

# Picturesque Engineering

## Telford's Highland Roads and Bridges

Paul Daniel Marriott, PhD



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**PennState**  
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and Architecture



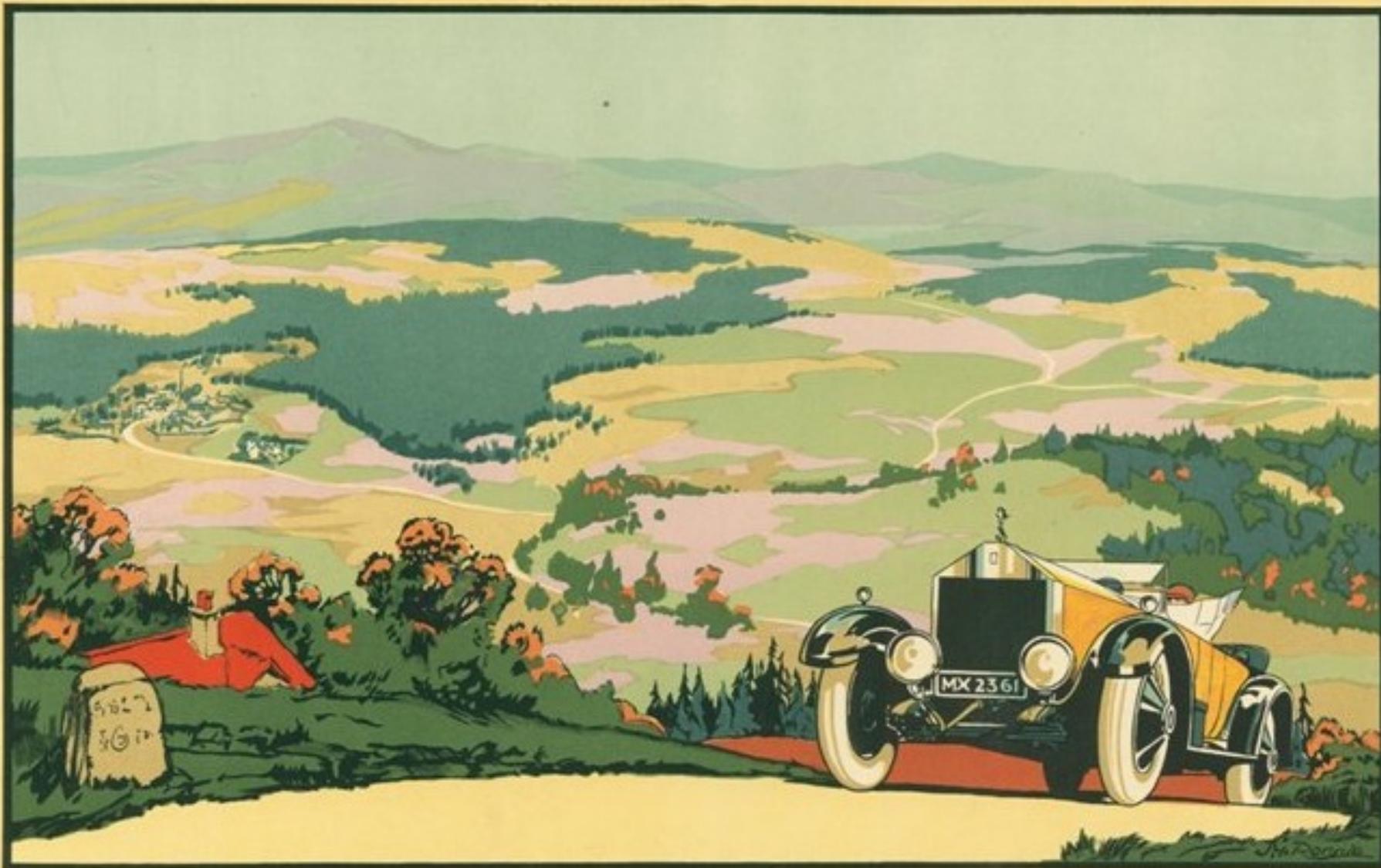


# DEAN BRIDGE, EDINBURGH 1831

A photograph of the Ganter Bridge in Switzerland, a concrete arch bridge with a tall central pier. The bridge spans a valley with dense evergreen forests and misty mountains in the background. The sky is overcast.

# GANTER BRIDGE, SWITZERLAND 1980





**BARTHOLOMEW'S MAPS**  
*WILL KEEP YOU RIGHT*

Bartholomew Archive,  
National Library of Scotland





Paul Daniel Marriott



Paul Daniel Marriott

London Monday 15th August 1797

Mr Andrew Little

Langhaston  
Carlisle

Wm R Pallany



1797  
Aug. 24

My dear Sir

I have just  
that I am in fault  
convinced that you will

Dear Andrew

Either I  
you for some time  
it in the hands of  
will, we can begin

I must get over ~~the~~ facts during the

Yours always, my sincerely

Thos. Telford

80

The Canal about 60 Miles upon one  
into Reservoirs  
the water which falls above this level  
top of the Canal but

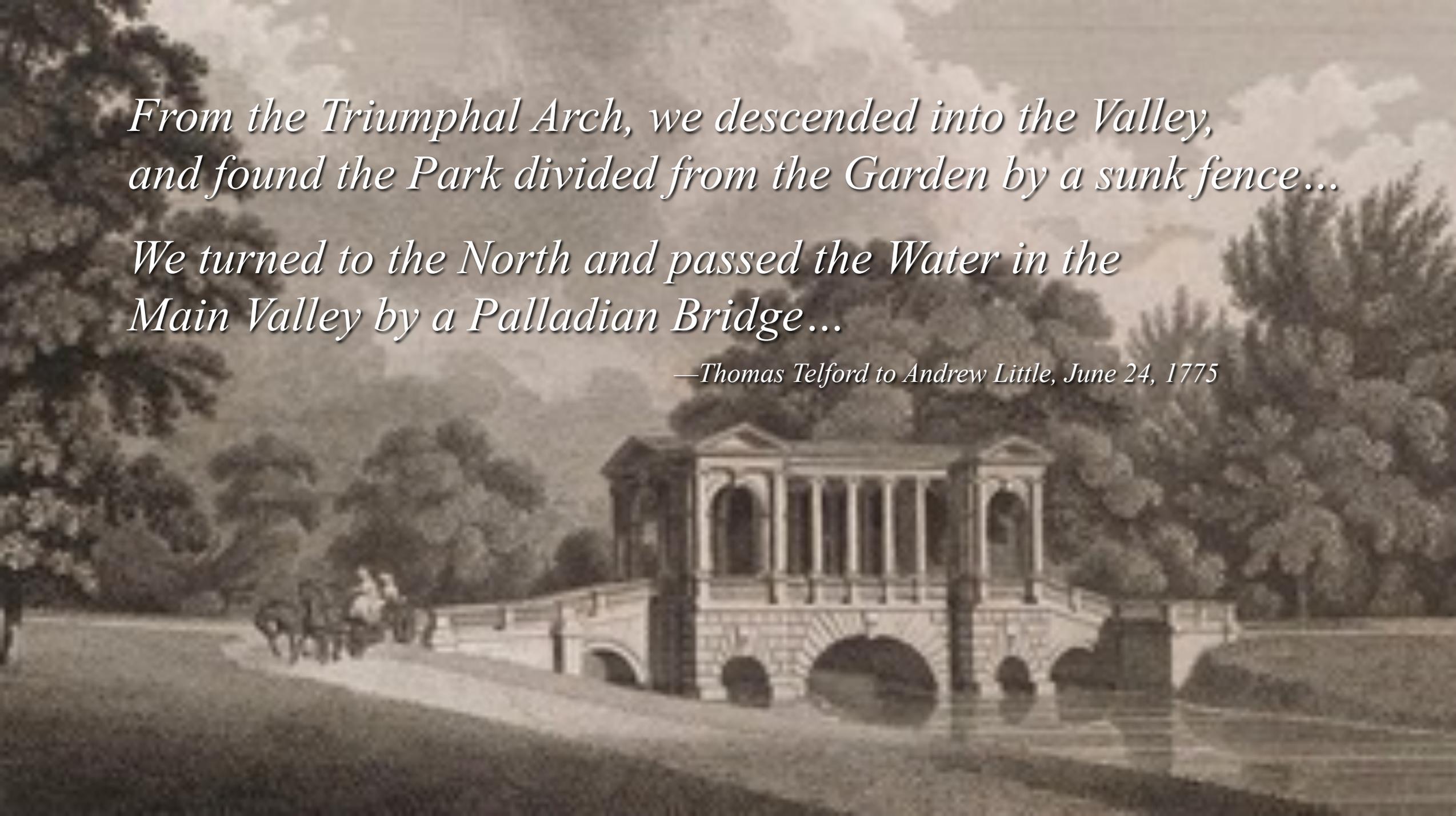
rather

81 -

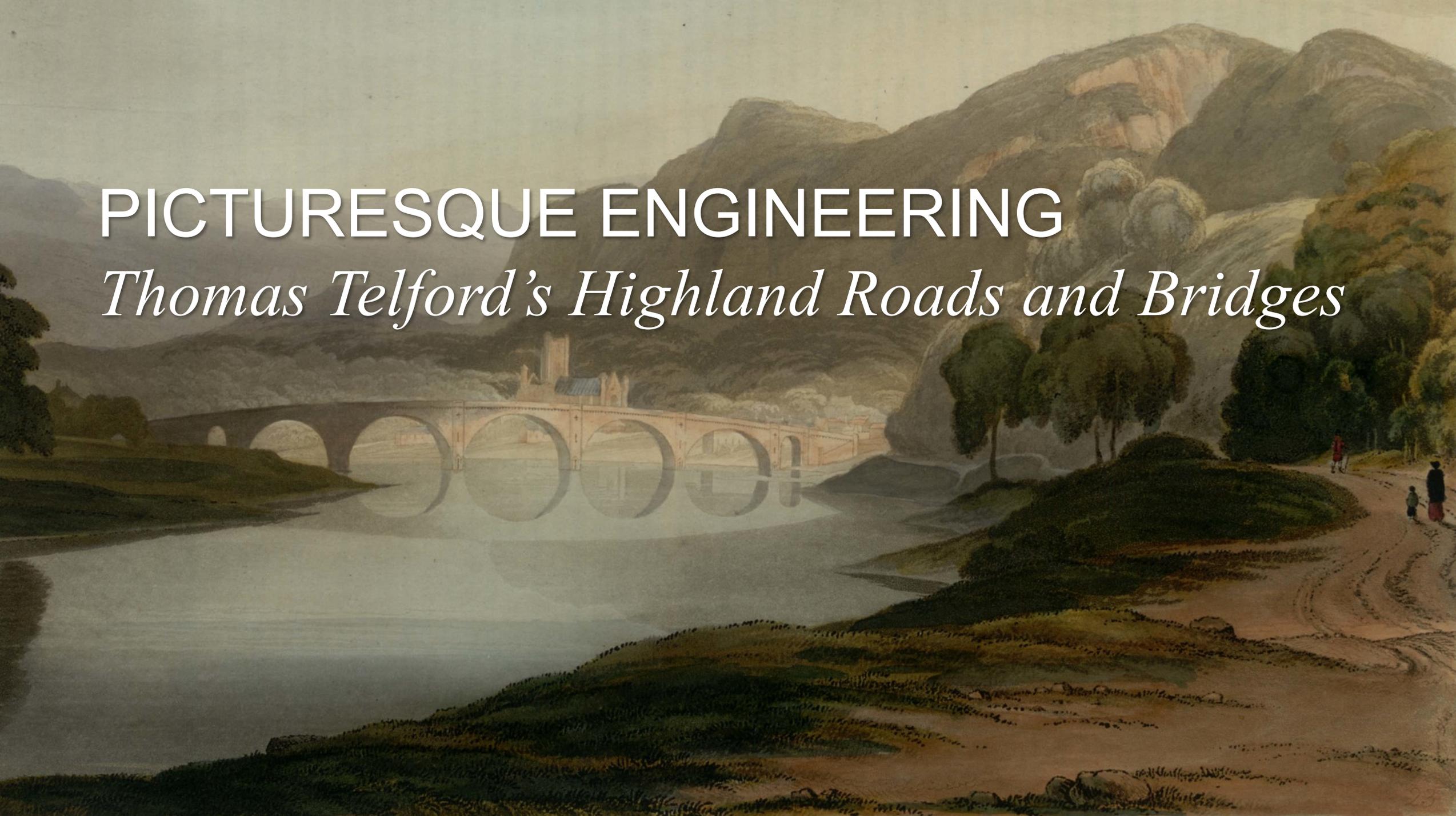
*From the Triumphal Arch, we descended into the Valley,  
and found the Park divided from the Garden by a sunk fence...*

*We turned to the North and passed the Water in the  
Main Valley by a Palladian Bridge...*

*—Thomas Telford to Andrew Little, June 24, 1775*

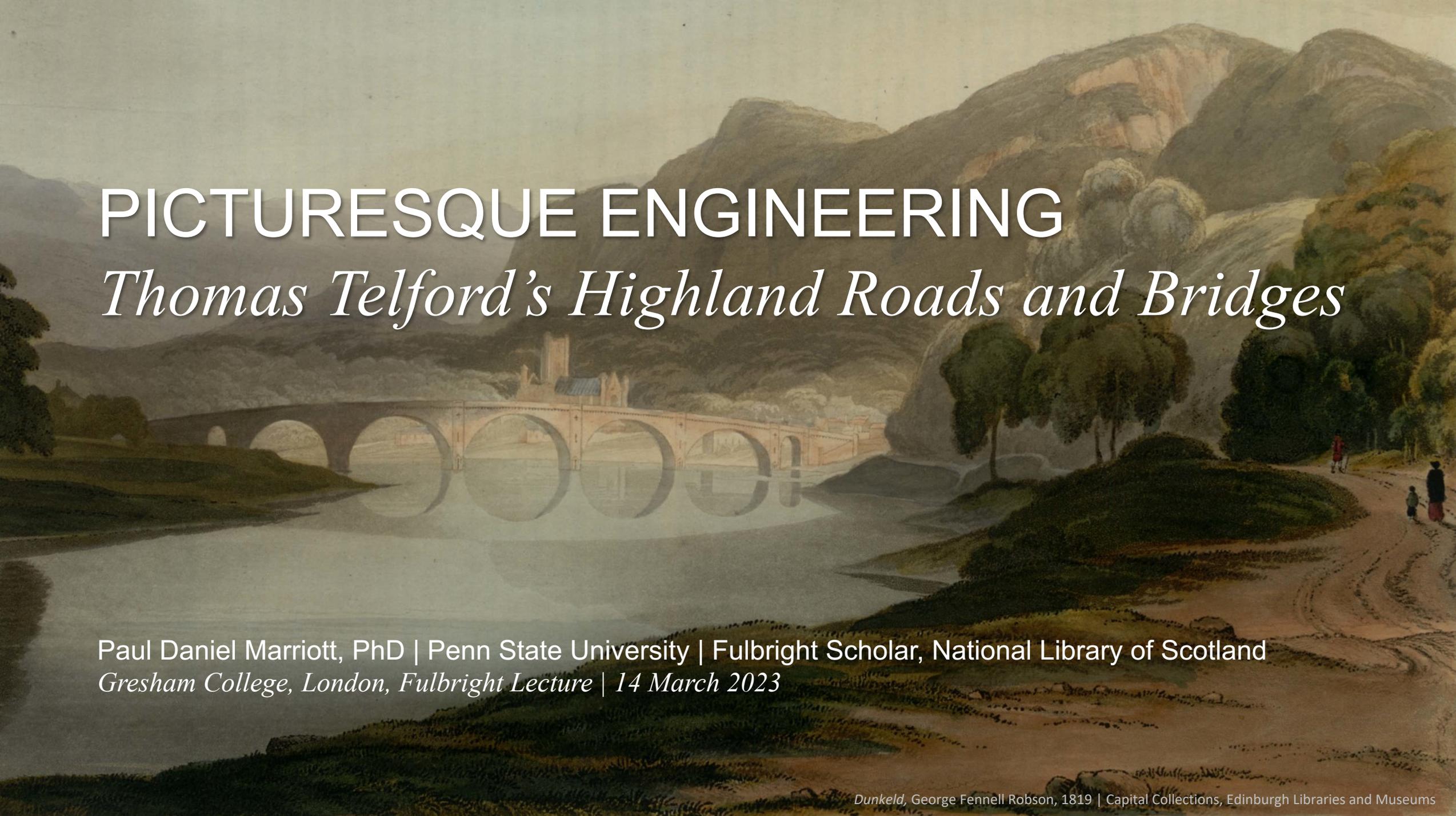




A historical landscape painting depicting a large stone bridge with multiple arches spanning a wide river. The bridge is reflected in the calm water. In the background, there are large, rugged mountains. In the foreground, a dirt road winds through a grassy field, with a few small figures of people walking. The overall scene is a harmonious blend of natural beauty and human engineering.

# PICTURESQUE ENGINEERING

*Thomas Telford's Highland Roads and Bridges*



# PICTURESQUE ENGINEERING

## *Thomas Telford's Highland Roads and Bridges*

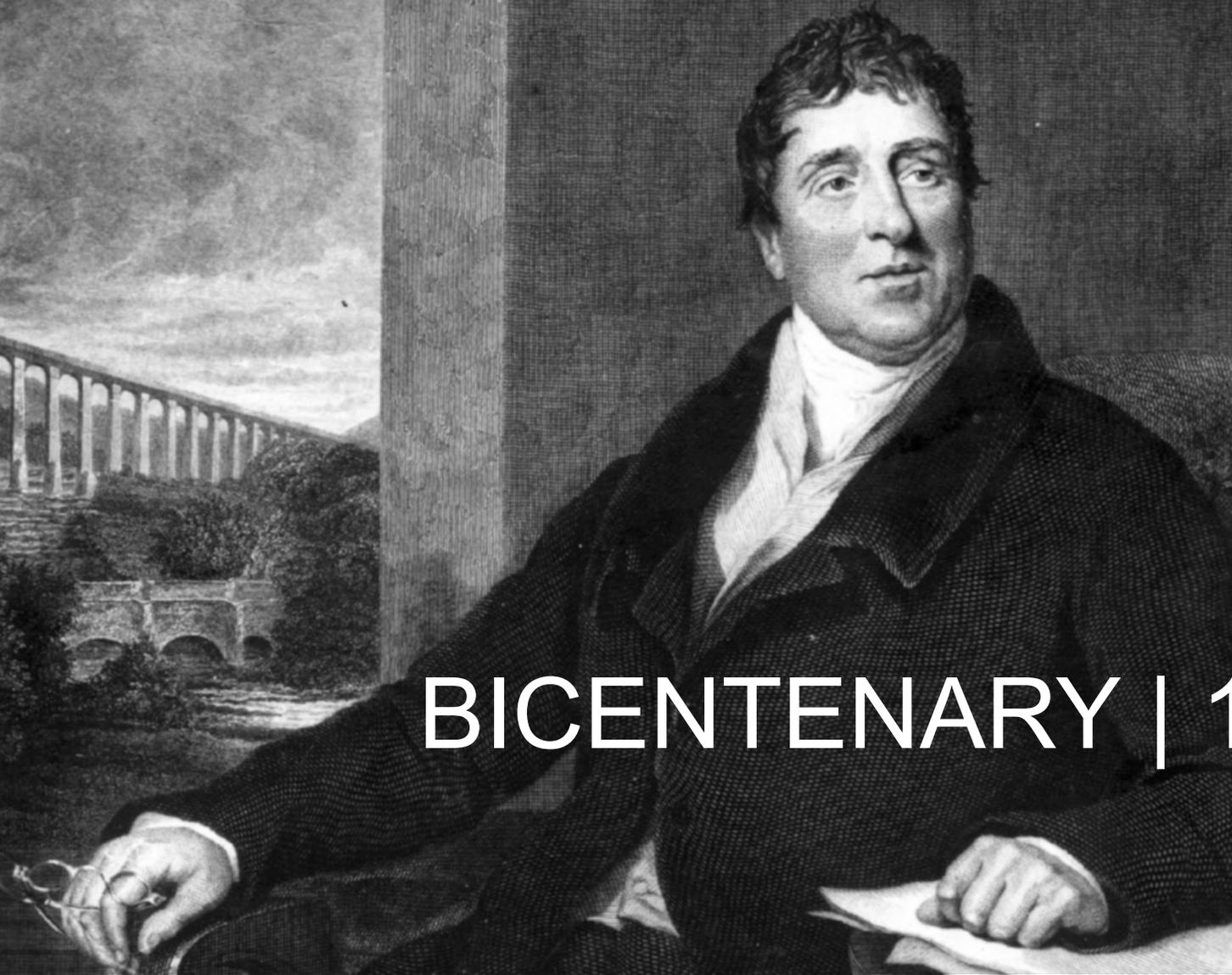
Paul Daniel Marriott, PhD | Penn State University | Fulbright Scholar, National Library of Scotland  
*Gresham College, London, Fulbright Lecture | 14 March 2023*



