the open sea, 35 miles distant, is five feet, but here the rise is only six inches.

Metal corrodes here very rapidly. The bridge itself was erected in 1890. One coat of iron oxide paint was applied in the shop and another coat given after erection. In 1892, it was considerably rusted, and two coats of iron oxide paint were put on the lower chords and floor system; but without proper inspection or scraping. In 1894, scales one-eighth of an inch thick were removed from the end stiffeners of the floor-beams on the north side. Pieces of this scale were trimmed to exact dimensions and the cubic contents calculated. On being weighed, the scale was found to weigh slightly more than one-half that of new steel.

A chemical analysis of iron-rust scale from the outside of the Conway Tubular Bridge, in England, is as follows:

Sesquioxide of iron	92.9	per cent.
Protoxide of iron	6.177	**
Carbonate of iron	0.617	••
Carbonate of lime	0.295	**
Silica	0.121	"
Ammonia	trace.	
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In August, 1895, our bridge was thoroughly scraped and painted with two coats of iron oxide paint, the analysis of which is as follows:

Color	Indian	red.
Fineness	80 00	
Body	85.00	
Strength	70.00	
Iron oxide	48.16	per cent.
Insoluble matter	51.84	**
Adulterated slightly with clay.		

It is now in good condition; but will require constant attention to remedy defects in the painted surface as they appear.

It will be seen by the record of the experimental plates (see table) that the asphalt paints, the carbon