata. He was battling oesophageal cancer.

Prof. De was born on 31st Aug, 1944 at Howrah; graduated with physics honours from erstwhile Presidency College.

He worked at Jadavpur University as a regular faculty from 1968 to 2004, after a brief stint of two and half years at Kalyani University. He was at the Department of Physics till 1998, thereafter switched over to the School of Environmental Studies.

He worked in the field of General Relativity and Cosmology and obtained D Sc degree from Calcutta University in 1976. He worked in the same field till 1986. Then he switched over to Atmospheric Science. He has more than 100 research papers and guided around 35 research students for doctorate degree. Following retirement, he was Emeritus Fellow of AICTE for two years. He carried out 10 research projects sponsored by different Government Agencies, apart from one from the Environmental Forum, Japan. His research interest covered CO₂ transport, Indian summer monsoon and pre-monsoon thunderstorm activities.

Outside his professional life Prof. De had interest in literature and drama. He was a deeply spiritual person, yet a vocal critic of the evils of Hinduism. An epitome of simplicity, integrity and humanitarian virtues, Prof. De was deeply loved and respected by his students.

He is survived by wife and two daughters.