Thomas Telford 1757 - 1834



Robert Southey, 1774 - 1843

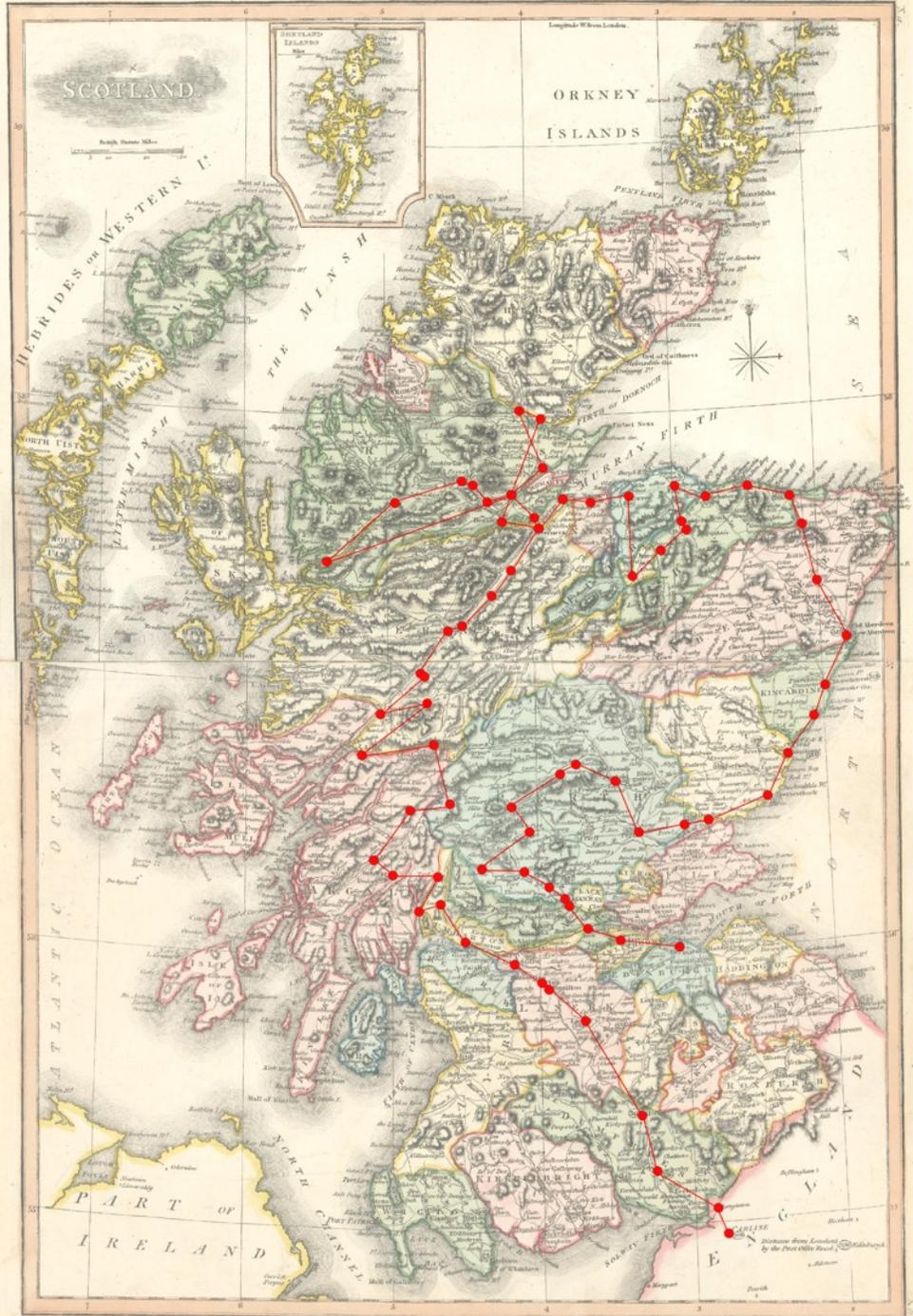


BICENTENARY | 1819 - 2019

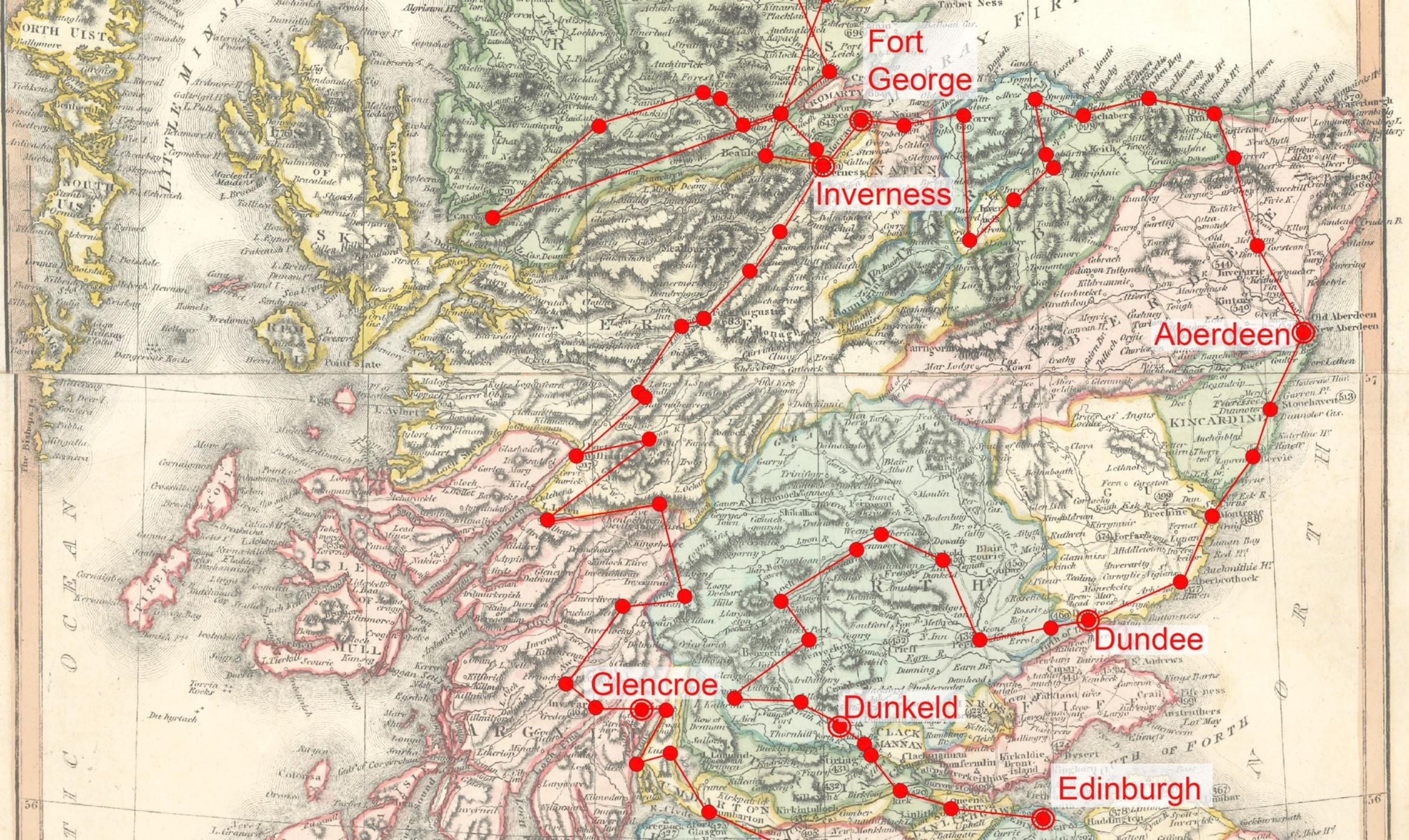
Thomas Telford 1757 - 1834



Robert Southey, 1774 - 1843



Courtesy Christopher Fleet | National Library of Scotland



Fort  
George

Inverness

Aberdeen

Dundee

Dunkeld

Glencroe

Edinburgh



To bridge farbo  
Obtained 24<sup>th</sup> August 1819 from Through the kind  
Rent Mr Southern Kingsly vicarage Reside  
intervention of Dr Ritch, Derwent Bank R Ranshaw  
Journal of a Tour in Scotland. June 1814

1819.

By Robert Southern  
R Ranshaw  
June 1814

Tuesday 17 August

Reached Edinburgh in the Carlisle Mail at 1/4 past 5. A.M.  
On the way I admired the unusual & imposing appearance of the  
New Courts at Carlisle, one on each side the entrance of the City  
from the South. They tell me that the architect intended to unite  
them by an arch supporting a cupola, but that Lord Lonsdale



# MODERN ROADS AND TRAVEL

*—And what is fifty miles of good road?  
Little more than half a day's journey.  
Yes, I call it a very easy distance.*

*—Pride and Prejudice, Jane Austen*





*—The times have changed in nothing more...  
than the rapid conveyance of intelligence  
and communication betwixt one part of  
Scotland and another.*

*—The Heart of Midlothian, Sir Walter Scott*

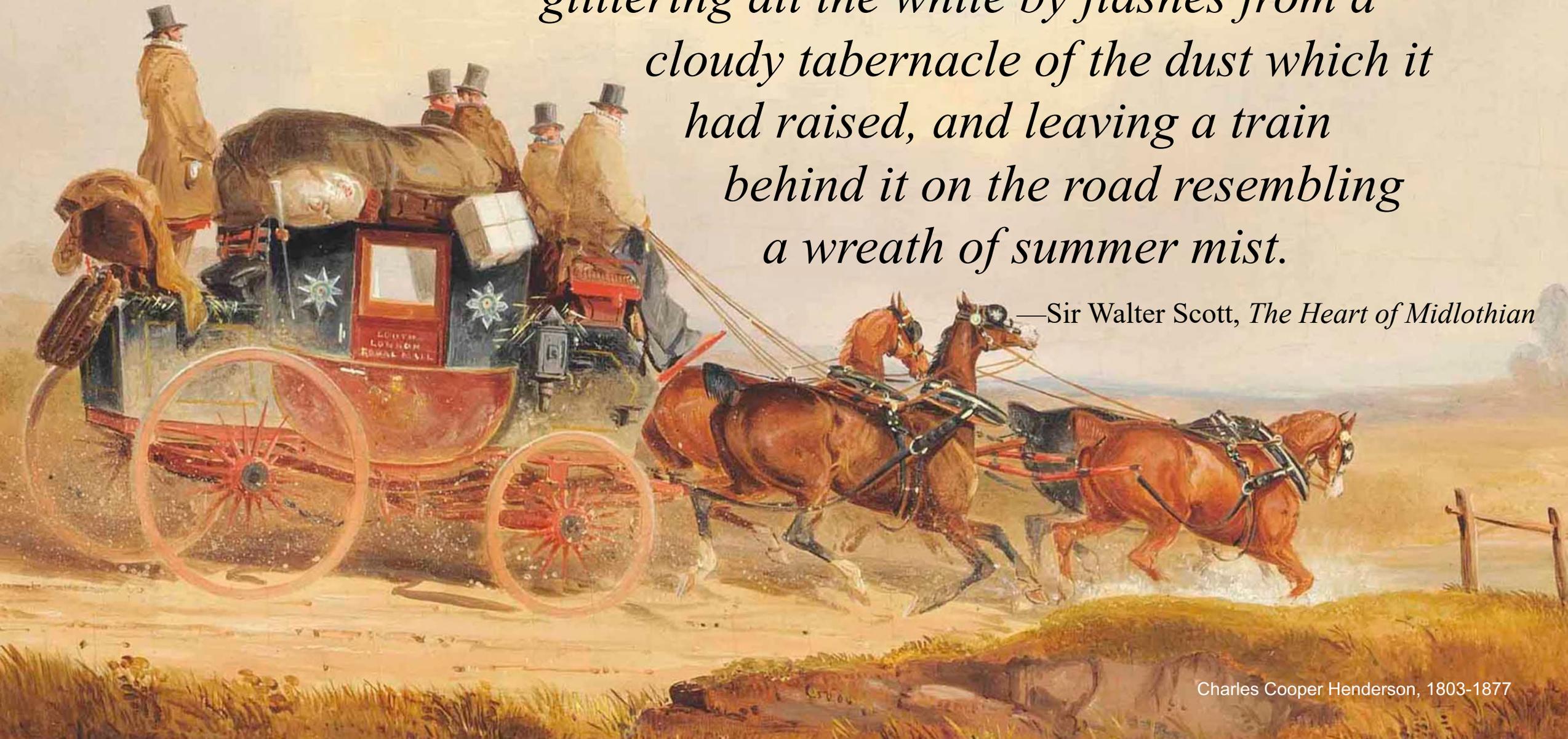
*—mail-coach races against mail-coach, and high-flyer against high-flyer, through the most remote districts of Britain. And in our village alone, three post-coaches, and four coaches with men armed, and in scarlet cassocks, thunder through the streets each day ...*

*—Sir Walter Scott, Heart of Midlothian*



*I had seen the vehicle thunder down the hill ...  
glittering all the while by flashes from a  
cloudy tabernacle of the dust which it  
had raised, and leaving a train  
behind it on the road resembling  
a wreath of summer mist.*

—Sir Walter Scott, *The Heart of Midlothian*





Between 1750 and 1810, journey times in Great Britain are cut between London and major cities by two-thirds.

By 1785 daily mail coach service is established between London and Norwich, Liverpool and Leeds.

By 1786, daily mail coach service is extended to Edinburgh.



Thomas Telford 1757 - 1834



John Loudon McAdam, 1756 - 1836

MAP

of the

Great Road

between

GLASGOW and CARLISLE,

with the

PROPOSED IMPROVEMENTS,

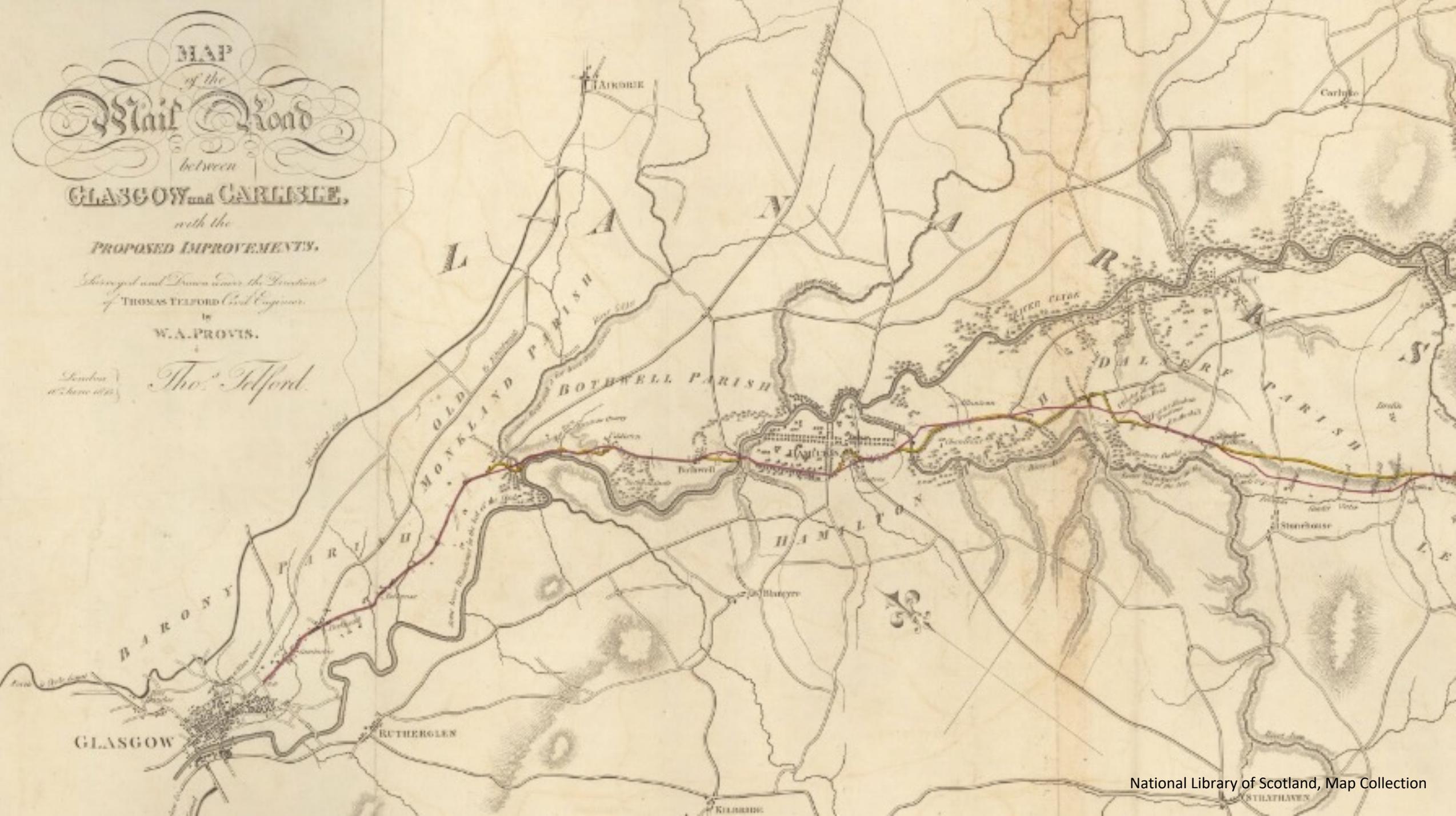
Designed and Drawn under the Direction  
of THOMAS TELFORD Civil Engineer,

by

W.A. PROVIS.

London  
at 25, Abchurch Lane

Tho: Telford.



MAP

of the

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PROPOSED IMPROVEMENTS.

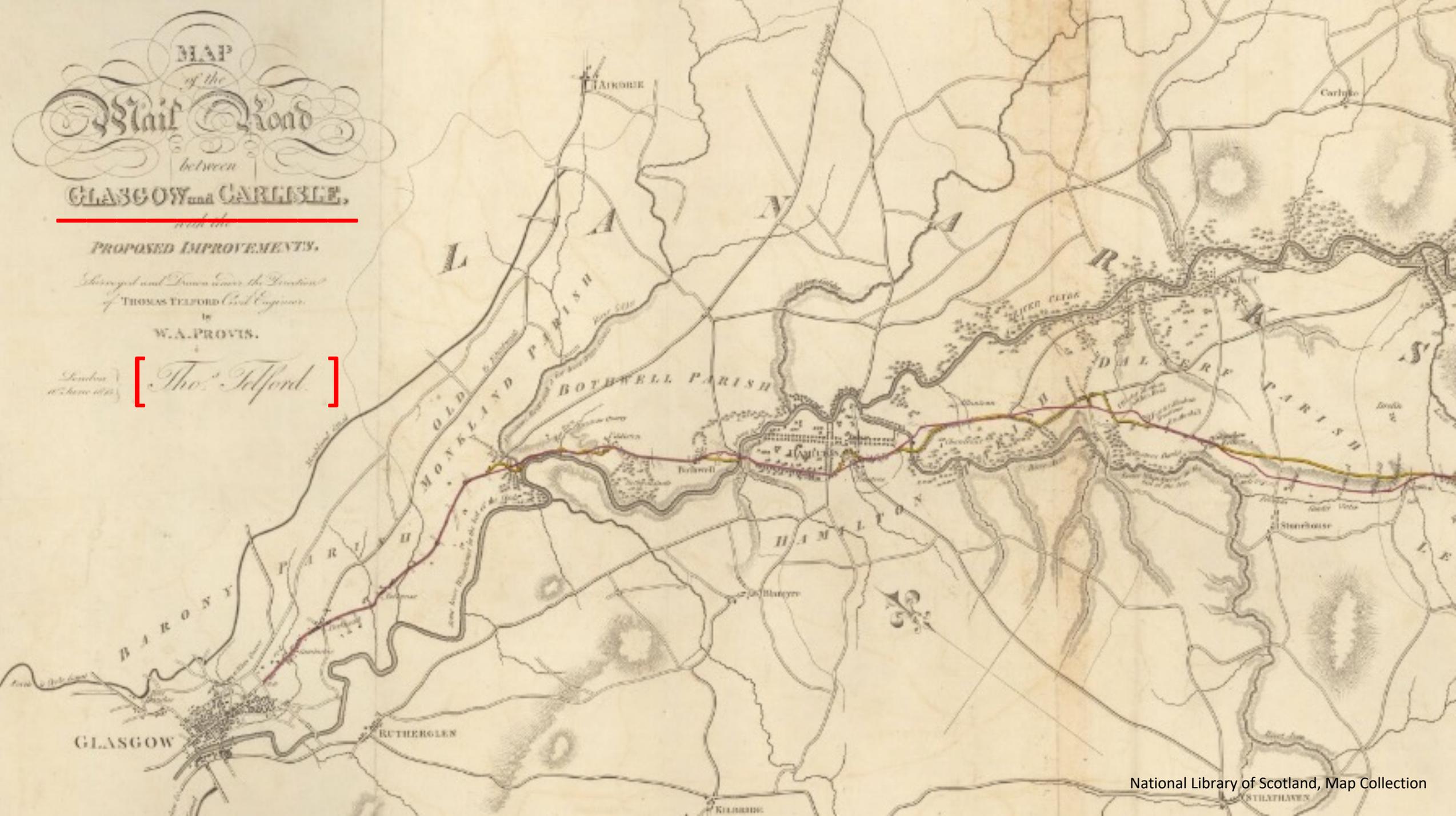
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by

W.A. PROVIS.

London  
at the office of

[Thos. Telford.]



