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# EXTRACTS

FROM AN ACT TO

Regulate the Culling and Measuring

OF

TIMBER, SPARS, DEALS AND STAVES.

ALSO,

TIMBER CALCULATIONS, WEIGHTS, MEASURES,

AND A VARIETY OF USEFUL INFORMATION.

*(Consolidated Statutes of Canada, Chapter 46.)*

[Revised and Corrected to Date.]

Quebec :

PRINTED BY DAWSON & CO.

1877.



# Commercial Books, &c.

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Interest and Exchange Tables.

Ready Reckoners, in \$ c. and £ s. d.

Anderson's Commercial Letter-Writer.

Advance Tables,—Currency at any advance on the Sterling.

Works on Surveying and Civil Engineering—Steam and Steam Mechanics, &c., &c., &c.

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## Timber Reckoners.

Cullers' Act.

Paradis' Square Timber and Deal Reckoners.

Welch's Board-Tables.

Miller's do.

Sheppard's Deals and Staves.

“ Saw-Log Tables.

McGie's do. 12 x 14 Standard.

Montreal Produce Tables, “Dawson's.”

Haswell's Engineers' and Mechanics' Pocket Book.

Hoppus's Practical Measurer.

Kinsley's Self-Instructor in Measuring Lumber.

Cusson's Lumber Merchants' Ready-Reckoner.

Scribner's do. do.

Freight Calculator; exhibiting the contents of all kinds of Packages and Casks.

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## Bookkeeping.

Bryant & Stratton's Book-Keeping.

Marsh's Science of Double Entry simplified.

Bryant & Stratton's Commercial Arithmetic.

French and English Measures, Wurtele's.

# EXTRACTS

FROM AN

ACT TO REGULATE THE CULLING AND MEASURING

OF

TIMBER, MASTS, SPARS, DEALS, STAVES,

AND

OTHER ARTICLES OF A LIKE NATURE.

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(Consolidated Statutes of Canada, Cap. 46.)

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Quebec :

PRINTED BY DAWSON & CO.

1876.

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C35  
1876  
P444

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*Revised and Corrected up to Date.*

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# P R E F A C E.

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The Council of the Quebec Board of Trade, when required by the Supervisor so to do, shall elect four Merchants practically acquainted with the Lumber Trade; and the Supervisor shall, by an instrument under his hand and seal, appoint four licensed Cullers; and the said four Merchants and four Cullers shall constitute a Board of Examiners, of which Board the Supervisor shall *ex-officio* be a member and Chairman; and as often as vacancies occur in the said Board by death, change of residence or otherwise, such vacancies shall be filled by election in the case of Merchants, and by new appointment in the case of Cullers, forming the said Board.

The Board shall meet at the Office of the Supervisor or elsewhere on the first Monday of May and August in each year, or upon any other day, when notified by the Supervisor so to do, and four of the number of the Board shall constitute a quorum for the transaction of business, and the decision of any majority of the members present at such meeting shall be held to be the decision of the Board.

Every certificate issued by the Board of Examiners, appointed under the provisions of the Act, shall state the qualifications of the person to whom such certificate is issued and what description of culling he is best qualified to perform.

The Governor in Council may from time to time make such regulations as to the manner of granting licenses to Cullers as he may deem necessary,

The Governor in Council may appoint such number of qualified Cullers duly licensed in the manner provided by the Act hereby amended, as may be necessary for the proper performance of the work of culling timber, deals, deal boards, staves and other articles in the manner provided in the said Act, and may assign to them such fees as may from time to time be deemed proper.



# EXTRACTS

FROM AN

## ACT TO REGULATE THE CULLING & MEASURING

OF

### Timber, Masts, Spars, Deals, Staves, &c.

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#### MODE OF CULLING AND MEASURING.

*Holders of Measuring Tapes, &c., shall be Apprentices.*

**21.** The Holders of measuring tapes and scribes of timber shall, in all cases, when practicable, be apprentices or candidates for becoming Cullers; for whose acts, in the performance of their duties, the Cullers shall be responsible. (8 Vic., cap. 49, sec. 8.)

*Square Timber to be Measured according to Three Modes.*

**22.** Square Timber shall be measured only in some one of the three following modes—that is to say :

FIRST.—Measured off, in the raft or otherwise, giving the full cubic contents, without any allowance or deduction.

