Early 20th Century Bridges in Nepal: The Aberdeenshire Connection

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Gattonside (1826)

Union (1820)

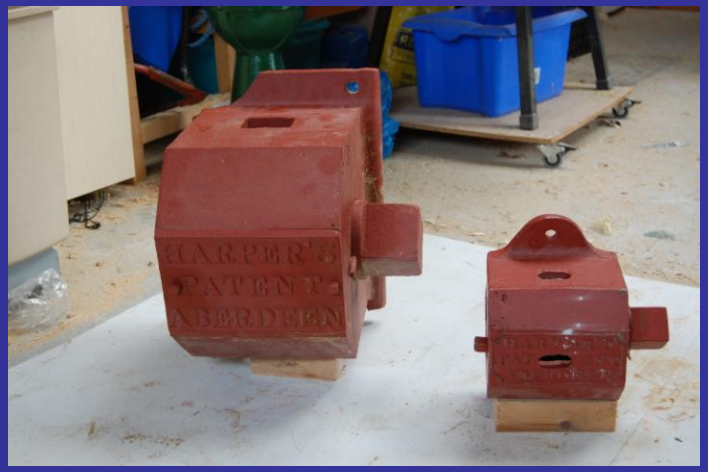
PATENT STEEL WIRE SUSPENSION BRIDGES.