By Robert Southern  
Rosa Rawlinson  
with 1864

Tuesday 17 August

Reached Edinburgh in the Carlisle Mail at  $\frac{1}{4}$  past 5. A.M.  
the way I admired the unusual & imposing appearance of the  
entrance of the City

By Robert Southern  
Rosa Rawlinson  
with 1864

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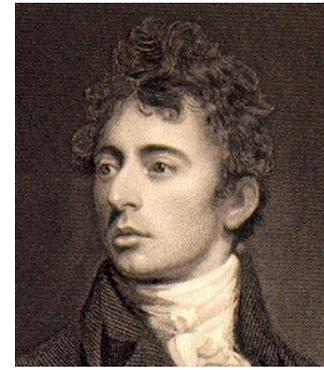
*Tuesday, August 17.*

*—Reached Edinburgh in the Carlisle Mail at  $\frac{1}{4}$  past 5 A.M.*



*Princes Street with the commencement of the building of the Royal Institution, detail | Alexander Nasmyth, 1825 | National Galleries Scotland*

*—Edinburgh was alive when I entered it;  
even at that early hour there was a busy  
greens-market in the High Street.*

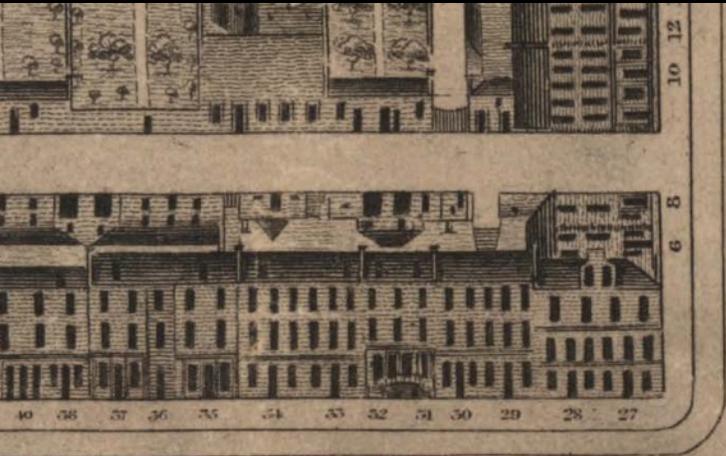




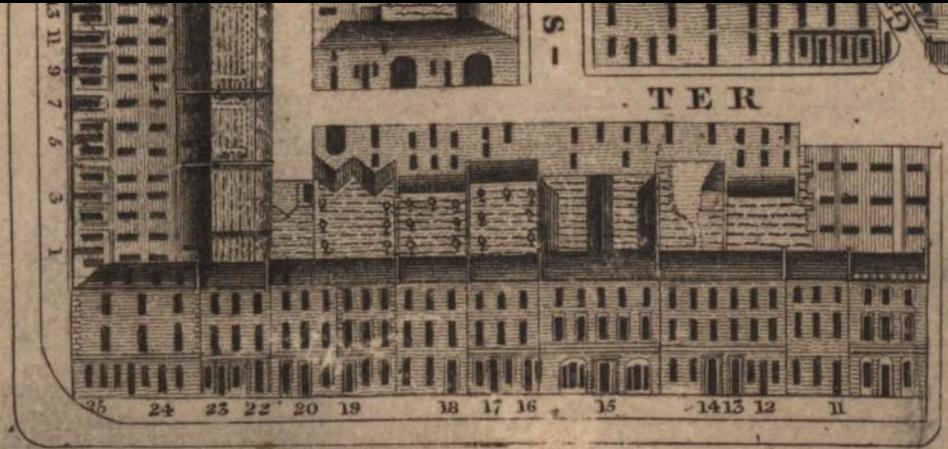
*I got into Mr. Rickman's apartments at  
MacGregor's Hotel, in Princes Street.*



*Princes Street with the commencement of the building of the Royal Institution, detail | Alexander Nasmyth, 1825 | National Galleries Scotland*



ST ANDREW



STER

STREET

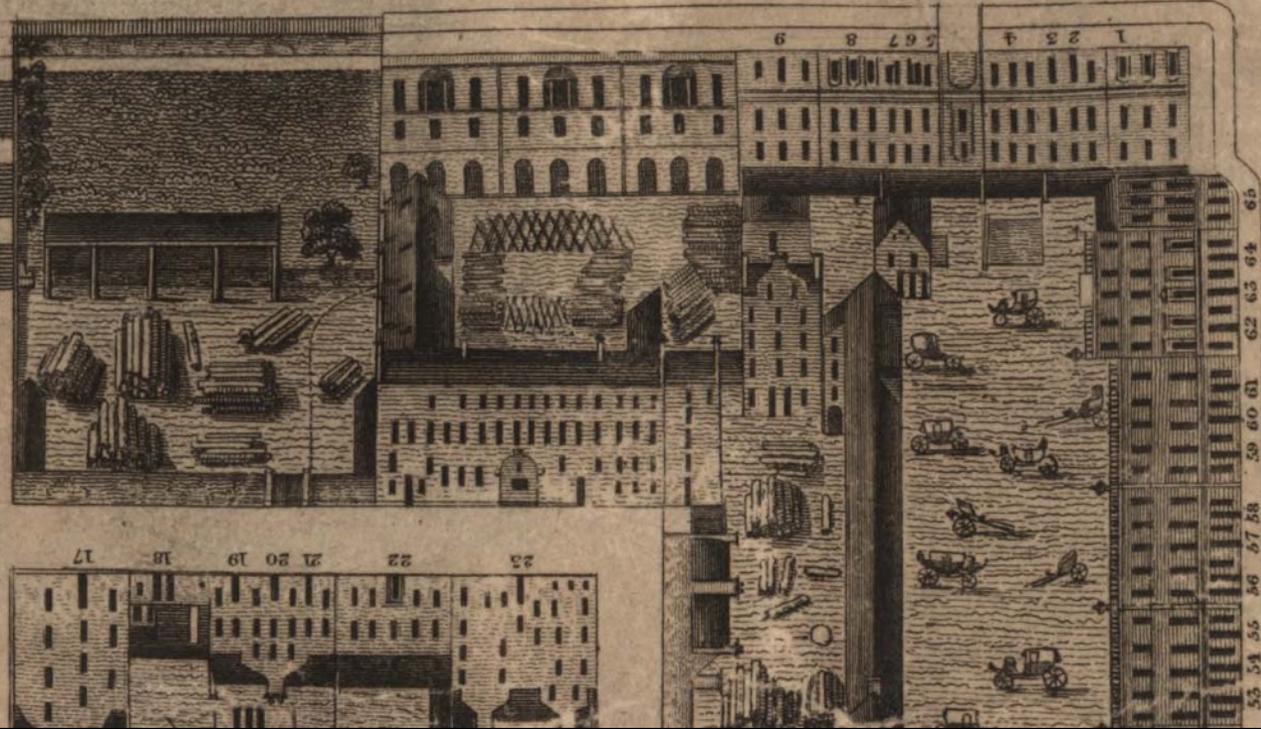
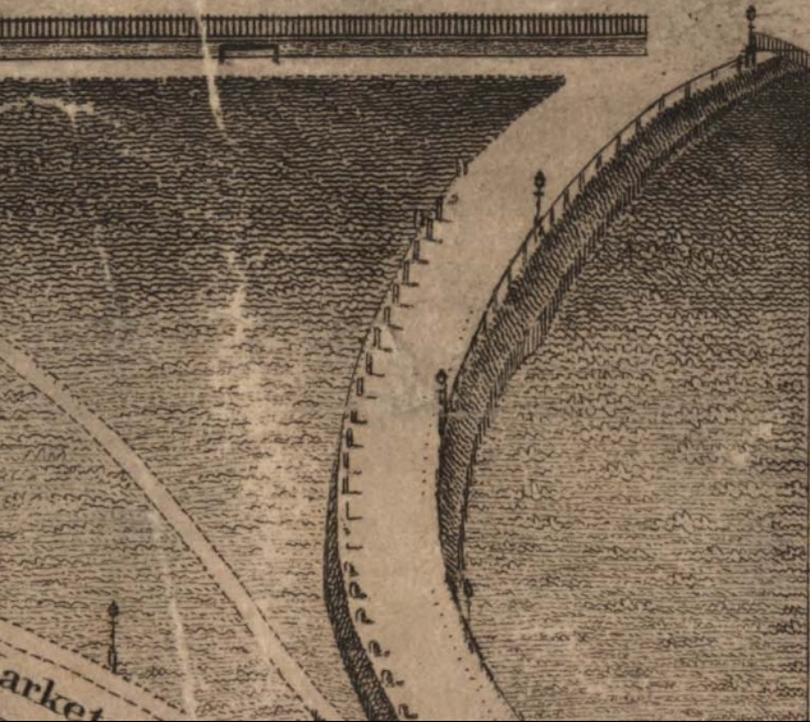


217

STREET

STREET

PRINCES

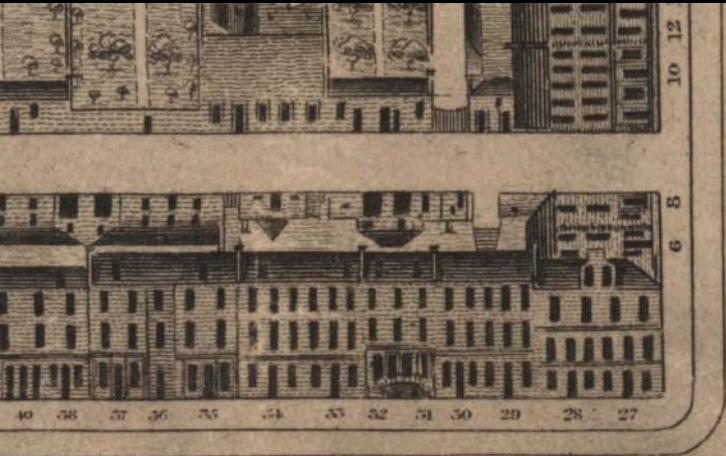


RIDGE STREET

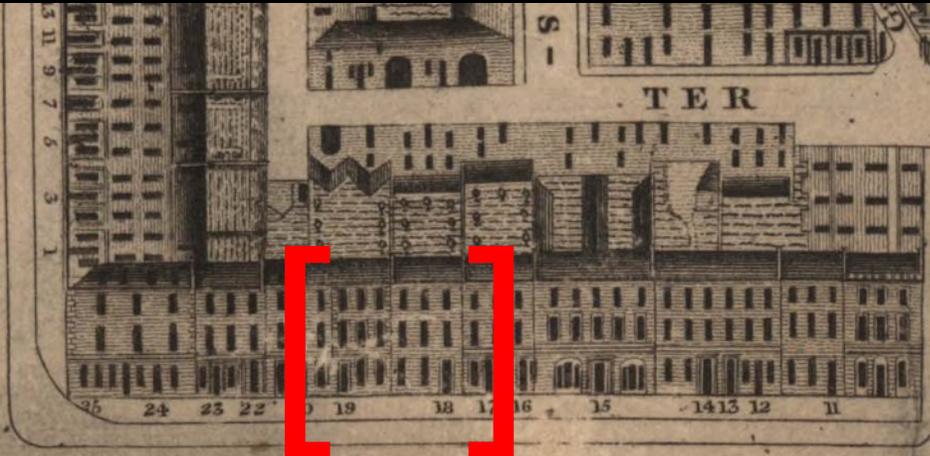


SQUARE

Theatre Royal



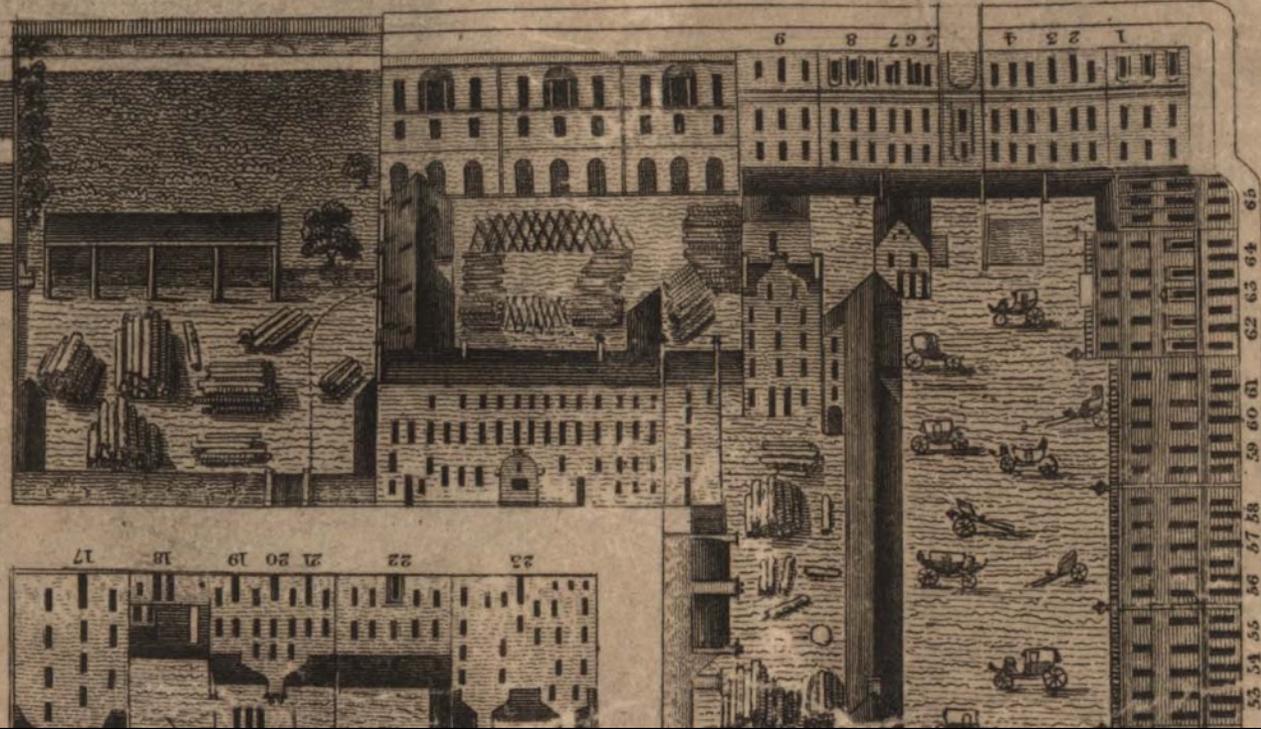
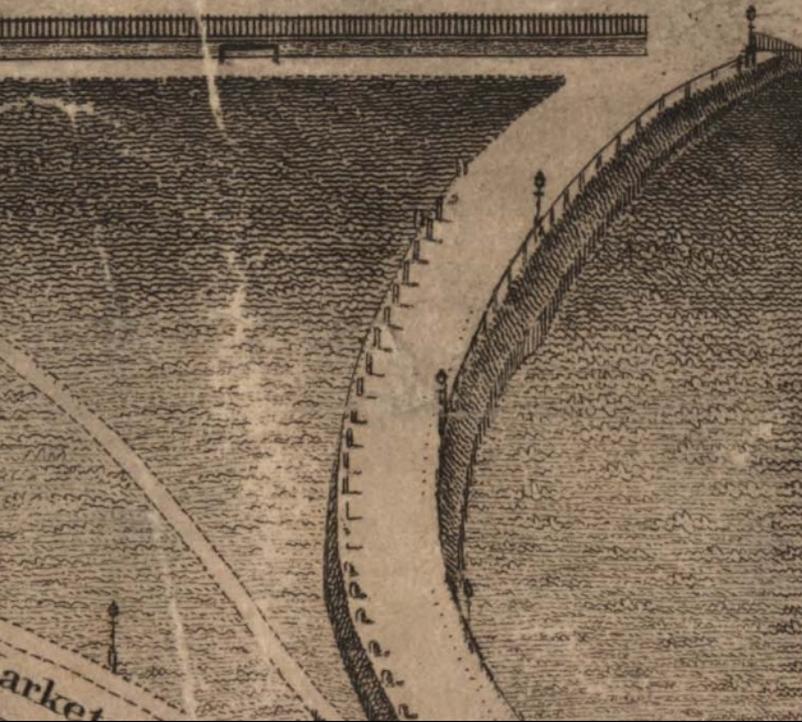
ST ANDREW



217

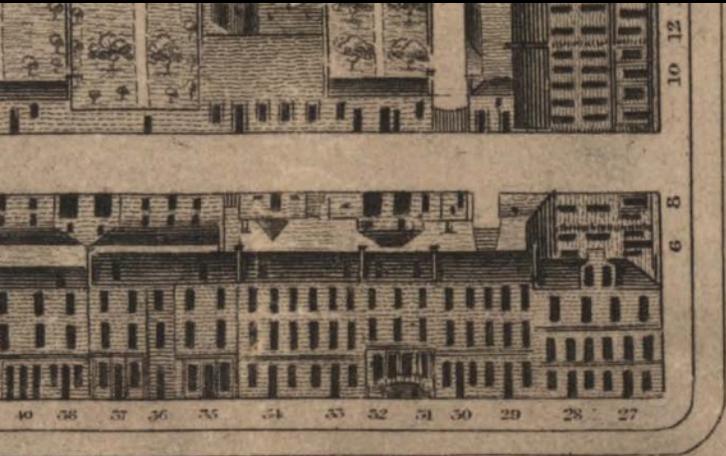
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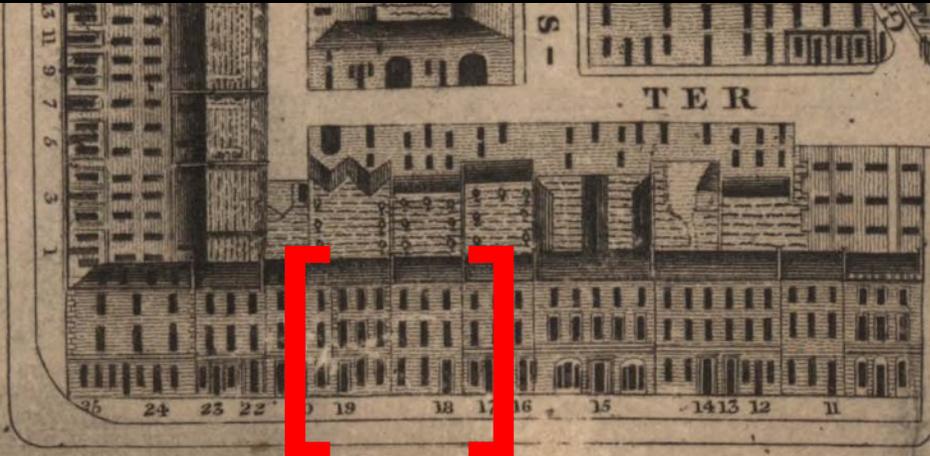


RIDGGE STREET





ST ANDREW



TER

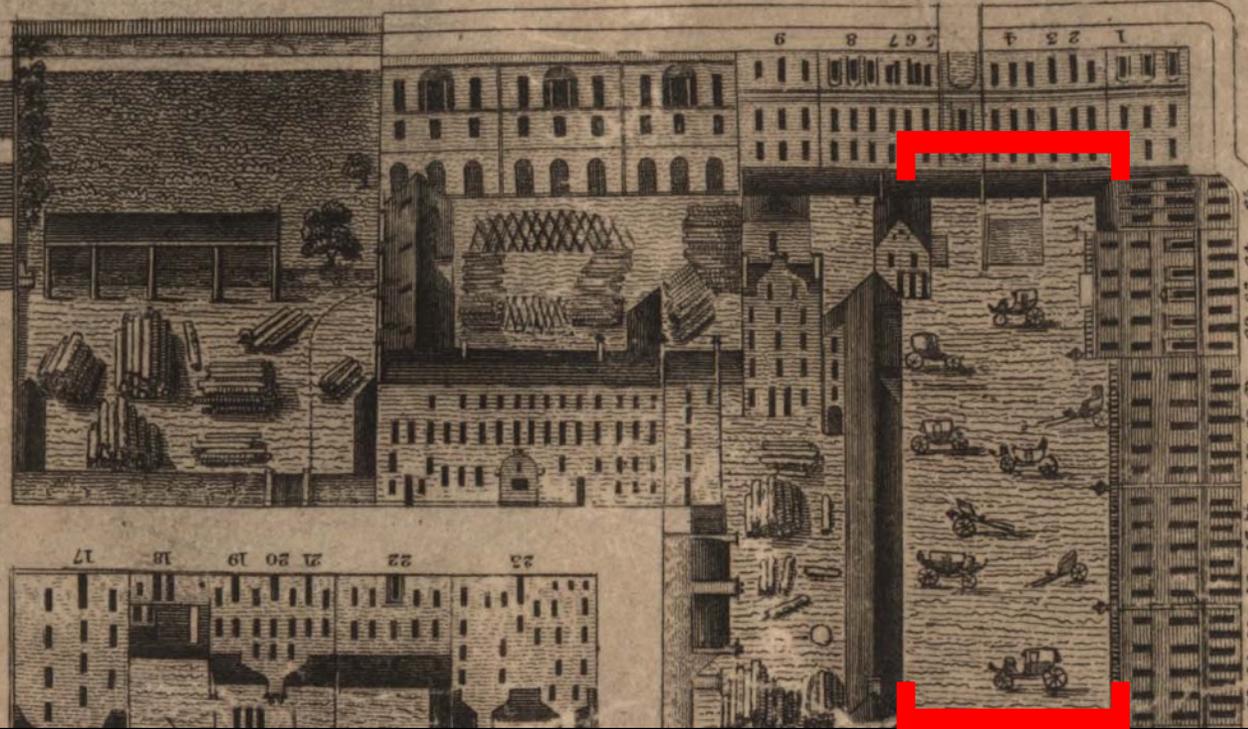
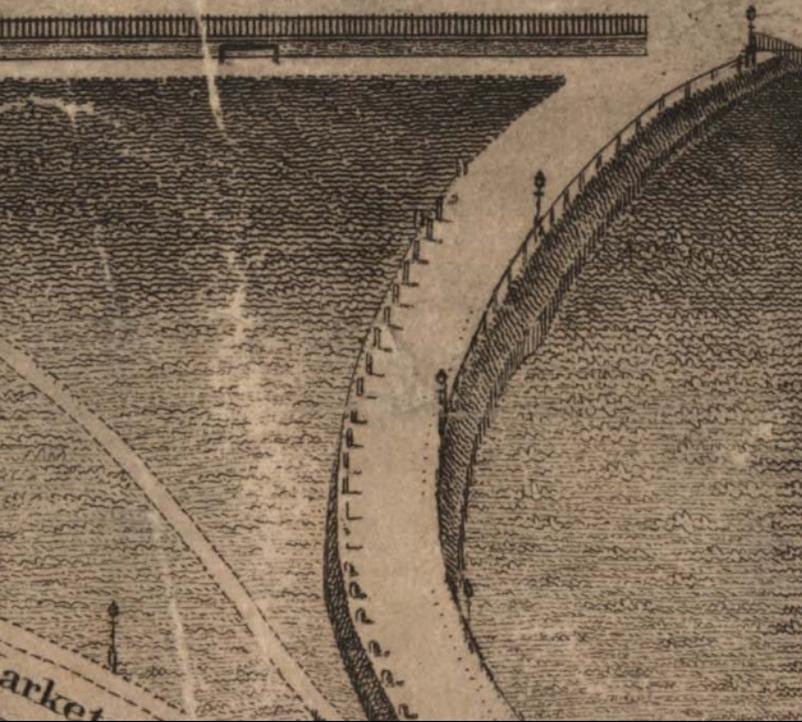


