structure of their nests. One day, however he saw a female wasp alight on the sash of the window, and it struck him while watching her gnawing away the wood with her mandibles, that it was from such materials as these she formed the substance which had so long puzzled him. He saw her detach from the wood a bundle of fibres, about the tenth of an inch in length, and finer than a hair, and as she did not swallow them, but gathered them into a mass with her her feet, he had no doubt but that his opinion was correct. In a short time he saw her shift to another part of the window, and carry with her the fibres which she had collected, and to which she continued to add. He then caught her and began to examine her bundle, and found that it was neither yet moistened nor rolled into a ball, as is always done before used by the wasp in her building. He also noticed that before detaching the fibres, she bruised them into a kind of lint with her mandibles. All this he imitated with his penknife, bruising and paring the same wood till it resembled the fibres collected by the wasp; and so he discovered how wasps manufactured their paper; for these fibres are kneaded together into a kind of paste, and when she has formed a round ball of them she spreads it out into a leaf nearly as thin as tissue paper, and this she accomplishes by moving backwards, and levelling it with her mandibles, her tongue, and her teeth. And so the wasp forms paper, placing layer upon layer, fifteen sheets deep, and thus preventing the earth from falling down into her nest.

"Lloyd's List" a Century Ago.—The oldest published Lloyd's List in existence bears date 1745, and is in possession of the committee of Lloyd's, being somewhat more than a century old. We are thus enabled to draw a tolerable accurate comparison between the shipping operations of the middle of last century and the middle of the present century. The old Lloyd's List appears to have been the last that was published once in the week. It is printed on a narrow slip of paper, about a foot in length; and, besides containing the price of bullion and the stocks, gives the rates of exchange on foreign countries; these are on the one side. On the reverse is what was then termed "the Marine List," which gives a list of 23 arrivals and 12 departures at English ports, with 34 ships at anchor in the Downs. There are also notices of four arrivals in Irish and foreign ports, with advice of three British ships taken by the enemy's privateers. Turning from this document, which gives a week's news, to one of the year 1800, published daily, we find that it contains on an average notices of 75 ships. This was in time of war; and, in comparing numbers, we find the ships noticed as ten to one against the previous date. Following up the comparison, we turn to a Lloyd's List, for 1850; one of the fullest of these covered 15 pages in the arrivals and loss books for one day, giving the names of about 160 vessels—being six times the number of those in 1800, and as numerous as the list of one entire year in the previous century. —*Dickens's Household Words.*

The New Suspension Bridge.—We give below, the proportions and other statistics of the Suspension Bridge, about to be built over the present one at the Falls. The Bridge will form a single span of 800 feet in length. It is to serve as a connecting link between the rail-roads of Canada and the State of New York, and to accommodate the common travel of the two countries. It is established by ample experience, that good iron wire, if properly united into cables or ropes, is the best material for the support of loads and concussions, in virtue of its great absolute cohesion, which amount to from 90,000 to 120,000 lbs. per quarter inch, according to quality. The Bridge will form a straight hollow beam of 20 feet wide and 18 deep, composed of top, bottom and sides. The upper floor, which supports the railroad, is 24 feet wide between the railings, and suspended to two wire cables, assisted by stays. The lower floor is 19 feet wide and 15 high in the clear, connected with the upper one by vertical trusses, forming sides, and suspended on two other cables, which have 10 feet more deflection than the upper ones.

The anchorage will be formed by sinking 8 shafts into the rock, 25 feet deep. The bottom of each shaft will be enlarged for the reception of cast iron anchor plates, of 6 feet square.—These chambers will have a prismatical section, which, when filled with solid masonry, cannot be drawn up without lifting the whole rock to a considerable extent.

Saddles of cast iron will support the cables on the top of the towers. They will consist of two parts—the lower one stationery, and the upper one moveable, resting upon wrought iron rollers. The saddles will have to support a pressure of 600 tons, whenever the Bridge is loaded with a train of maximum weight. The Towers are to be 60 feet high, 15 feet square at the base and at the top. The compact, hard limestone, used in the masonry of the towers, will bear a pressure of 500 tons upon every foot square.