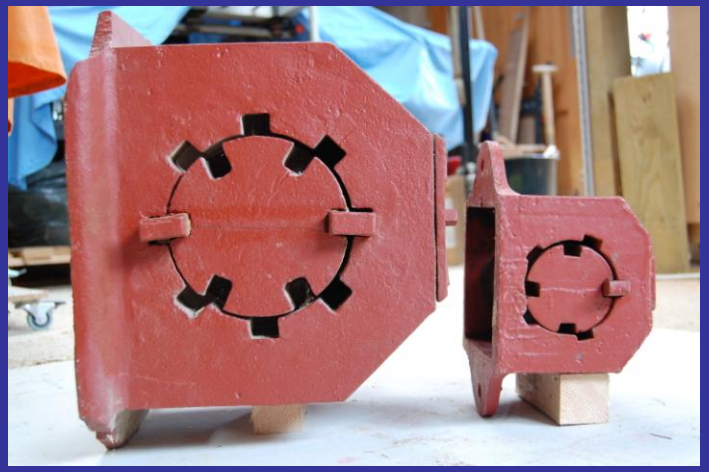
John Harper: Tension, Suspension & Arch

Harper: Tension, Suspension & Arch

- Tension
  - Cable Tensioners

Tension



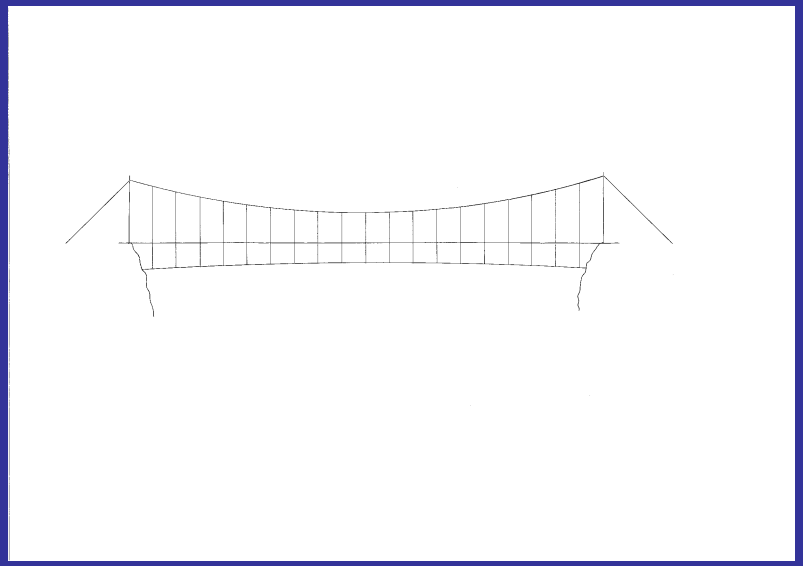


Harper: Tension, Suspension & Arch

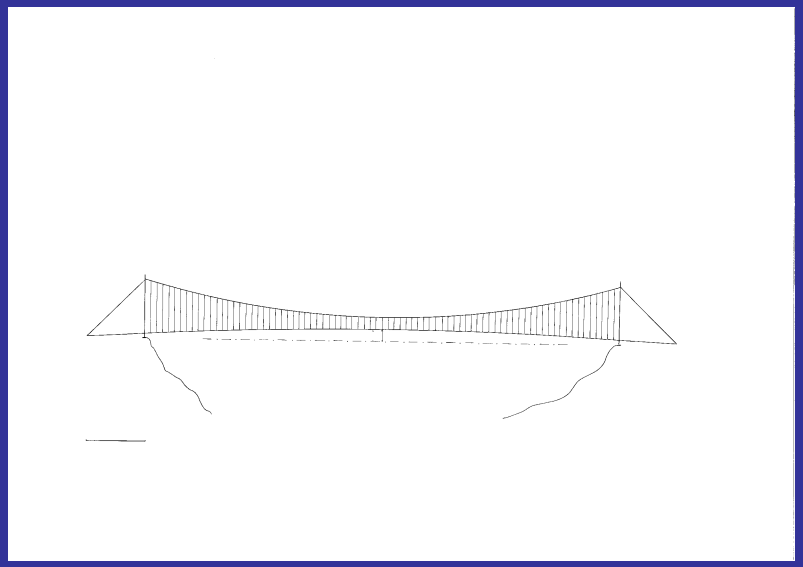
- Tension
  - Cable Tensioners
- Suspension
  - Curves of opposite curvature
  - Steel Wire Rope

System of Suspension

Marc Brunel,
Reunion, 1832



John Harper
from 1870



John Harper: Tension, Suspension & Arch

- Tension
  - Cable Tensioners
- Suspension
  - Curves of opposite curvature
  - Steel Wire Rope
- Arch
  - Central suspender first

Preform the Arch


TRAIL BRIDGE SUPPORT UNIT
(TBSU)
Trail Bridge Sub-Sector Program (TBSSP)
a joint program of the Government of Nepal and the Swiss Government
HELVETAS

From Colonel Kumar Nur Singh Rana, Assoc. Inst. CE,

Superintending Engineer, Government of Nepal, 1900.

- ‘I have the pleasure to inform you that I have forwarded photo, which might be of interest to you, of one of the Bridges – 120 feet span X 4 feet wide – over the Trishuli River, which I myself erected and opened for traffic. Other bridges, 230 feet, 110 feet, 150 feet, and 90 feet by 4 feet wide, supplied by you are under construction, which I hope will be opened for traffic by next January.
- ‘*Everybody concerned is greatly satisfied with the rigidity, strength, neat appearance, and the time taken for erection.* ***Personally, I am very much pleased with the Bridge, and would not like to see any other erected, except yours.***