217

STREET

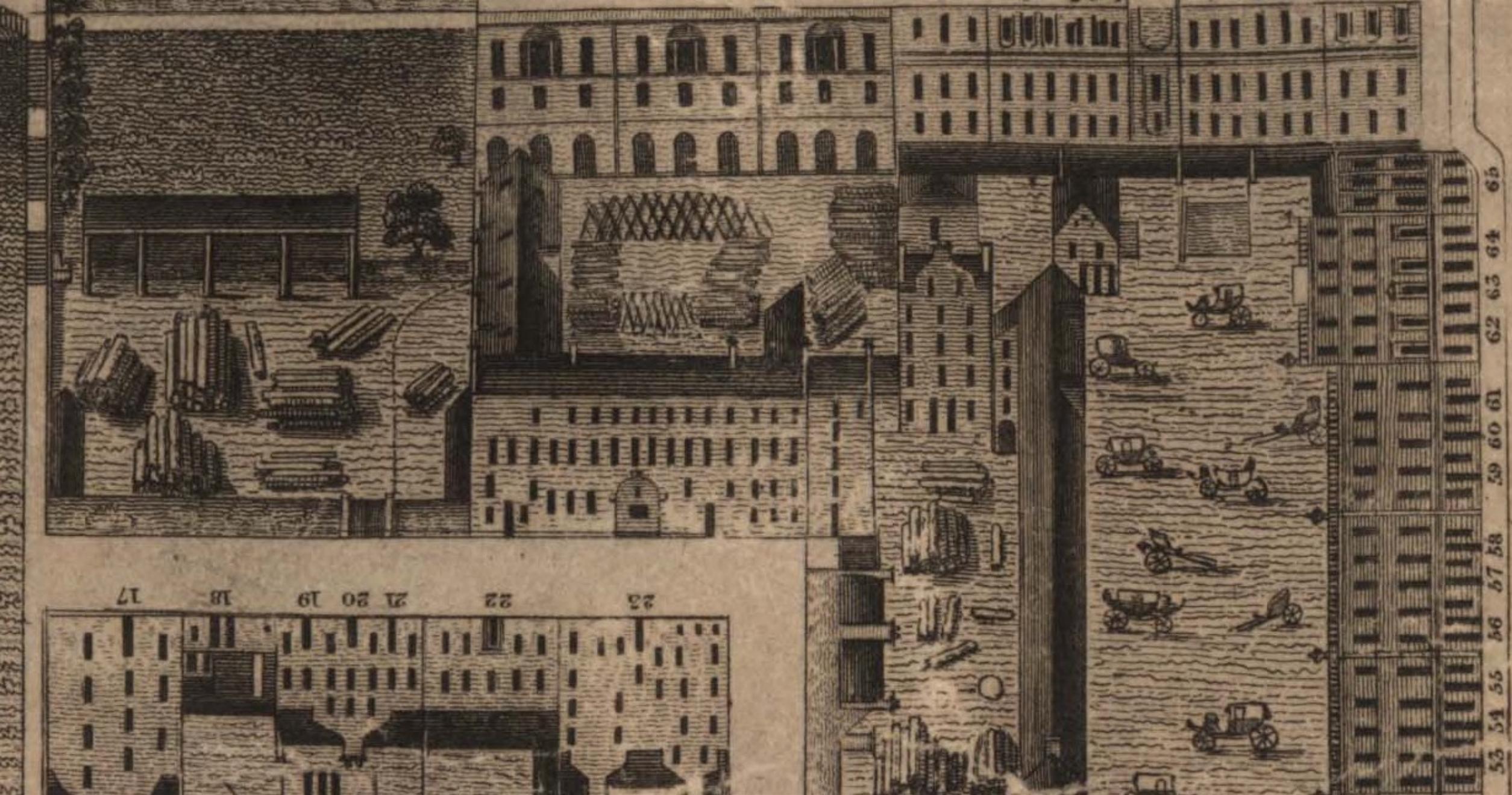
STREET

PRINCES



RIDGGE STREET



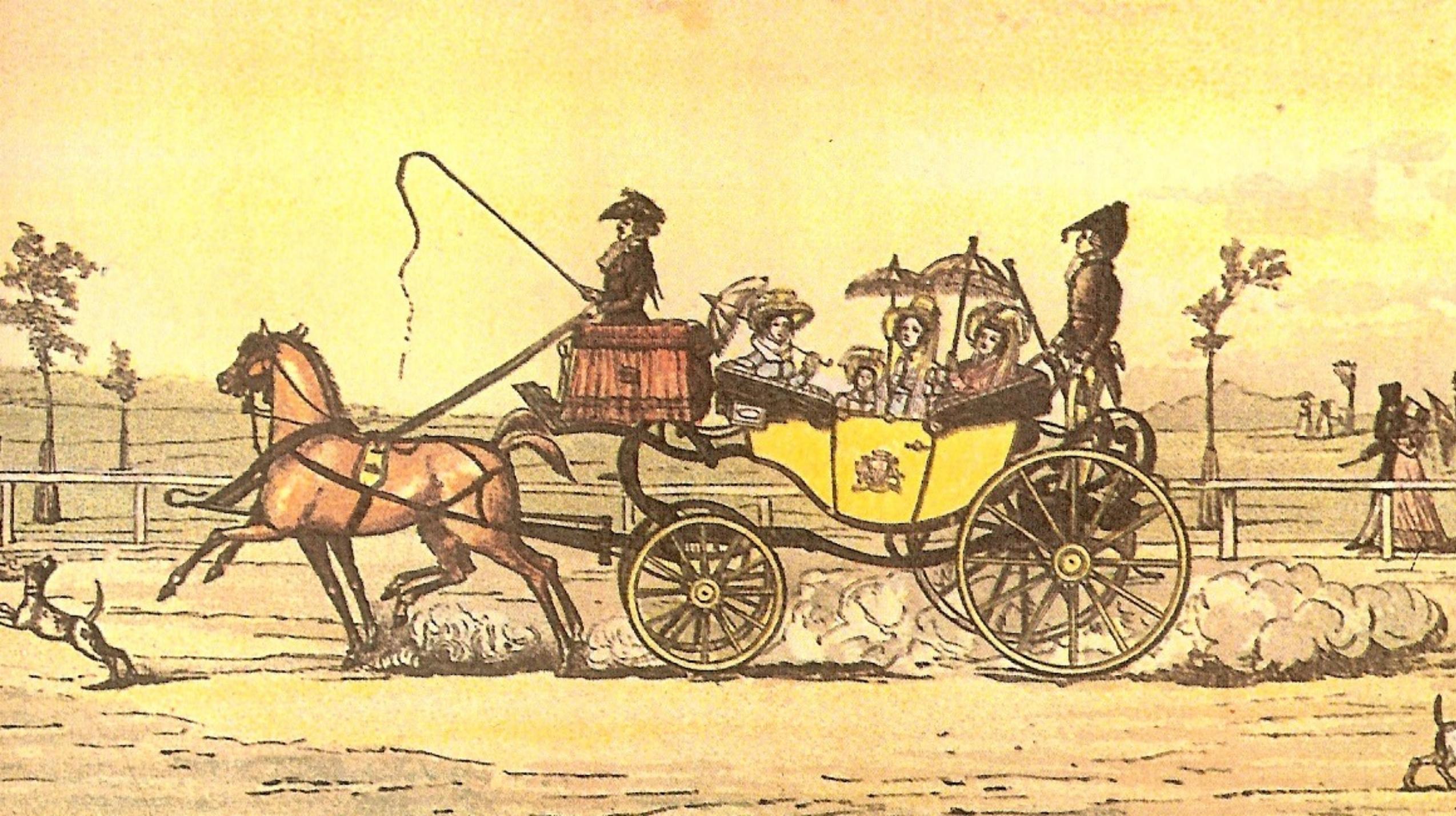


17 18 19 20 21 22 23

53 54 55 56 57 58 59 60 61 62 63 64 65



Learmonth & Co. Coachmakers | Kirkwood Plan and Elevation, 1819 | National Library of Scotland, Map Collection



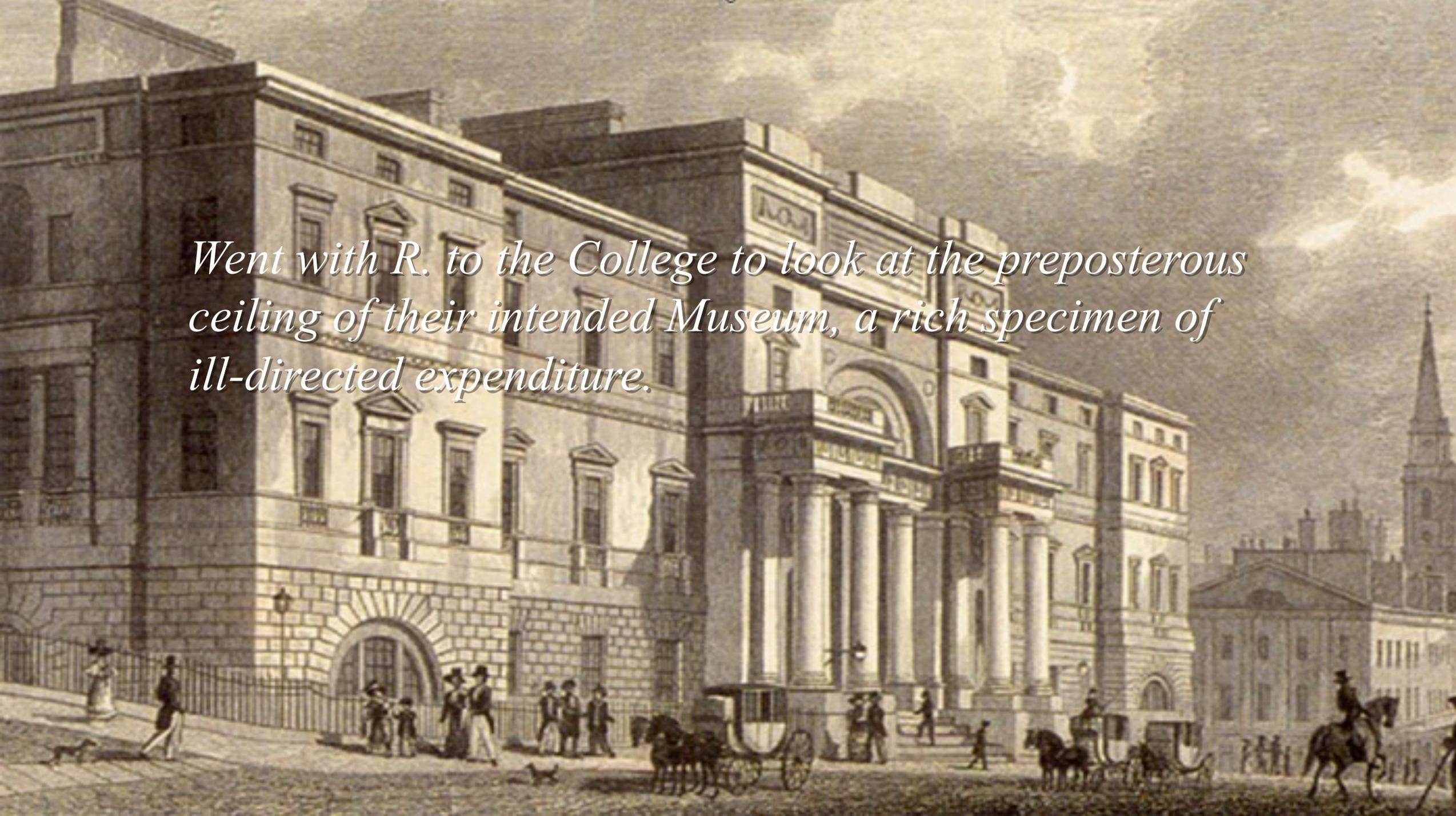


JOHN RICKMAN, 1771 - 1840

Secretary, Commissioners for Roads  
and Bridges in the Highlands  
of Scotland

Scottish Highland Roads and Bridges Act  
1803  
(43 Geo III c.80)

*Went with R. to the College to look at the preposterous ceiling of their intended Museum, a rich specimen of ill-directed expenditure.*





*Mr. Telford arrived in the afternoon from Glasgow.*

*There is so much intelligence in his countenance, so much frankness, kindness and hilarity about him, flowing from the never-failing well-spring of a happy nature, that I was upon cordial terms with him in five minutes.*



*Thursday, August 19.*

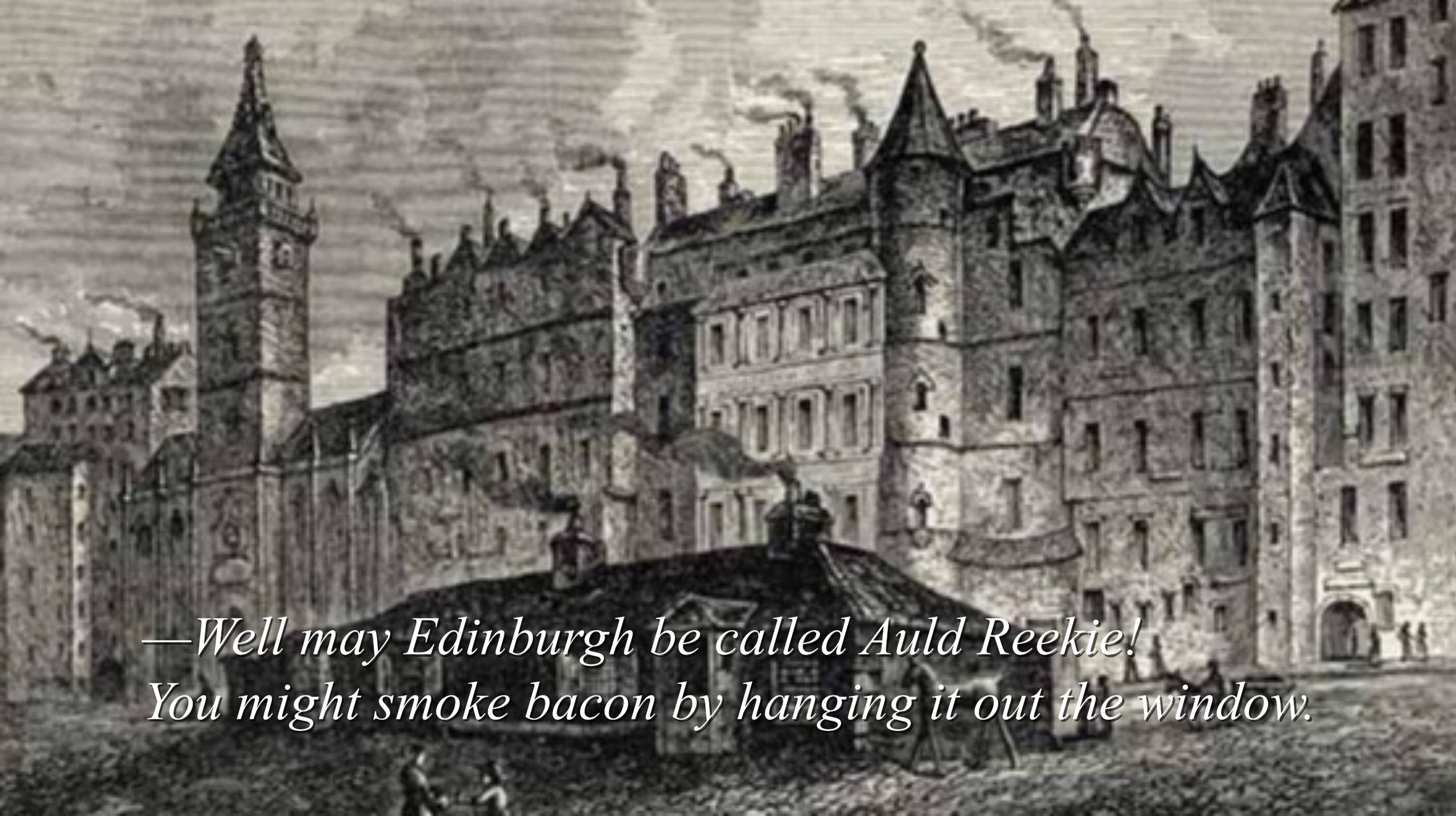
*—The Night Mare was at MacGregor's Hotel last night. She went to my neighbor's room, instead of mine, for which I thank her...*



*Thursday, August 19.*

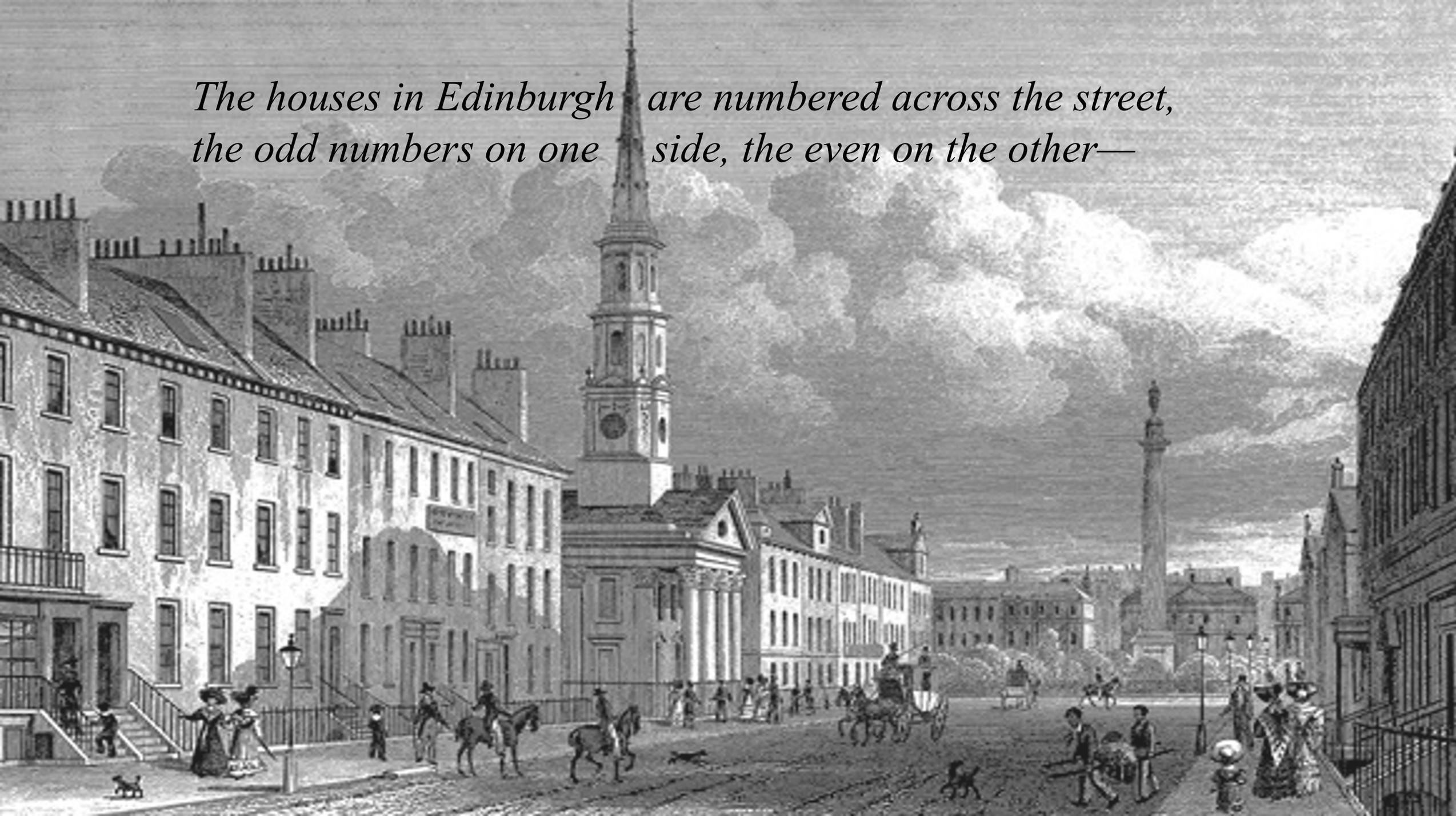
*—The Night Mare was at MacGregor's Hotel last night. She went to my neighbor's room, instead of mine, for which I thank her...*