WEIGHT OF BRIDGE.	lbs.
Weight of timber	910,130
Wrought iron and suspenders	113,120
Castings	44,332
Rails	56,750
Cables between Towers	535,400
	2,678,622

WEIGHT OF RAIL ROAD TRAINS.	TONS.
One locomotive	25
Twenty-seven double freight cars, each 25 feet long, and of 15 tons each, gross weight	405
Making a total gross weight of 430 tons, which will fall upon the cables when the whole bridge is covered by a train of cars from end to end: add to this 15 per cent increase of pressure as the result of a speed of 5 miles per hour, which is a very large allowance	61
Add weight of superstructure	782
Total aggregate maximum weight	1,273

The tensions of the cables, which result from a weight of 1,273 tons, and an average deflection of 59 feet, is 2,240 tons. Since this assumed maximum tension can but rarely occur, it is considered ample to allow four times the strength to meet this tension—that is 8,960 tons.—But assuming 2,000 tons as a tension to which the cables may be subjected, five times the strength to meet it is allowed, and an ultimate strength of 10,000 tons provided for. For this purpose, 15,000 wires of No. 10 will be required. At each end of the upper floor the upper cables will be assisted by 18 wire rope stays, and their strength will be equivalent to 1,440 wires; these deducted, leave the number of these wires in four superior cables, 13,560 —the number of wires in one cable, 3,390—diameter of cable, 9¼ inches.

The railroad bridge will be elevated 18 feet on the Canadian, and 28 on the American side, above the present surface of the bank, and above the present structure. It will be the longest railroad bridge, between the points of support, in the world.—*St. Catharines' Journal.*

Postage on the Journal Discontinued.

As the *Journal of Education* has been constituted by His Excellency the official medium of communication from the Educational Department for Upper Canada, on all matters relating to the School Law, &c., we are happy to announce that, by an arrangement which has been made with the Honorable the Post Master General, in future *no postage* will be charged upon any of the numbers of the *Journal* passing through the Post Office.

Examination of Common School Teachers.

THE Board of Public Instruction for the United Counties of York, Ontario, and Peel, hereby give notice, that an Examination of Common School Teachers, and others desirous of becoming such will take place in the *Court House*, City of Toronto, at Brampton, at Duffin's Creek, at Newmarket, and at Richmond Hill, on Tuesday, the 21st of December next, at 9 o'clock in the forenoon.

All Teachers presenting themselves for Examination, will be required to select the particular Class in which they propose to pass; and previous to being admitted for Examination, must furnish to the Examining Committee satisfactory proof of good moral character: such proof to consist of the Certificate of the Clergyman, whose ministration the Candidate has attended, and in cases where the party has taught a Common School, the Certificates of the Trustees of said School. Each Candidate will be expected to attend the Examination in his own School Circuit, if possible

The Certificates already given to Frst Class Teachers will be disallowed after the 31st December next, and new ones issued on the approved examination of the said Teachers at the above places.

The Board will meet at the Court House, Toronto, on Tuesday, the 28th December, at 10, A. M., for the purpose of viewing the Reports of the several Examining Committees, licensing of Teachers, and for other business.

By order of the Board
JOHN JENNINGS, *Chairman.*

City of Toronto, 19th October, 1852.

Toronto: Printed and Published by Thomas Hugh Bentley.

Terms: For a single copy, 5s. per annum; not less than 8 copies, 4s. 4½d. each, on $7 for the 8; not less than 12 copies, 4s. 2d. each, or $10 for the 12; 20 copies and upwards, 3s, 9d. each. Back Vols. neatly stitched supplied on the same terms. All subscriptions to commence with the January number, and payment in advance must in all cases accompany the order. Single numbers, 7½d. each.

☞ All communications to be addressed to Mr. J. George Hodgins.
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