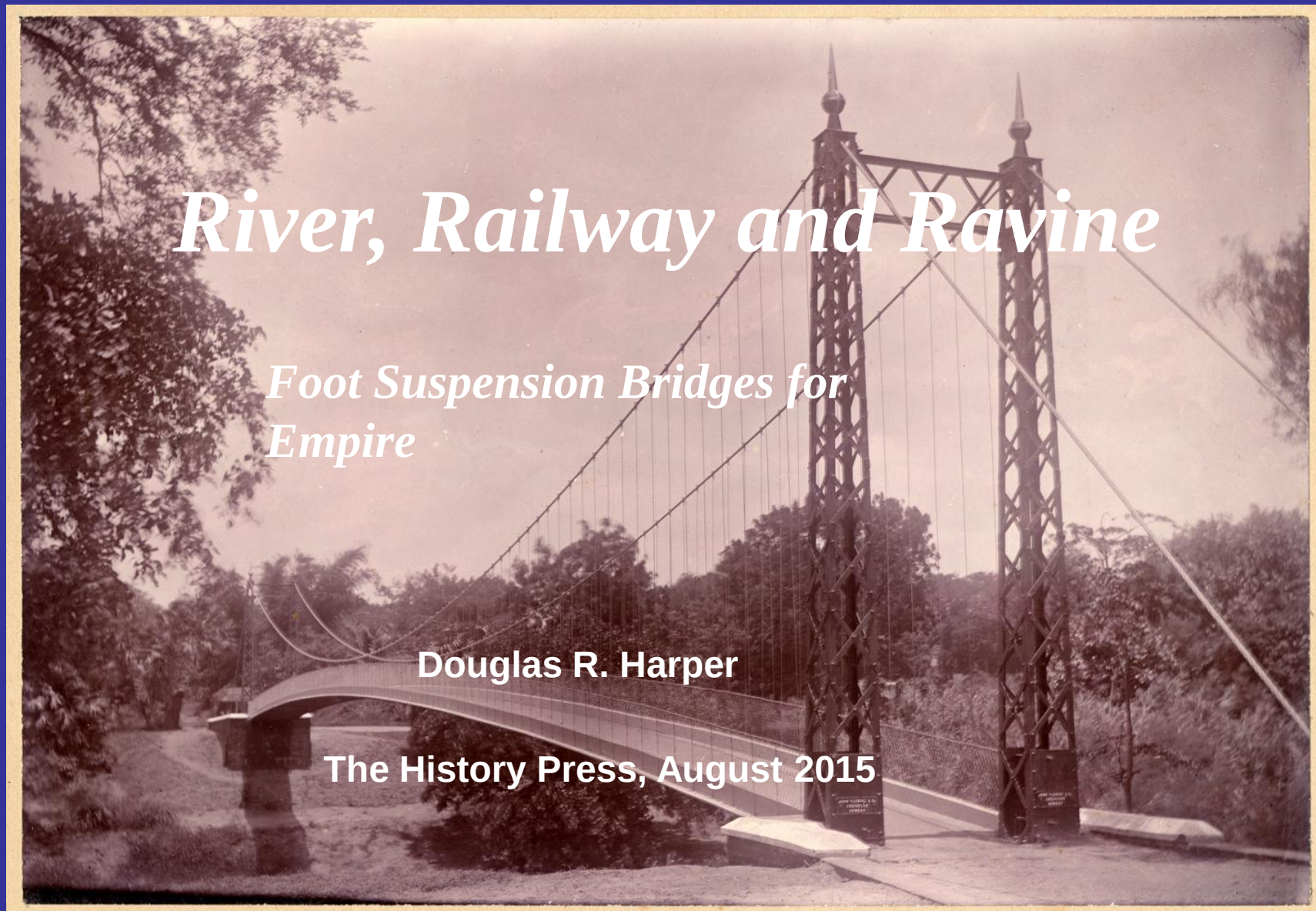
R. Trishuli (1900)


Suspension Bridge
NEPAL
1:500 000
Dhading
Gorkha
Nuwakot
Sindhupalchok
Dolakha
Kabhrepalanchok
Lalitpur
Makawanpur
Ramechap
Okhaldunga
KATHMANDU
Bhaktapur
Patan
Thimi
Kirtipur
Thankot
Dhulikhel
Banepa
Pachkhal
Barhabise
Chautara
Trishuli Bazar
Dhading
Devighat
Hetauda
Amlekhganj
Manthali
Jiri
Charikot
Dandapakhar
Sundarijal
Budhanilkantha
Shivapuri National Park
Langtang National Park
Helambu
Rolwaling Himal
Mahabharat Range
Churia Range
1
2
3
4
5
6
7

Chobar Gorge

Conclusions

- Harpers derived a unique system of suspension derived from their fencing origins.
- They supplied all Nepal's modern suspension bridges between 1900-1909.
- Their concept formed the basic specification of all suspension bridges in Nepal since that date.



River, Railway and Ravine

Foot Suspension Bridges for Empire

Douglas R. Harper

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