*...and he awoke me with three of the most dreadful groans I ever heard.*

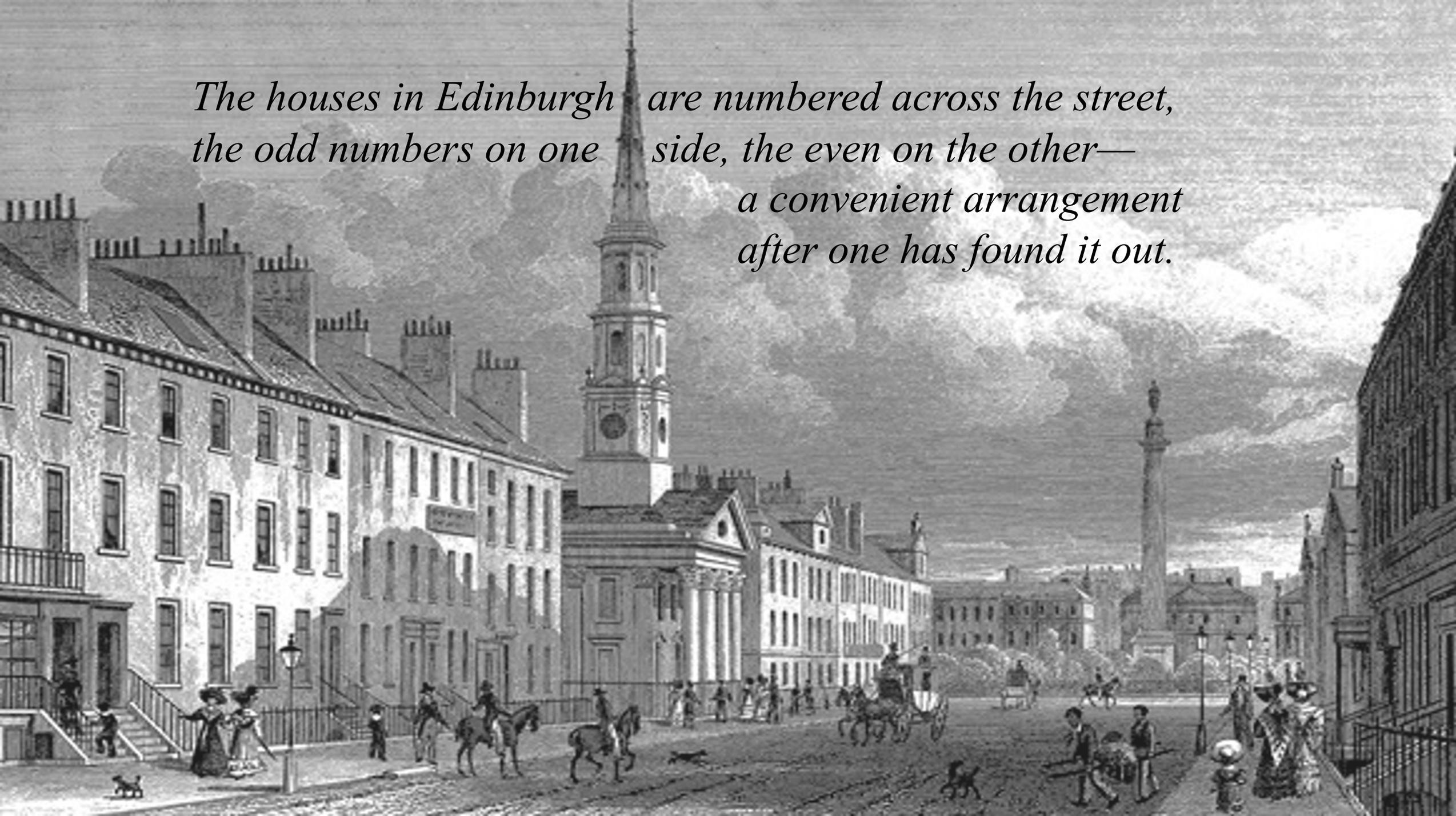


*—Well may Edinburgh be called Auld Reekie!  
You might smoke bacon by hanging it out the window.*

*The houses in Edinburgh are numbered across the street, the odd numbers on one side, the even on the other—*



*The houses in Edinburgh are numbered across the street, the odd numbers on one side, the even on the other—a convenient arrangement after one has found it out.*



*Friday, August 20.*

*—Rose at five, packed my trunk, inserted in my journal all the remaining memoranda concerning Edinburgh, and now the Coach is at the door.*





*A View of Edinburgh from the West*, detail, Alexander Nasmyth, c.1822 | Yale Center for British Art

A Romantic-style landscape painting of a Highland Loch. The scene is framed by dark, dense trees in the foreground. In the middle ground, a small boat with two figures is on the water. To the left, a stone tower with a crenellated top stands on a grassy bank. The background features rolling hills and mountains under a soft, hazy sky. The overall mood is serene and picturesque.

# THE PICTURESQUE



Loch Awe, Alexander Nasmyth



## WILLIAM GILPIN, 1724 -1804



*Remarks on Forest Scenery, William Gilpin*



William Gilpin, Victoria and Albert Museum



William Gilpin



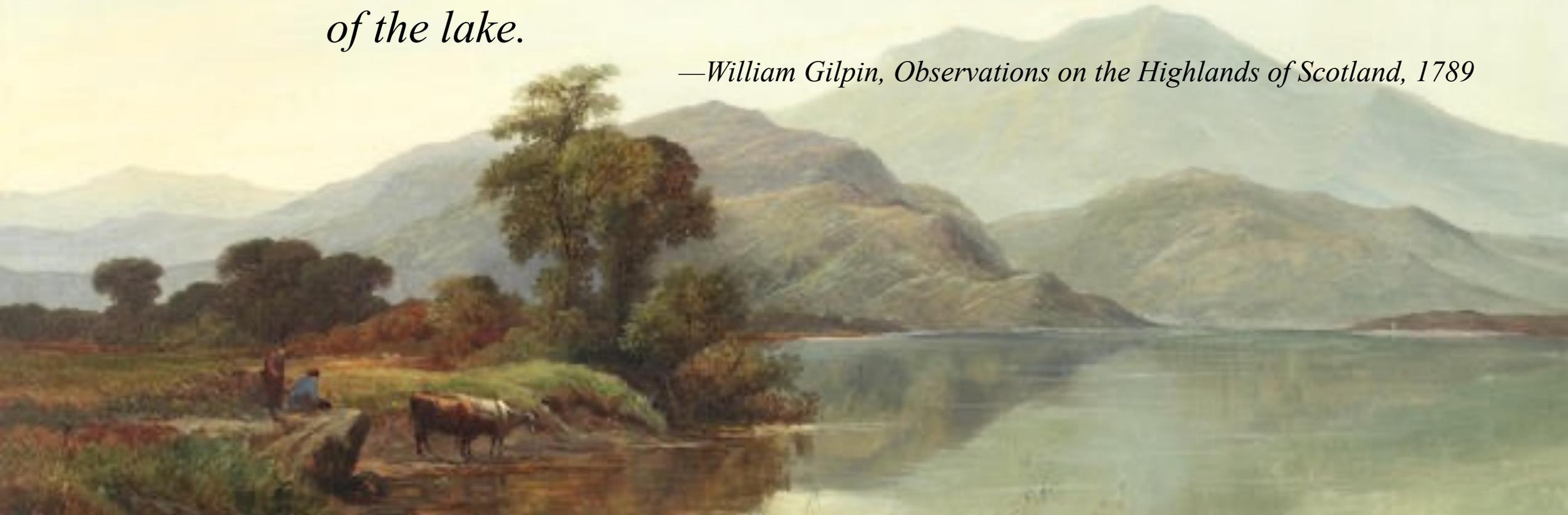
Military Road on the Banks of Loch Lomond



*A circuit round the lake, naturally suggests the visionary idea of improving it.*

*An easy road therefore might be traced. I do not merely mean a good carriage road; but such a road, as might form a pleasing line in itself; and shew the beauties of the lake.*

*—William Gilpin, Observations on the Highlands of Scotland, 1789*





*Saturday, August 21.*

*—After breakfast we started for Loch Katrin [sic] ...*



LOCH KATRINE

Loch Katrine  
16 Sep  
1890



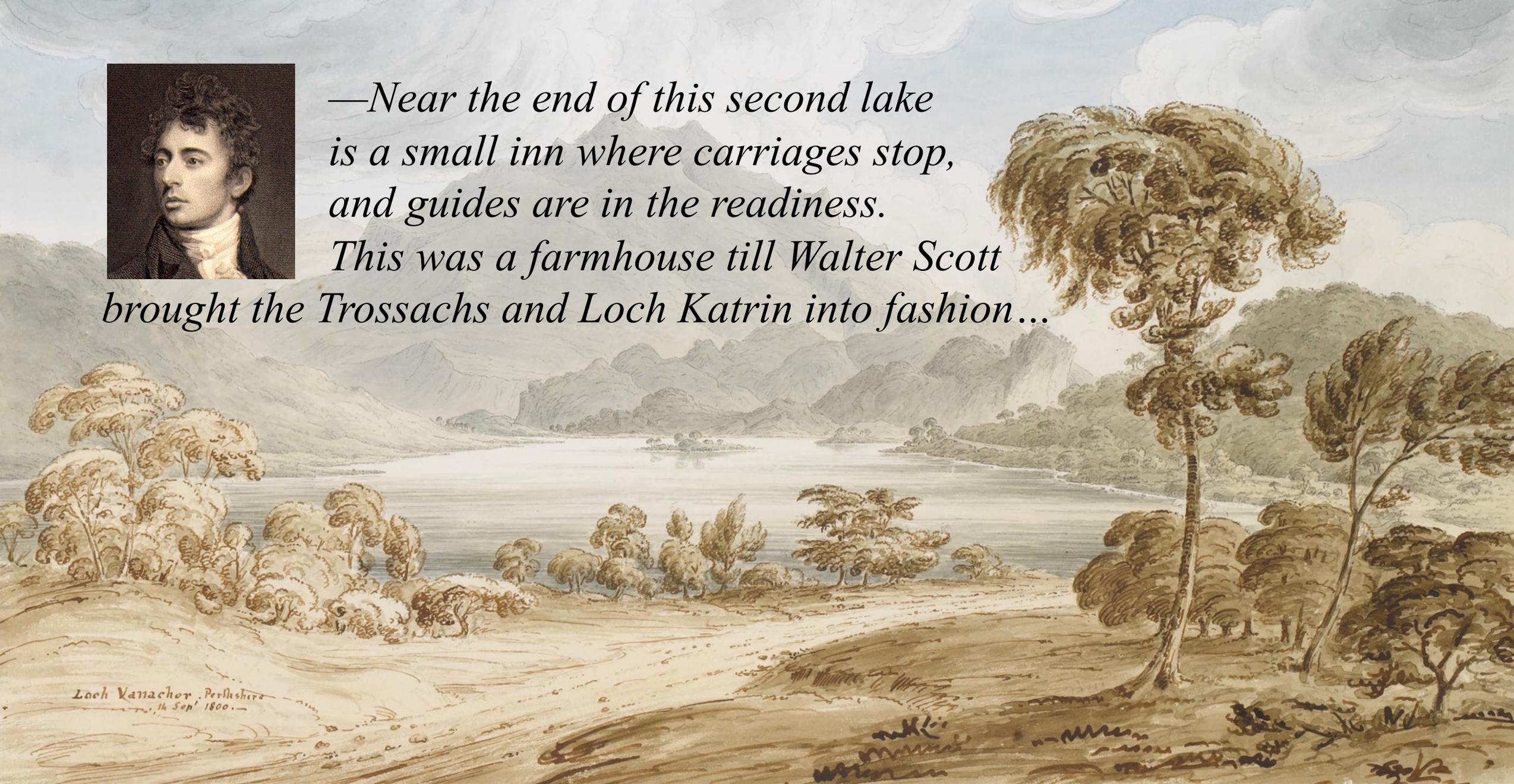
# LOCH KATRINE

*Loch Katrine*  
11. Sep.  
1800.



*—Near the end of this second lake  
is a small inn where carriages stop,  
and guides are in the readiness.*

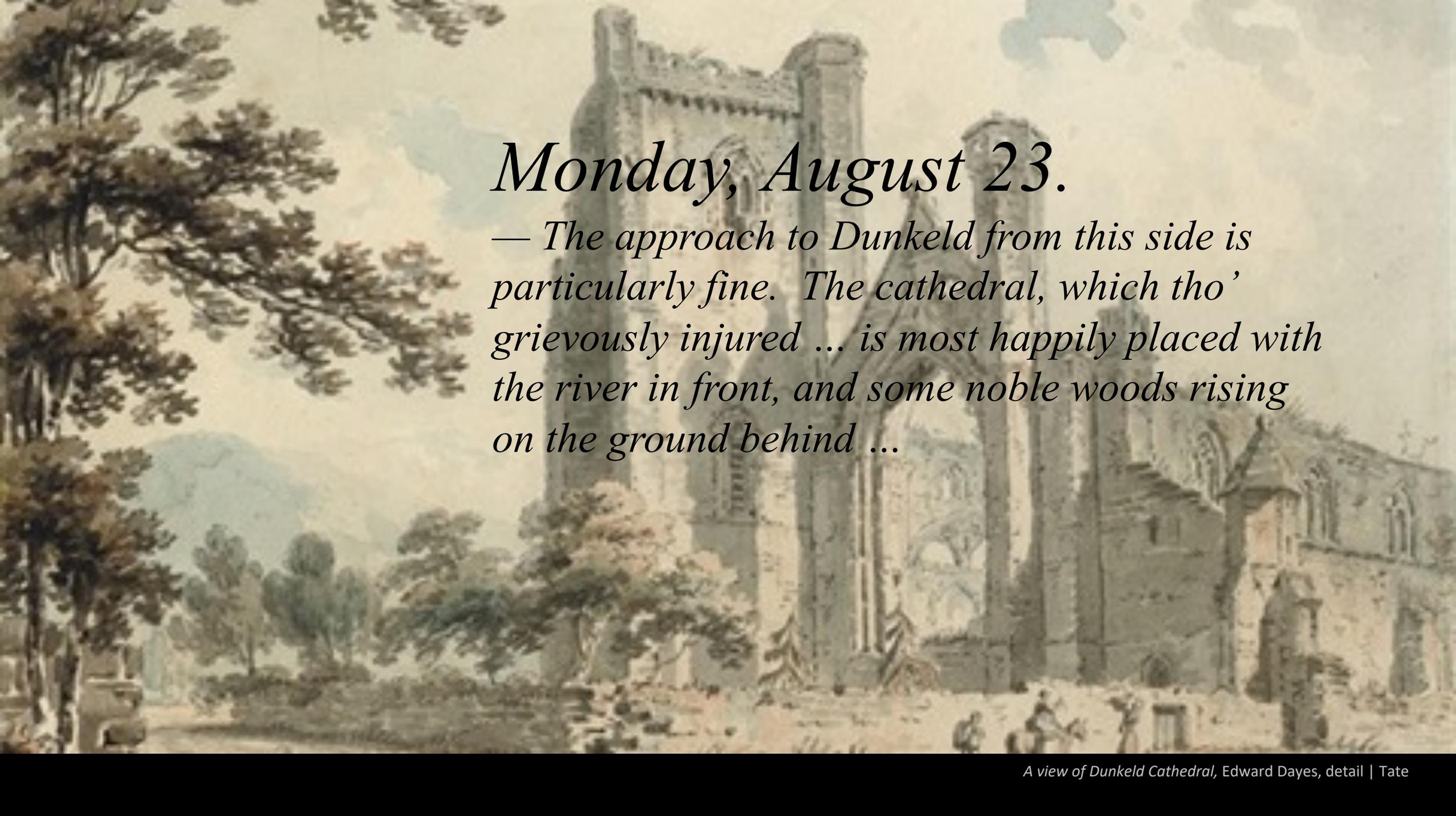
*This was a farmhouse till Walter Scott  
brought the Trossachs and Loch Katrin into fashion...*



*Loch Vanachor, Perthshire  
14 Sep' 1800.*



Ben Lomond from Inveruglas | Canmore Collection

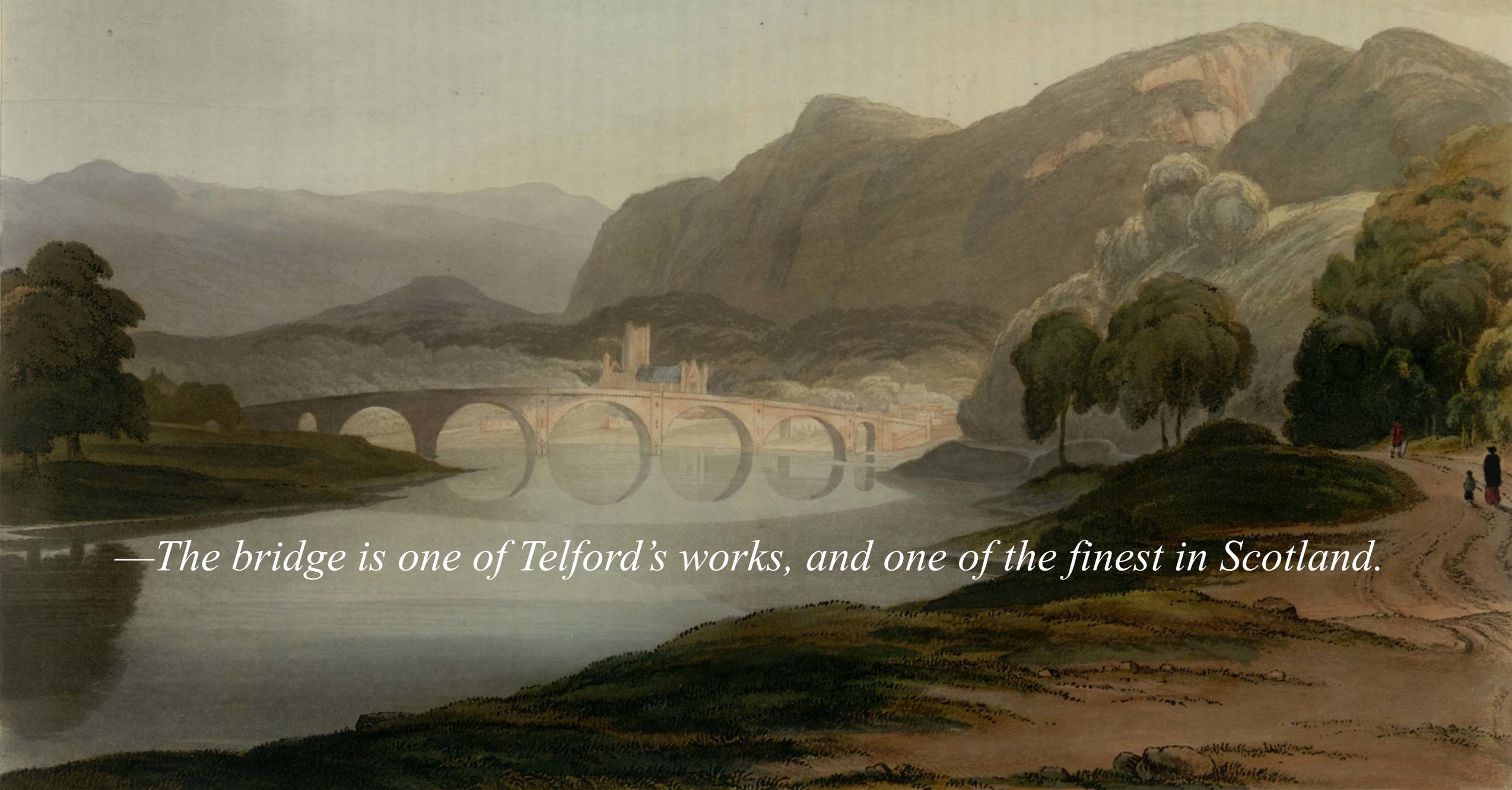


*Monday, August 23.*

*— The approach to Dunkeld from this side is particularly fine. The cathedral, which tho' grievously injured ... is most happily placed with the river in front, and some noble woods rising on the ground behind ...*



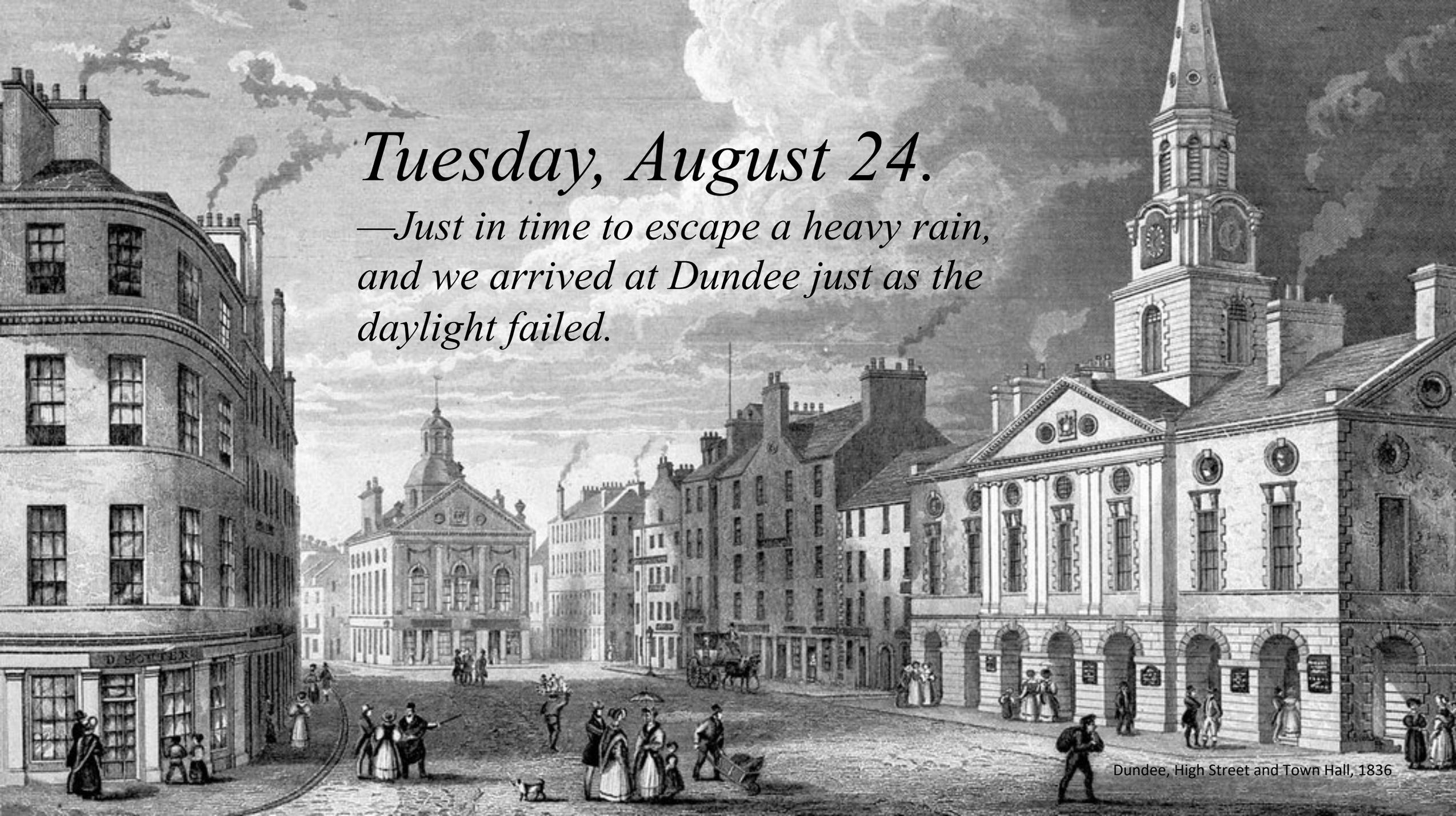
*Dunkeld*, George Fennell Robson, 1819 | Capital Collections, Edinburgh Libraries and Museums



