

Chapman's ropery till November 3, 1803, when the following experiments were made with them :—

	When made, Aug. 10th, 1802.	Nov. 3, 1803.	Portion of original strength retained.
White rope.....	33.4	Cwt. 1.09	5.7
Common tarred rope.....	22.2	7.85	33.0
Washed tarred rope.....	29.1	12.85	48.8

The tarred ropes were both brittle; but the latter was more so, and they both cracked on bending.

Mr. Chapman has also observed that though cordage is injured by tarring in cold climates, it is much more rapidly so in hot climates.

The following experiments were made in 1807 by Mr. Chapman, for the purpose of showing the injury arising from the retention of that portion of the essential oil which cannot be dispensed with, and also the injury which arises from the progressive disengagement of the acid of essential oil :

	Weight with which it broke when moist.	Weight with which it broke after exposure to a stove for four months.
Untarred rope.....	Cwt. 45.75	Cwt. 38.97
Rope tarred with cold tar.....	51.29	26.40
Rope tarred with boiled tar.....	38.94	25.07

The first column shows the strength of the rope when made; and the second after having been exposed to the heat of a stove from 85° to 100° Fahrenheit.

The following experiments, also made by Mr. Chapman, confirm those made by Duhamel, respecting the diminution in the strength of cordage produced by tarring. The ropes were registered on the improved principle, and were made with the same yarn, and with 17 threads in each strand.

	Girt in inches.		Comparative strength.
1806. October 2, White rope.....	2.75	Broke with.....	Cwt. 75
1806. October 24, Tarred rope....	2.8	".....	55
1807. May 8, Same rope.....	2.8	".....	41.4

The following experiments were made with ropes made of the same yarns, and of nine in each strand.

	Girt in inches.		Comparative strength.
White rope.....	1.7	Broke with.....	Cwt. 27.5
Tar of whale oil.....	1.85	".....	22.5
Tar and tallow.....	1.8	".....	17.5
Tar unpurified.....	1.7	".....	15.95