*—The bridge is one of Telford's works, and one of the finest in Scotland.*

*Tuesday, August 24.*

*—Just in time to escape a heavy rain,  
and we arrived at Dundee just as the  
daylight failed.*



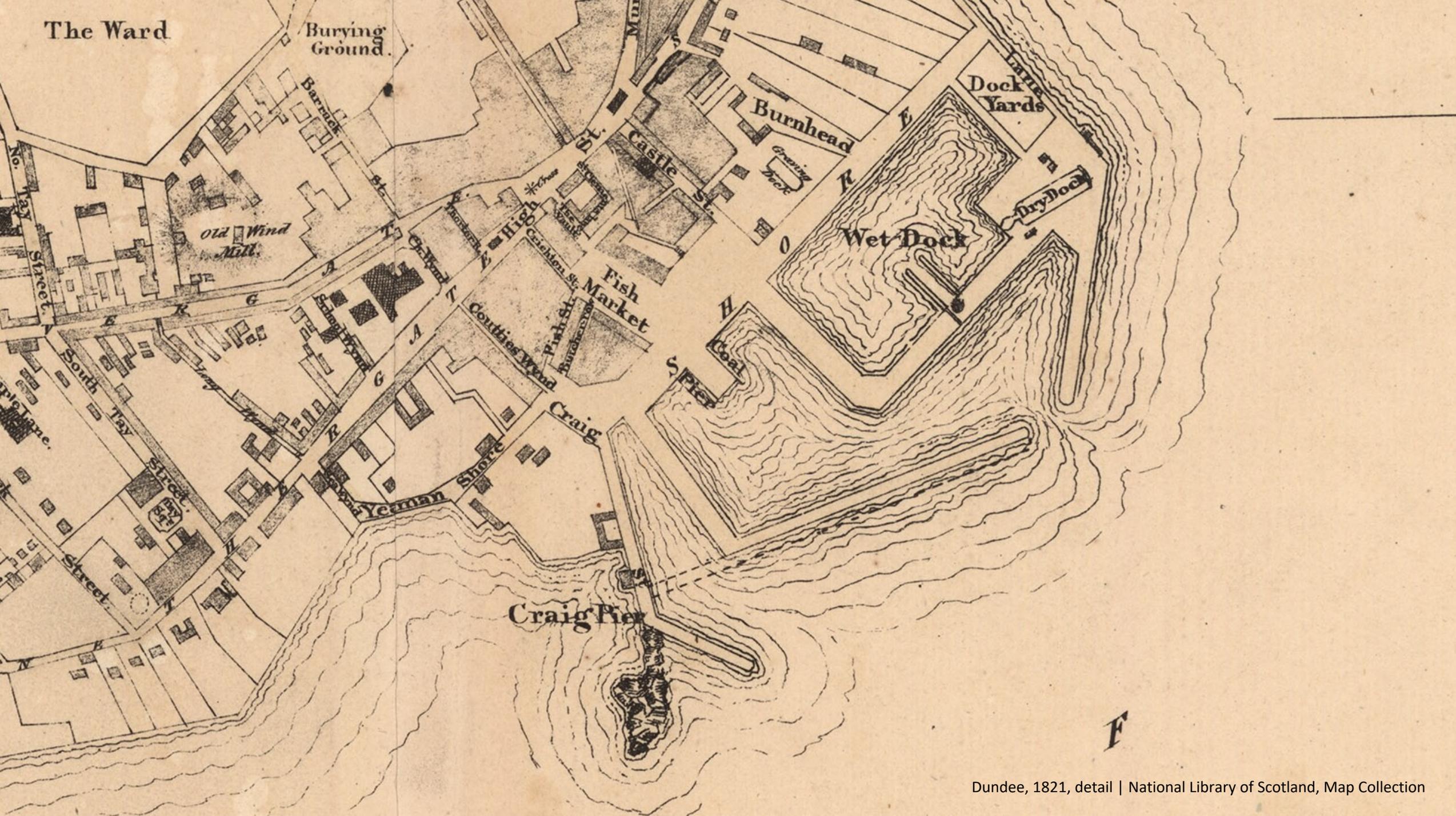
Dundee, High Street and Town Hall, 1836



*Wednesday, August 25.*  
*—Telford's is a happy life: everywhere  
making roads, building bridges, forming  
canals, and creating harbours...*

**DUNDÉE**

*Surveyed  
1821.*



The Ward

Burying Ground

Dock Yards

Burnhead

Wet Dock

Dry Dock

Fish Market

Courties Yard

Craig River

F



*—A good many persons  
were assembled to see  
us depart.*

*...and therefore was not  
sorry when the coach  
was in motion and we  
bade adieu to “bonny  
Dundee.”*

# ARBROATH ABBEY





*—Several booksellers' shops,  
which indeed seem to be more  
numerous in Scotch than in  
English towns.*



*—Several booksellers' shops, which indeed seem to be more numerous in Scotch than in English towns.*

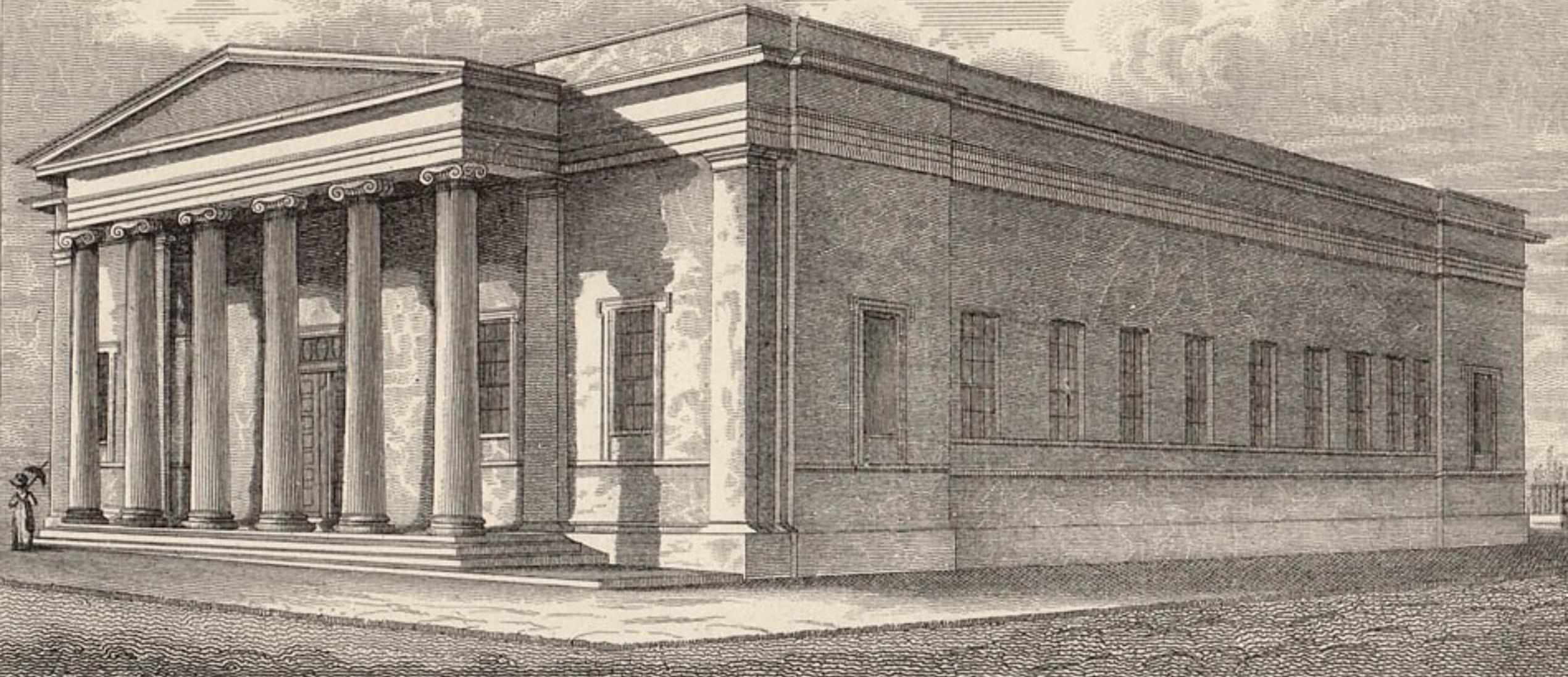
*And here in Arbroath I saw more prostitutes walking the streets than would I think have been seen in any English town of no greater extent or population.*

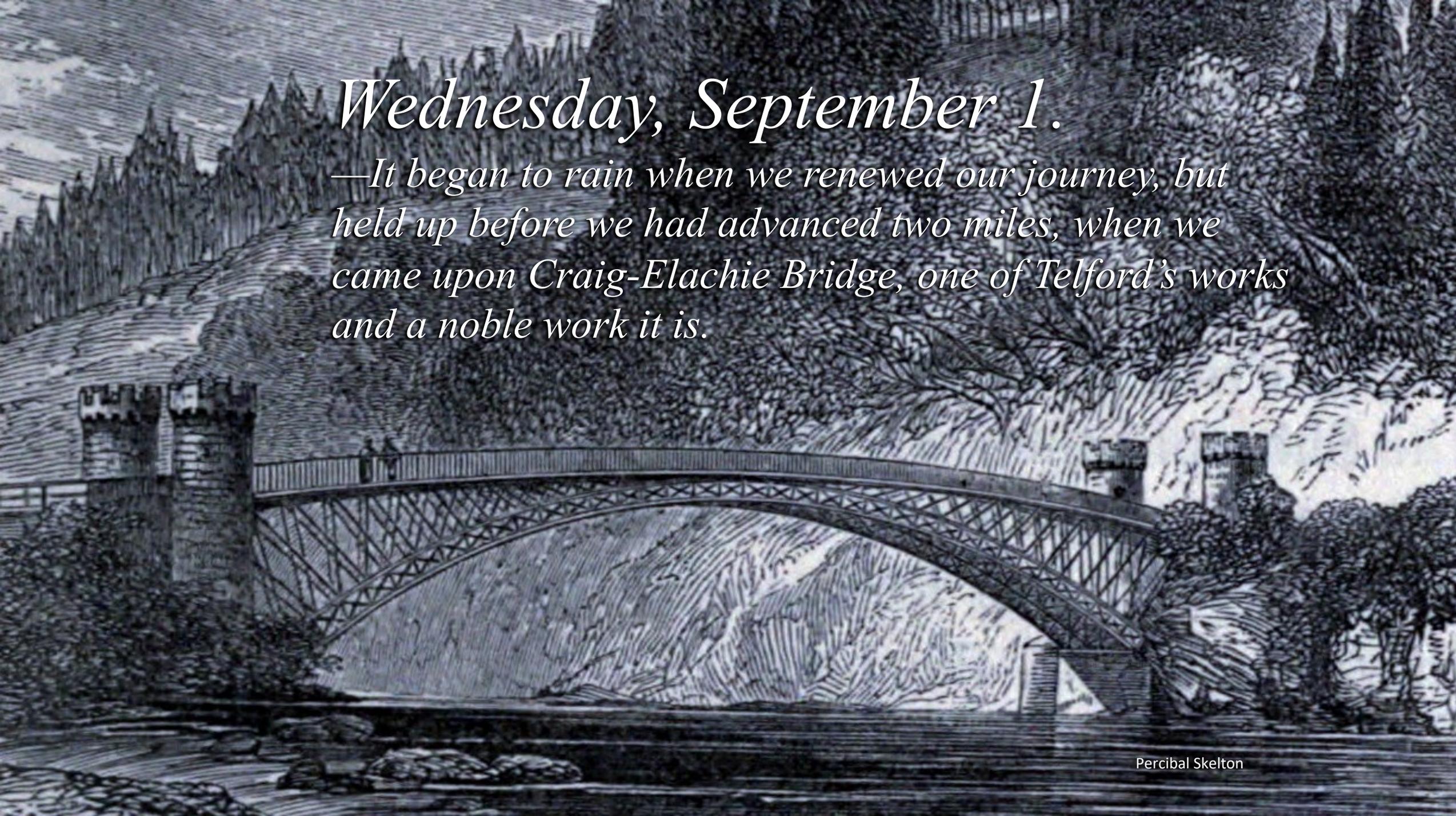


*Friday, August 27.*

*—Old Aberdeen is about a mile  
from the New City. It has something  
of a collegiate character—an air of  
quietness and permanence...*

*—The Scotch regard architectural beauty in their private homes,  
as well as in their public edifices much more than we do.*

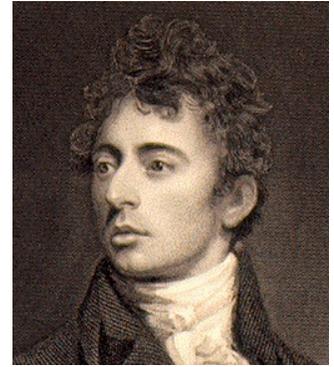




*Wednesday, September 1.*

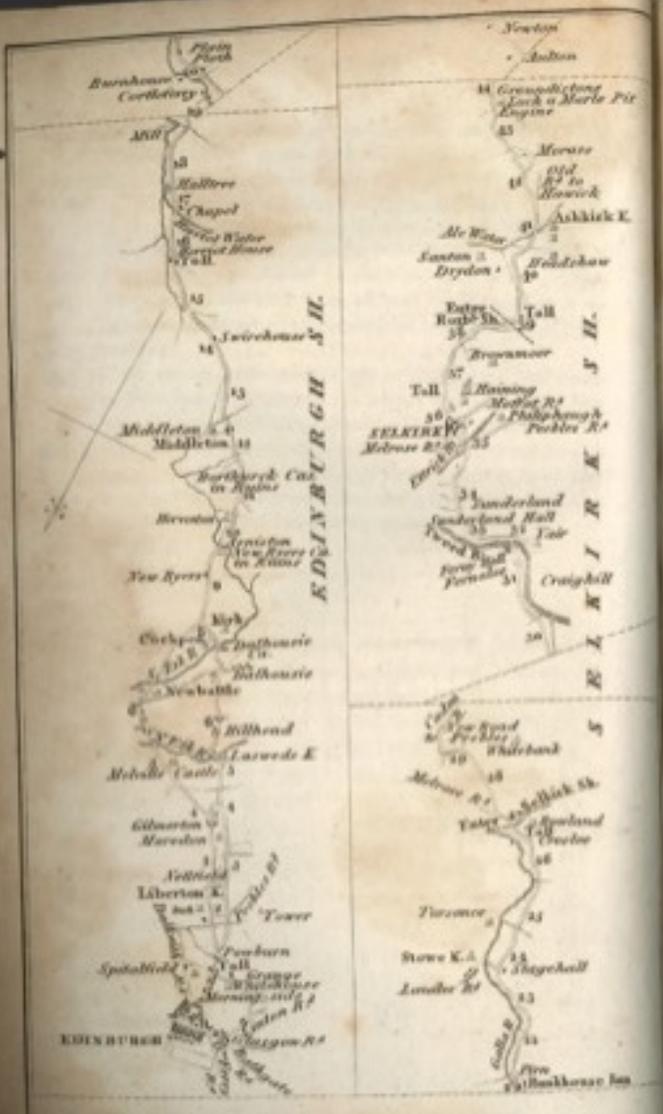
*—It began to rain when we renewed our journey, but held up before we had advanced two miles, when we came upon Craig-Elachie Bridge, one of Telford's works and a noble work it is.*

*That road brings the traveller by a short tour to the two short turrets at the entrance of the bridge: on this side they are merely ornamental, on the other their weight is necessary for the abutment. The bridge is of iron, beautifully light, in a situation where the utility of lightness is instantly perceived.*

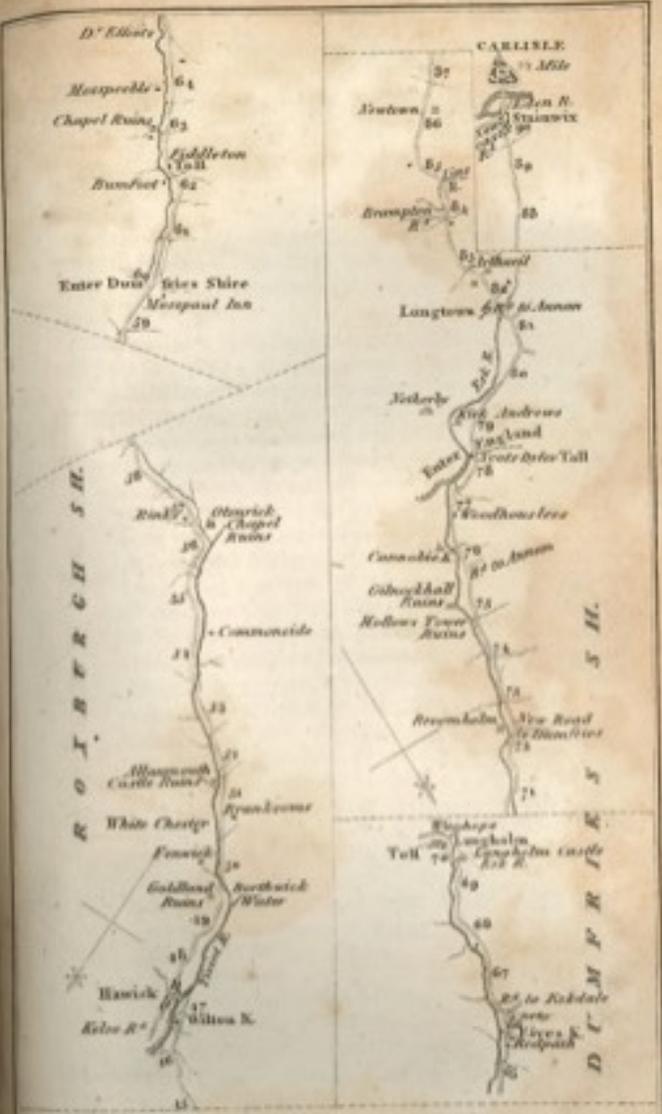




# TRAVEL INFRASTRUCTURE



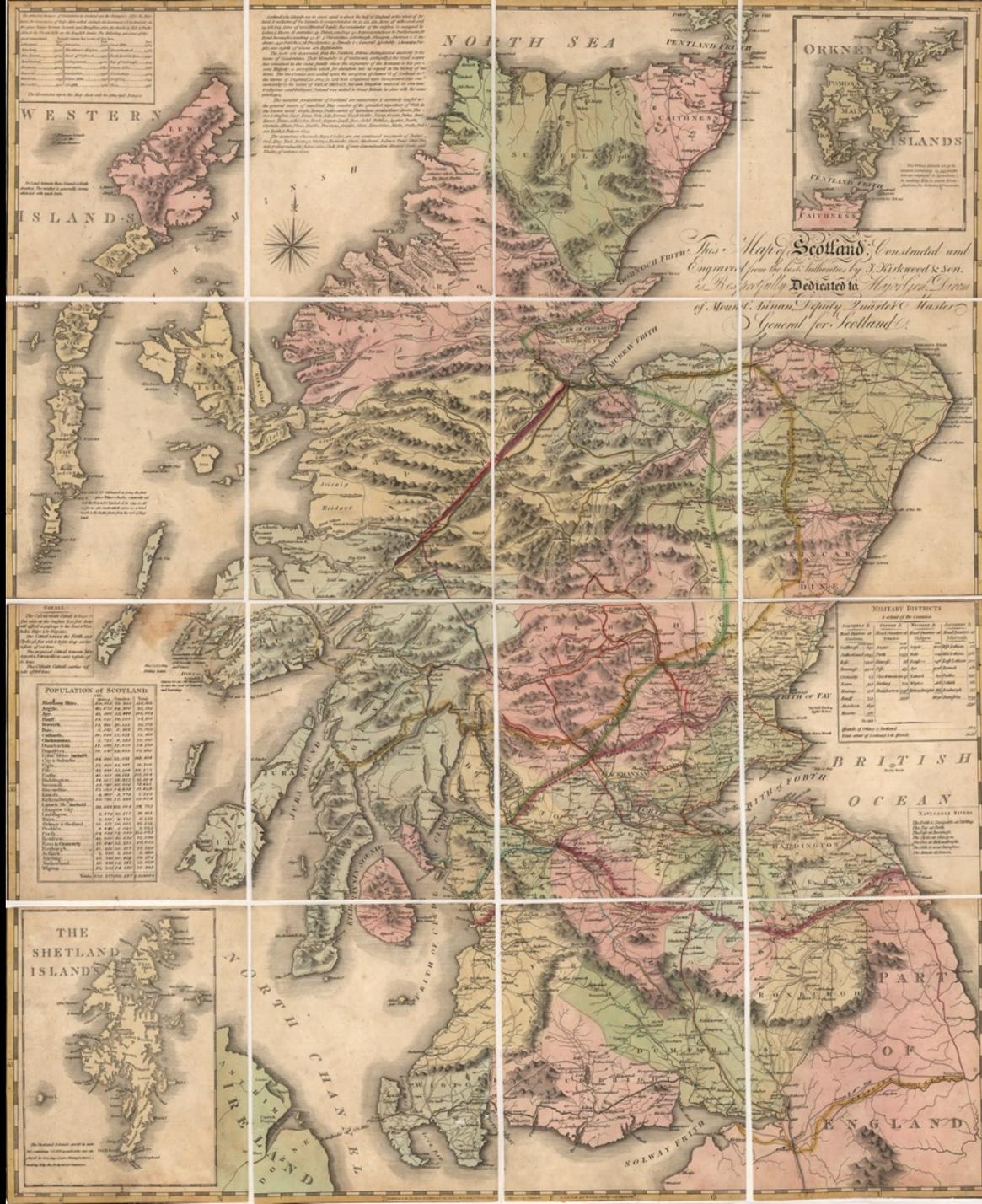
Road from EDINBURGH to CARLISLE.

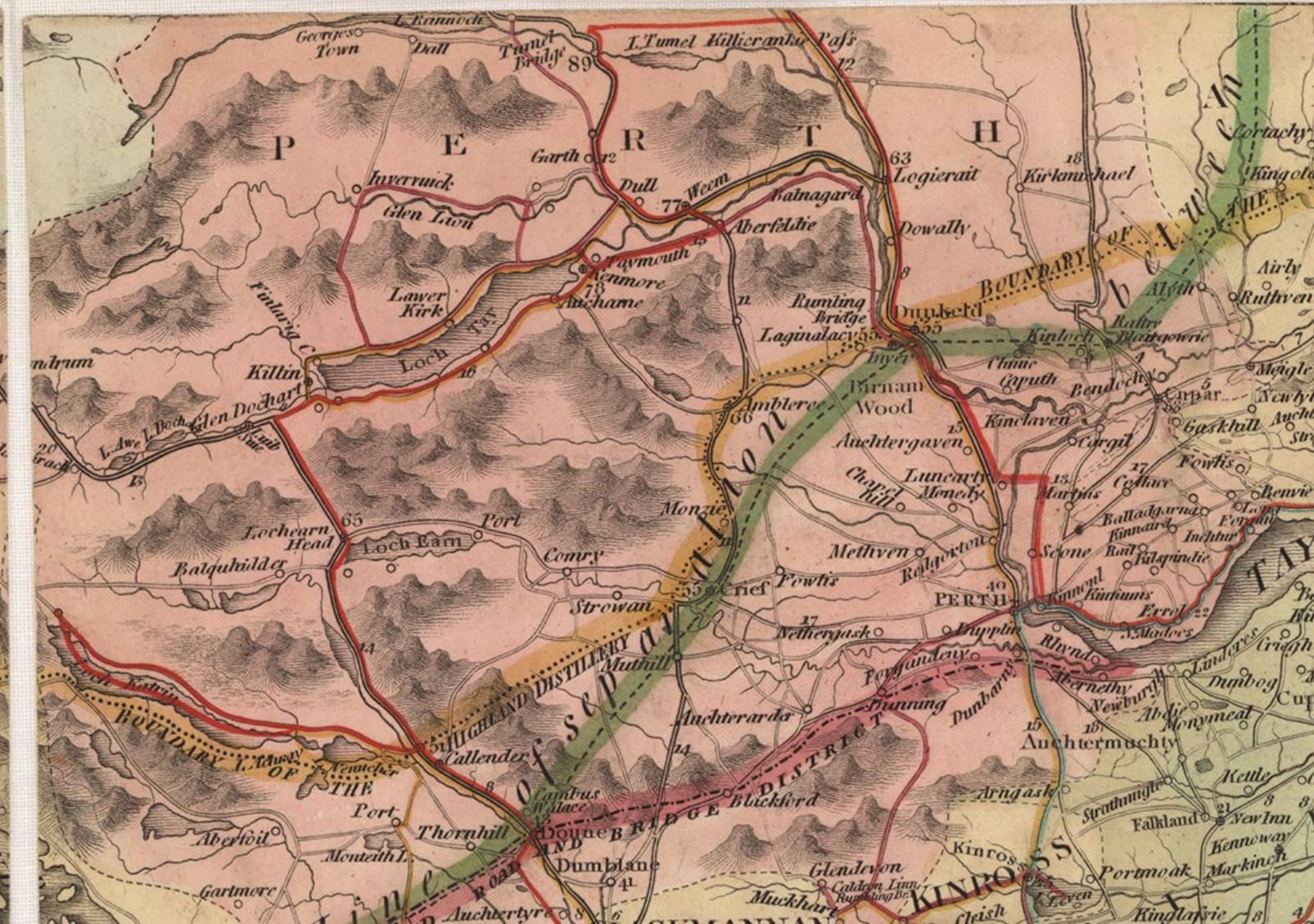


Road from EDINBURGH to CARLISLE.



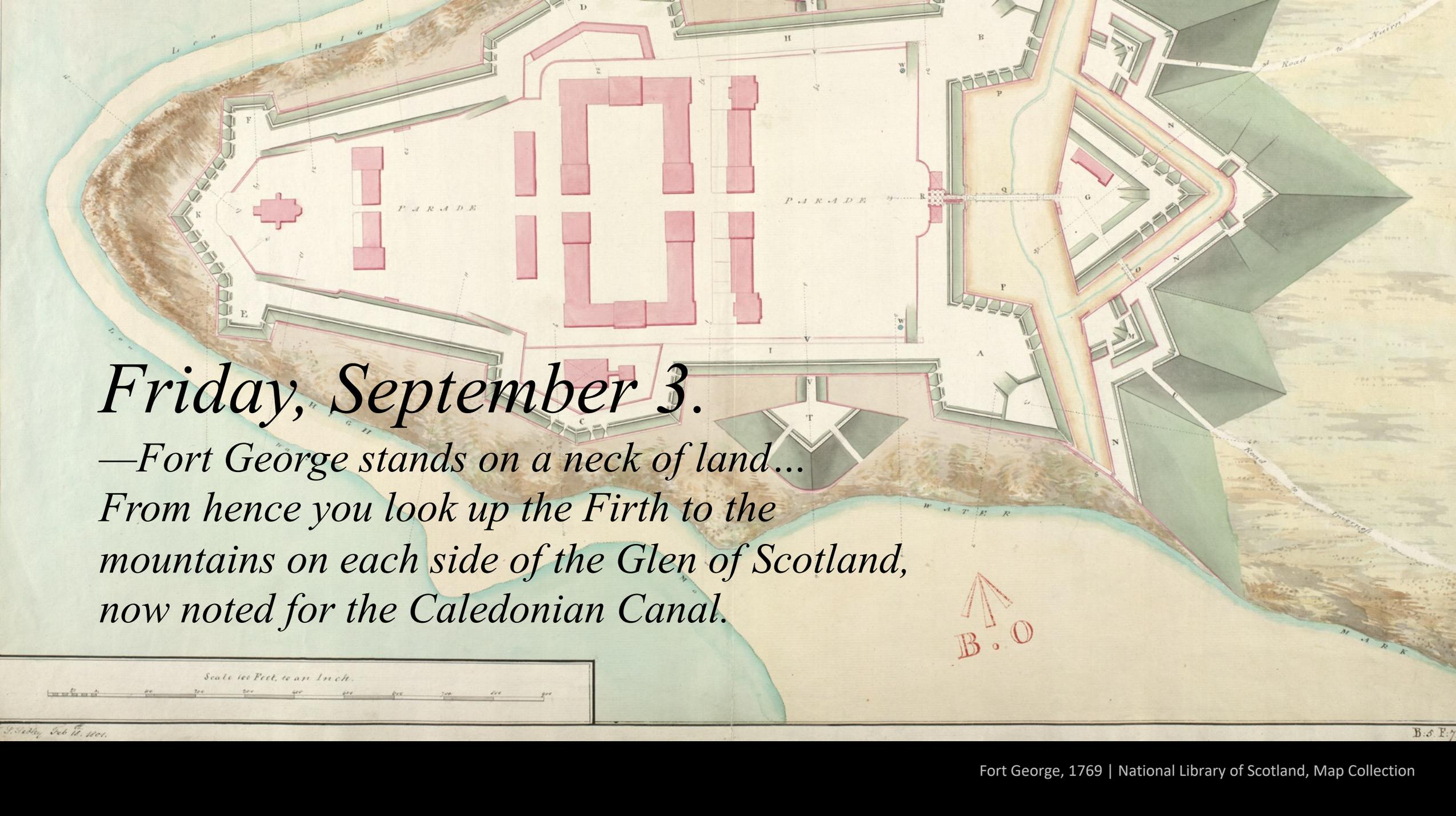






*—The steam boat which has lately been started to ply between Glasgow and Fort William... As many as an hundred have sometimes landed there, to idle away more or less time, according to their means and leisure; many of them landing in the morning and returning in the evening.*

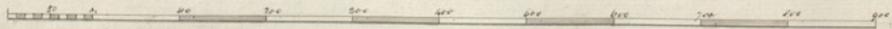




*Friday, September 3.*

*—Fort George stands on a neck of land...  
From hence you look up the Firth to the  
mountains on each side of the Glen of Scotland,  
now noted for the Caledonian Canal.*

Scale 100 Feet, to an Inch.



B. O.

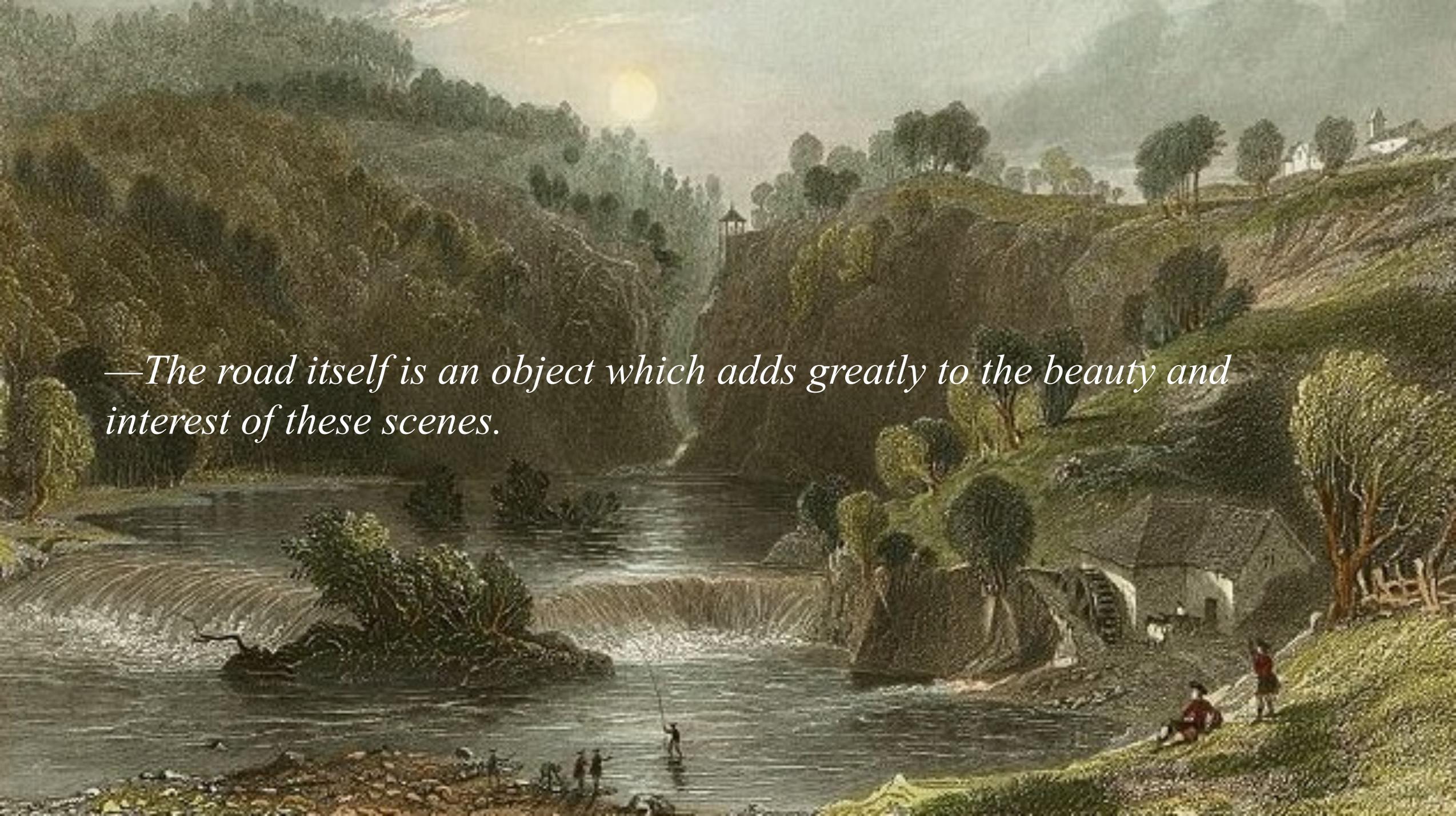
St. Andrew, Oct 10, 1769.

B. S. F. 7

A detailed landscape painting of a river valley. In the foreground, a river flows through a rocky bed, with a small waterfall cascading over a ledge. Several people are visible: one is fishing in the river, and others are on the banks. To the right, a stone mill with a large wheel is situated on a grassy slope. In the background, a large stone building with a tower stands on a hillside, and a church with a steeple is visible in the distance. The sky is filled with soft, hazy clouds, and a bright sun or moon is visible in the upper left. The overall scene is a peaceful, rural landscape.

*Saturday, September 4.*

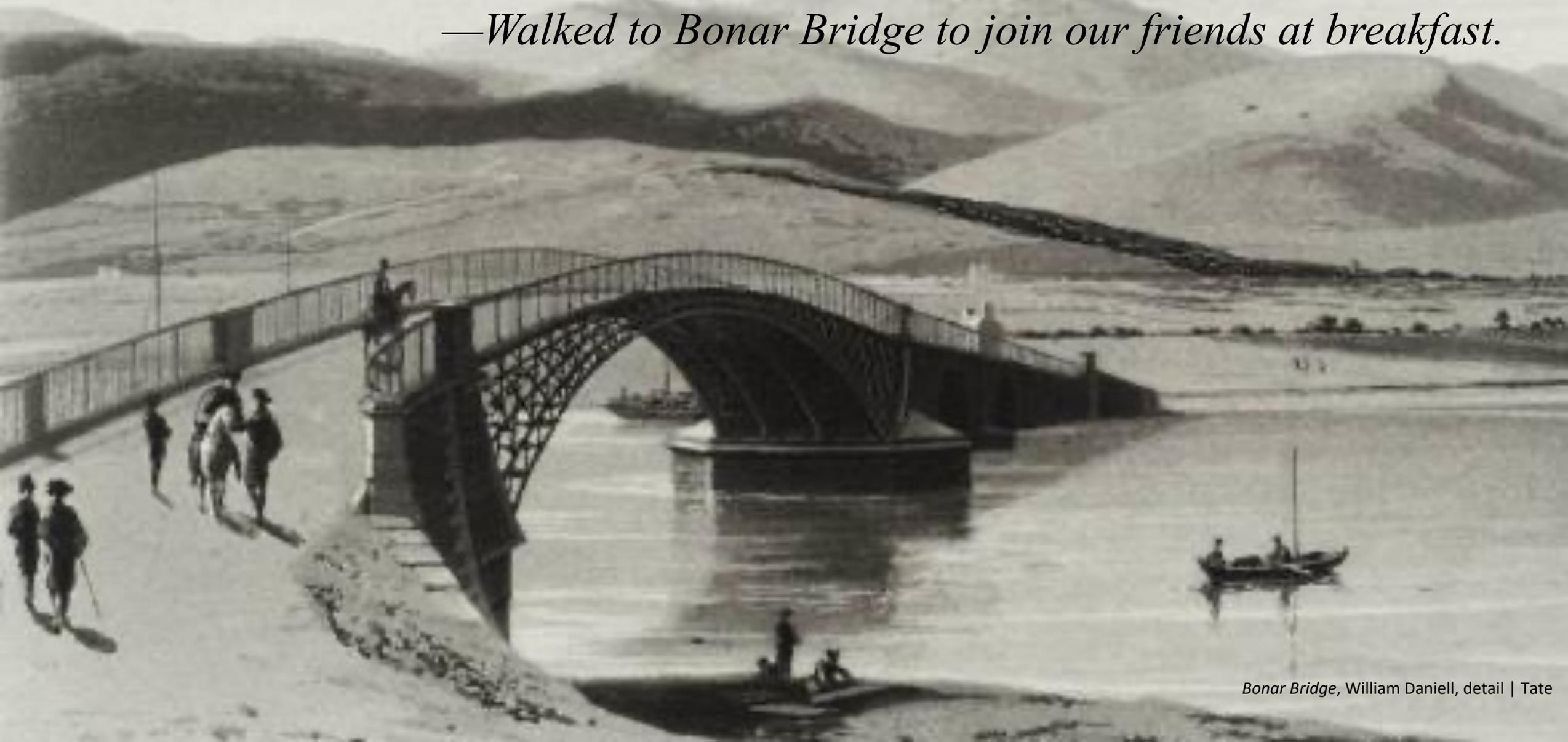
*—Here we turned aside, and went four miles up the river, along the Strath-Glas road—one of the new works, and one of the most remarkable of them...*

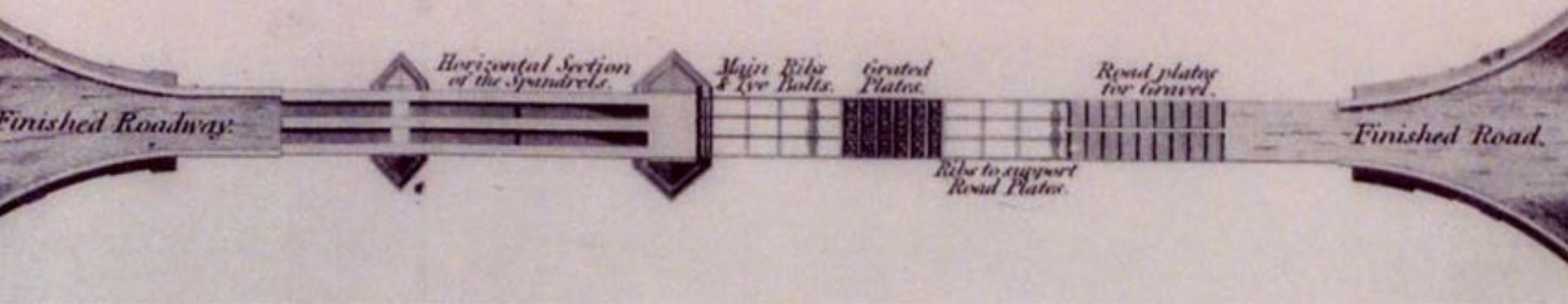
A detailed landscape painting of a river valley. In the foreground, a river flows through a rocky bed, with a small waterfall on the left. Several figures are visible near the water's edge, some appearing to be fishing. On the right bank, a small village with several buildings is nestled on a grassy slope. A road winds up the hillside from the village towards a small tower or structure on a higher ridge. The background features rolling hills and a large, bright sun or moon in a hazy sky. The overall scene is a harmonious blend of nature and human habitation.

*—The road itself is an object which adds greatly to the beauty and interest of these scenes.*

*Monday, September 6.*

*—Walked to Bonar Bridge to join our friends at breakfast.*





*“As I went along the road by the side of the water,” said he,  
“I could see no bridge: at last I came in sight of something like  
a spider’s web in the air—if this be it, thought I, it will never do!  
But presently I came upon it, and oh, it is the finest thing that  
ever was made by God or man!”*

*Tuesday, September 14.*

*—This day was past in Inverness in writing letters,  
bringing up my journal...*





*Wednesday, September 15.*

*—Left Inverness after breakfast ...*

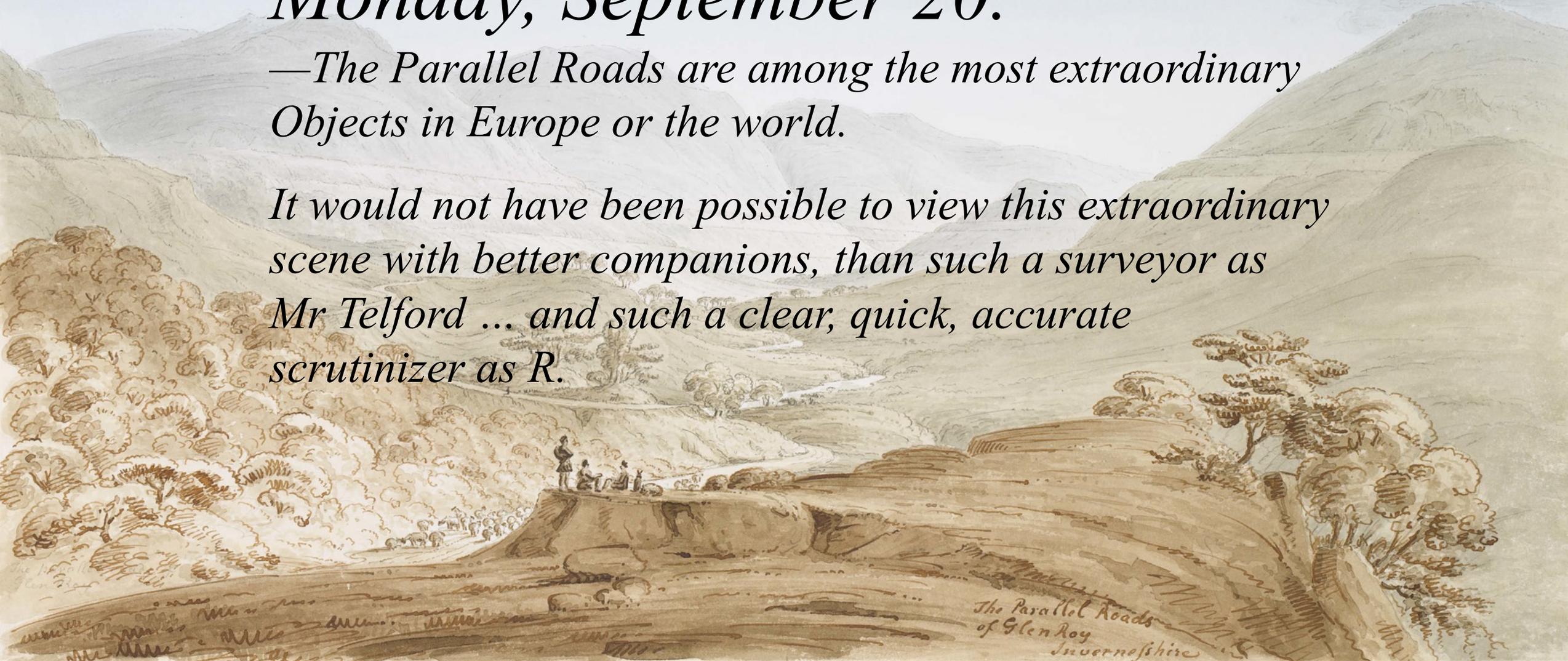
*It rained during our halt, and continued to rain heavily when the carriage stopt above the Fall of Foyers.*

*It is not creditable to the owner of this property, that there should be no means of getting at the bottom of the Fall...*

*Monday, September 20.*

*—The Parallel Roads are among the most extraordinary Objects in Europe or the world.*

*It would not have been possible to view this extraordinary scene with better companions, than such a surveyor as Mr Telford ... and such a clear, quick, accurate scrutinizer as R.*





The Parallel Roads  
of Glenroy  
Invernesshire



The Parallel Roads  
of Glenroy  
Invernesshire

The Parallel Roads of Glenroy, Invernesshire, James Skene, 1815 | Capital Collections, Edinburgh Libraries and Museums



The Parallel Roads  
of Glenroy  
Invernesshire

The Parallel Roads of Glenroy, Invernesshire, James Skene, 1815 | Capital Collections, Edinburgh Libraries and Museums



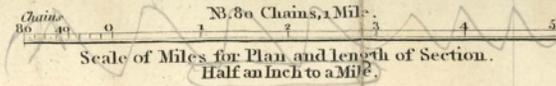


# Sunday, September 19.

Length of the Caledonian Canal or Inland Navigation.

From the Sea Lock at Clachnacarry to Muir town	1. 10
From Muir town thro Loch Doughfour to Loch Ness	6. 55
Length of Loch Ness	23. 56
From the S.W. end of Loch Ness to Loch Oich	5. 35
Length of Loch Oich	3. 56
From the S.W. end of Loch Oich to Loch Lochy	1. 65
Length of Loch Lochy	10
From the S.W. end of Loch Lochy to Corpach Sea Lock	8

Of the above total length  $37.32$  passes through Locks or Lakes;  $22.74$  of canal being necessary to complete the Inland Navigation.



N.B. The Red Line denotes the Intended Canal.

N.B. The Soundings in the Fresh Water Locks are marked in Fathoms.



GENERAL MAP OF THE INTENDED  
CALEDONIAN CANAL or INLAND NAVIGATION

The Canal and Lakes being necessarily cut in the Section, appear somewhat longer than in reality.



GENERAL MAP OF THE INTENDED  
**CALEDONIAN CANAL** or INLAND NAVIGATION

*From the EASTERN to the WESTERN SEA,*

BY

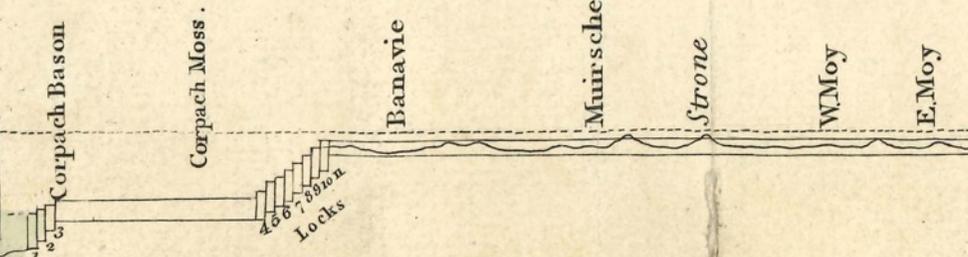
INVERNESS AND FORT WILLIAM.

**B  
 3  
 12**

*Report 1805*

Perpendicular Scale for the Depth.  
 High Water mark.

LOCH EIL, being part of the WEST SEA.



42 Fathoms LOCH 76 Fathoms LOCH Y



GENERAL MAP OF THE INTENDED  
**CALEDONIAN CANAL** or INLAND NAVIGATION

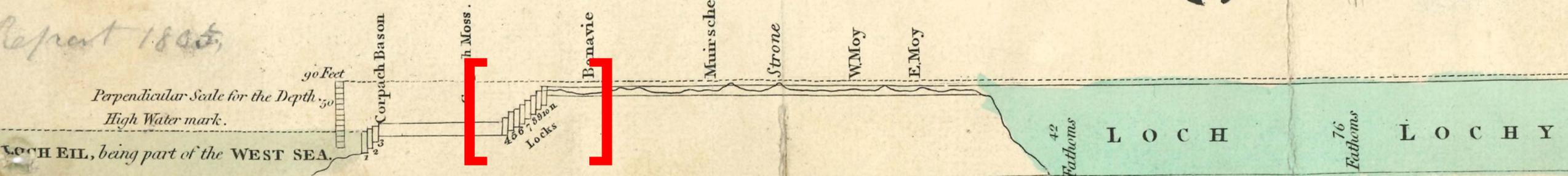
*From the EASTERN to the WESTERN SEA,*

BY

INVERNESS AND FORT WILLIAM.

**B  
 3  
 12**

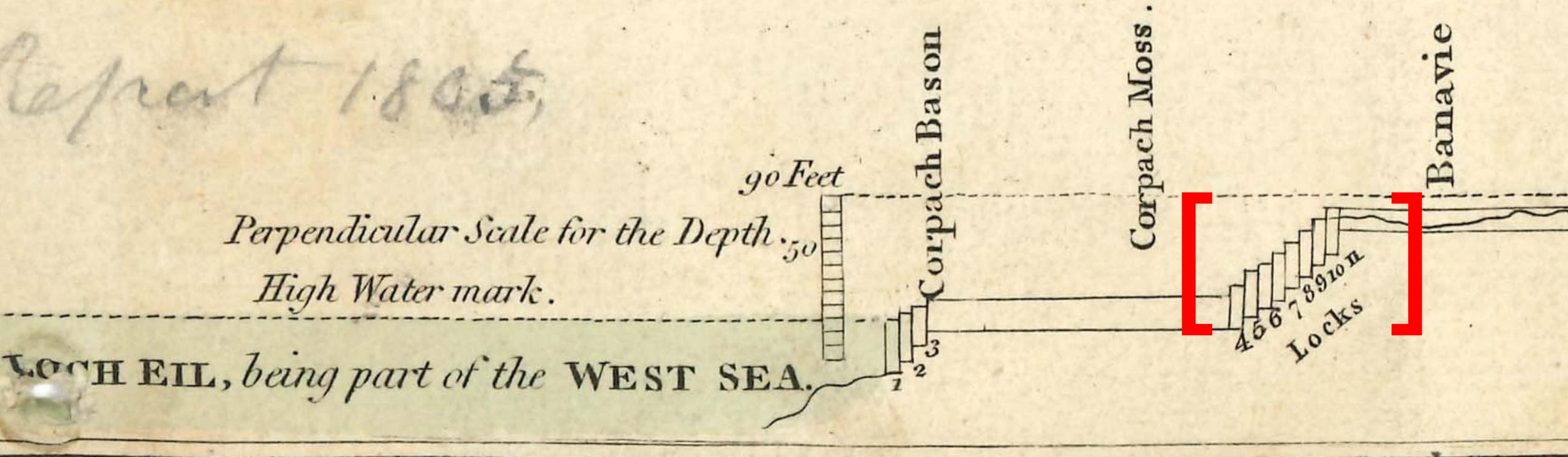
*Report 1845*





—The pyramids would appear insignificant in such a situation, for in them we should perceive only a vain attempt to view with greater things. But here we see the powers of nature brought to act upon a great scale, in subservience to the purposes of man...

*Report 1805*



*Wednesday, September 22.*

*—amused ourselves on the rocky shores of the  
great Linnhe Loch.*

*I could not have enjoyed a more lively pleasure in all of this  
if I had been five and thirty years younger.*



*Near Balahulish Invernesshire  
15 July 1801*

*Friday, September 24.*

*—Loch Awe was soon in sight with, with a number of small islands, beautifully diversified with wood; the ruins of a castle upon one.*



*Kilchurn Castle. Loch Awe.*



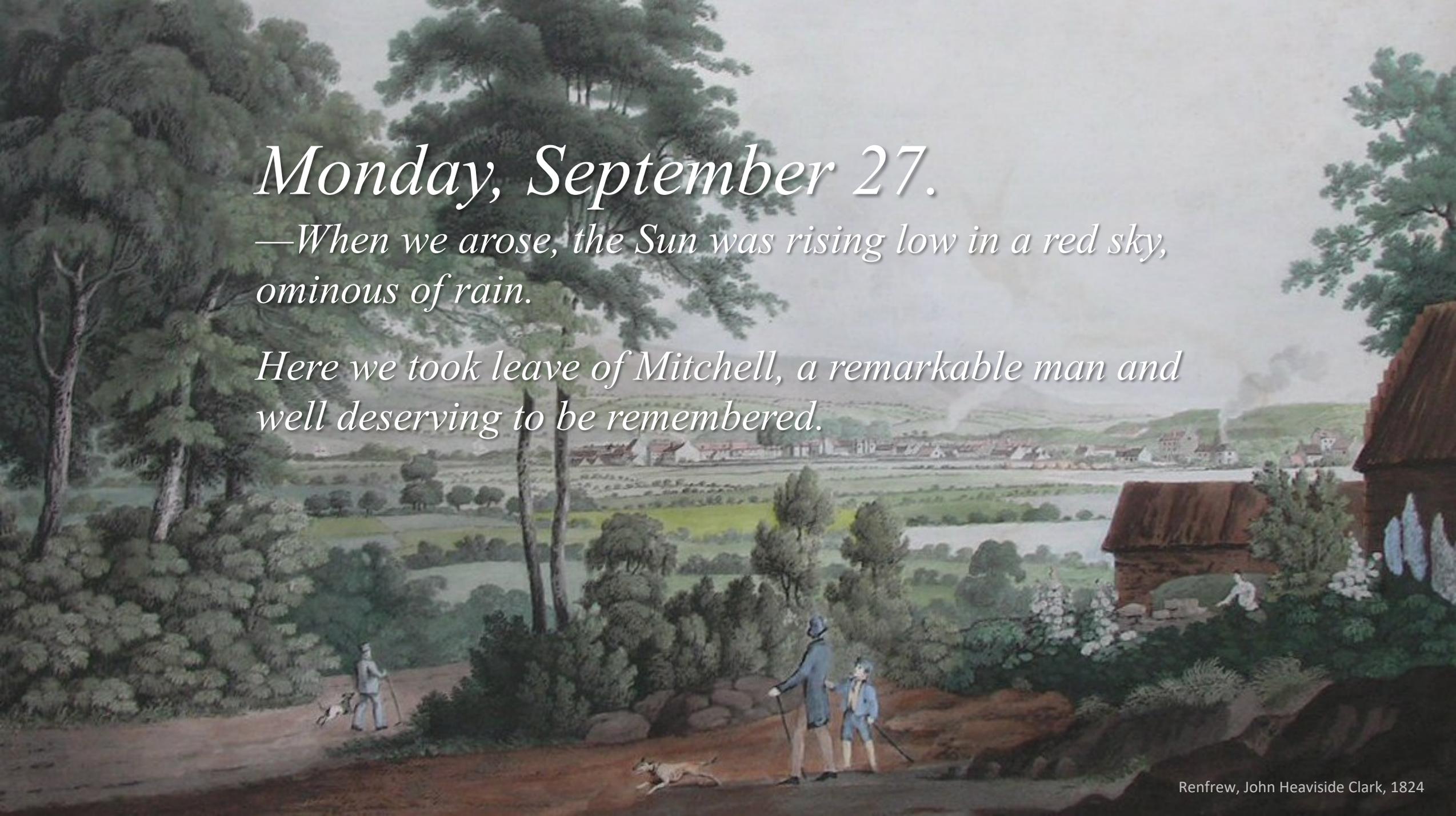
*Saturday, September 25.*

*—The ascent is about four miles in length; the descent is thro' Glencroe. On the summit is a seat in a green bank ... bearing the beautiful inscription which all travellers have noticed—*



*'Rest and be thankfull'*

*Rest and be thankfull. Glen Crow  
13 April 1801*



*Monday, September 27.*

*—When we arose, the Sun was rising low in a red sky,  
ominous of rain.*

*Here we took leave of Mitchell, a remarkable man and  
well deserving to be remembered.*



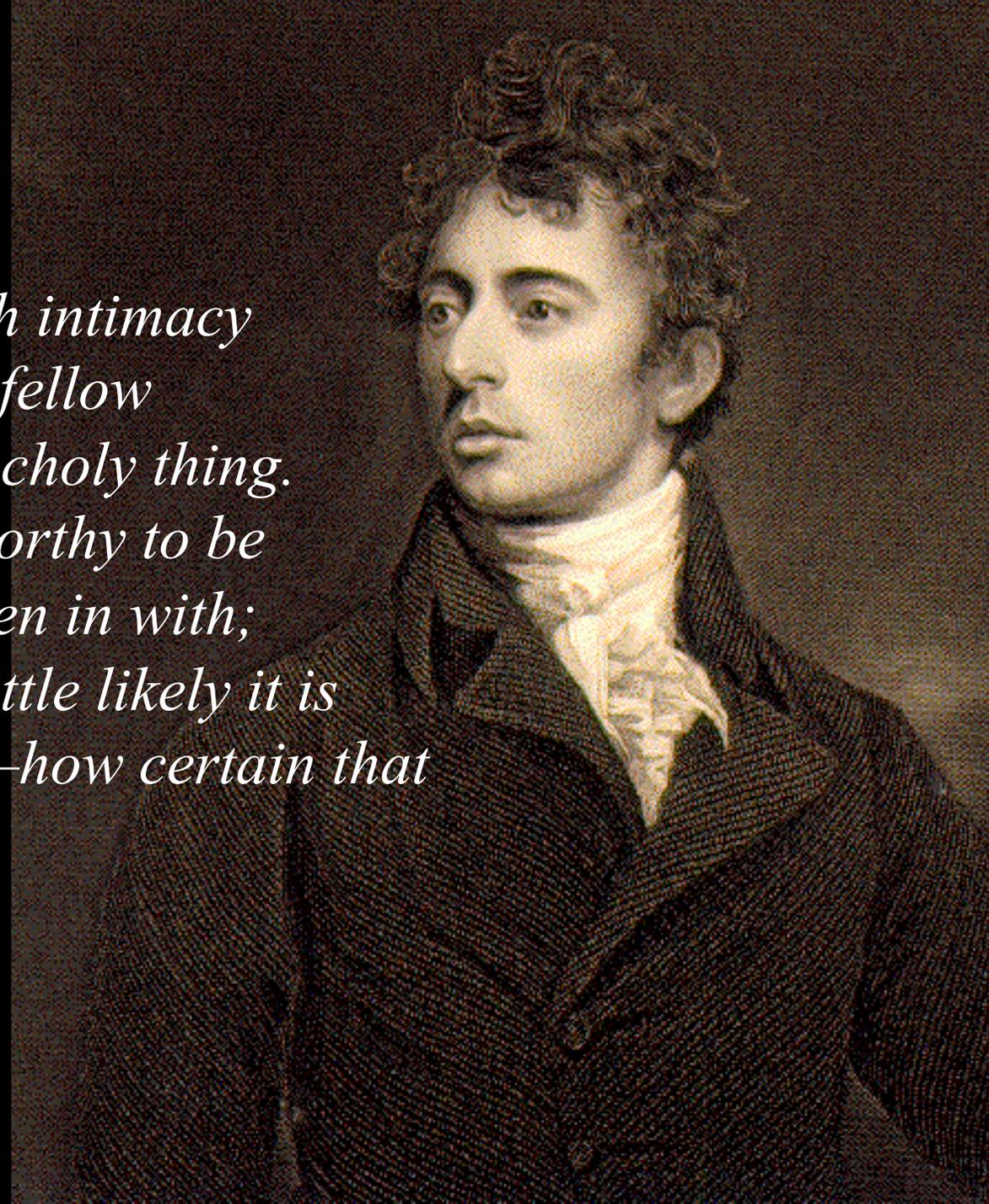


*Friday, October 1.*

*—Longtown. Here we left Mr Telford, who takes the mail for Edinburgh.*

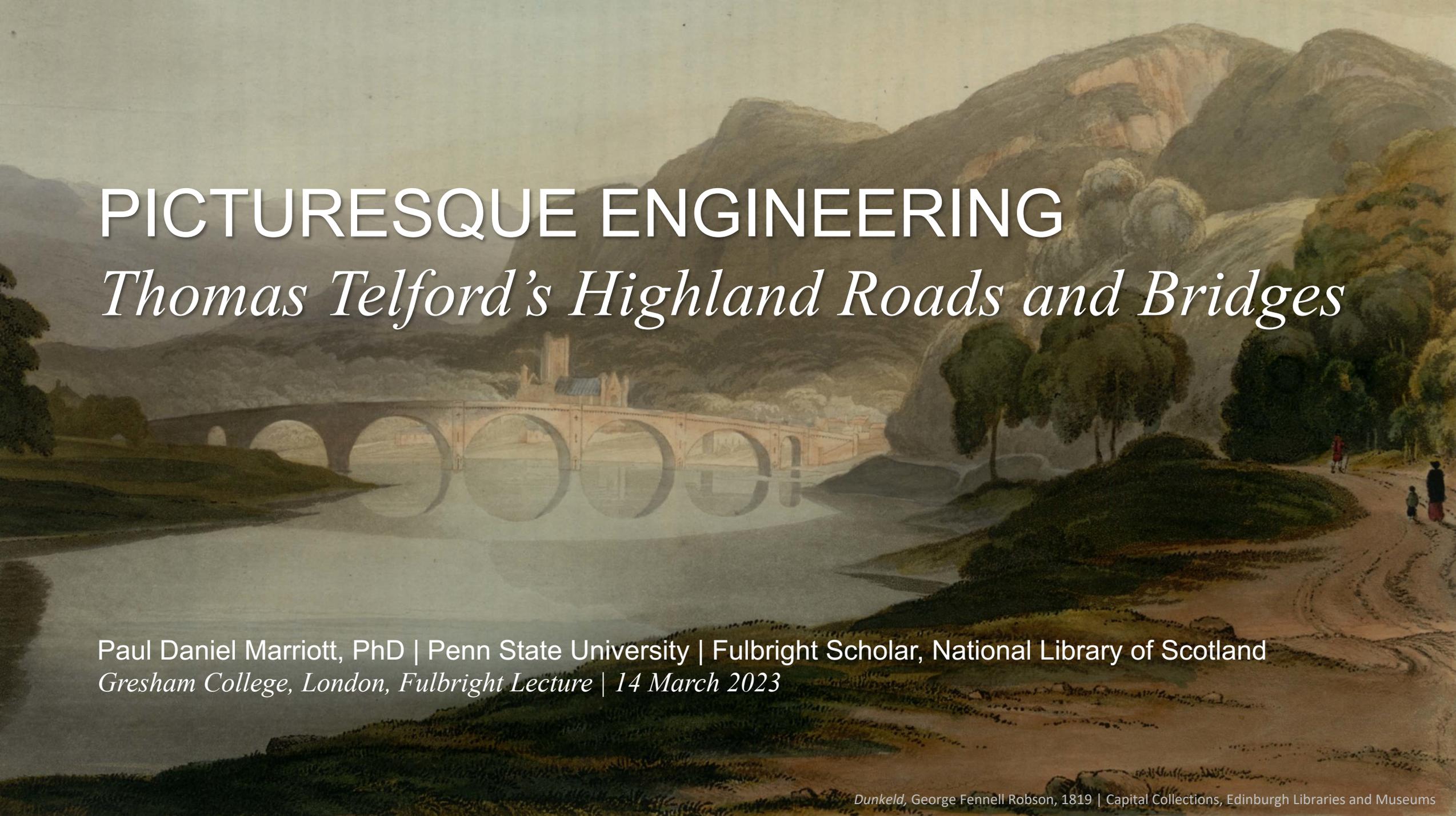


*This parting company, after the thorough intimacy which a long journey produces between fellow travelers who like each other, is a melancholy thing. A man more heartily to be liked, more worthy to be esteemed and admired, I have never fallen in with; and therefore it is painful to think how little likely it is that I shall ever see much of him again—how certain that I shall never see so much.*





REST AND BE THANKFULL



# PICTURESQUE ENGINEERING

## *Thomas Telford's Highland Roads and Bridges*

Paul Daniel Marriott, PhD | Penn State University | Fulbright Scholar, National Library of Scotland  
*Gresham College, London, Fulbright Lecture | 14 March 2023*

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**END** Picturesque Engineering: Telford's Highland Road and Bridges | Gresham College, London, 14 MARCH 2023