SECONDLY.—Measured in shipping order (which shall mean sound, fairly-made timber); gum-seams closed at the butt, and sound knots not to be considered unsoundness,—lengths under the merchantable standard hereinafter mentioned, and not less than twelve feet long to be received, if, in the opinion of the Culler, the same be fit for shipment.

THIRDLY.—Culled and measured in a merchantable state in accordance with the rules, standards and limitations hereinafter described.—(8 Vic., cap. 49, sec. 9.)



*Length of Timber to be Measured by Cullers, as well as Girth.*

**23.** In measuring timber, the Culler employed for that purpose shall measure not only the girth of each piece of timber, but shall also measure, personally, with the aid of one competent assistant, the length of each piece of timber, in all cases where such measurement shall be practicable with the aid of only one assistant; and in the event of any case arising in which, in the opinion of the Supervisor of Cullers or his Deputy, such measurement cannot be effected with the aid of one assistant only, then such Culler may employ an additional competent assistant for that purpose, who, as well as the assistant first above mentioned, shall be approved of by the Supervisor of Cullers or his Deputy.—(16 V., c. 168, s. 1.)

*Culler to provide himself with Measuring Rod, Tape, &c.*

**24.** Every Culler shall provide himself with a measuring rod and tape, which shall, in all cases, be English measure, and tested and compared by a standard kept in the office of the Supervisor (such rod having a hook at the end, five-eighths of an inch long); and also with a scribing knife, with which he shall mark, in legible characters, the length, breadth and thickness of all square timber measured or culled by him, and the mark, initials, or number of the party, if required.

*How Timber shall be Marked.*

And every Culler shall provide himself with a proper stamp with the initials of his name in legible characters, and with the following capital letters, in addition:

**M**, which shall denote what is merchantable;

**U**, which shall denote what is sound and of merchantable quality, but under merchantable size;

**S**, which shall denote what is of second quality;

**T**, which shall denote what is of third quality;

**R**, which shall denote what is rejected and unmerchantable;

which marks shall be indented or stamped on the end of each article of lumber culled in terms of merchantable standard hereinafter described, except West India and Barrel Staves, Boards, Lathwood and Handspikes—(8 V., c. 49, s. 12.)

*Copy of Agreement as to Mode of Measurement shall be lodged in the Supervisor's Office.*

**25.** A copy of every agreement as to the adoption of any of the modes of measurement or culling mentioned in this Act, signed by the seller and buyer, shall be lodged in the office of the Supervisor at the same time that a requisition is made to him for a Culler to measure or cull any lumber, for the guidance of the Supervisor and Culler in the performance of their duty; and such requisition shall state the river and section of the Province wherefrom such lumber is produced.

*Proviso.*

Provided that it shall be competent for the owner of any lumber or his agent, to cause it to be measured, culled or counted before any sale; in which case, the specification of such lumber shall set forth the mode in which the measurement, culling or counting has been performed.—(8 V., c. 49, s. 13.)

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## QUALITIES OF LUMBER.

### Descriptions and Classes of Lumber.

**26.** In all cases, the Supervisor and Cullers, respectively, shall be governed by the following descriptions, rules, standards and limitations, in ascertaining and certifying the merchantable size and quality of lumber submitted to their culling:

*Square White Oak Timber.*

SQUARE WHITE OAK TIMBER, FIRST QUALITY, shall be free from rot, rotten knots (affecting the surrounding wood), open

rings, and grub or large worm holes; but small worm holes and shakes shall be allowed, according to the judgment of the Culler. **SECOND QUALITY** shall be oak not coming within the definition of first quality, and which, in the judgment of the Culler, is not culls.

*Rock Elm.*

**SQUARE HARD GREY** or **ROCK ELM** shall be free from rots, open rings and rotten knots (affecting the surrounding wood); but shakes and slivers shall be allowed, according to the judgment of the Culler.

*White or Yellow Pine Timber.*

**SQUARE WHITE** or **YELLOW PINE TIMBER** shall be free from rot, rotten knots (affecting the surrounding wood), worm holes, open shakes and open rings; but sound knots shall be allowed, according to the judgment of the Culler.

*Square Red Pine Timber.*

**SQUARE RED PINE TIMBER** shall be free from rots rotten knots (affecting the surrounding wood), worm holes, shakes and splits; but sound knots shall be allowed, according to the judgment of the Culler.

*Square Ash, Basswood, and Butternut.*

**SQUARE ASH** **BASSWOOD** and **BUTTERNUT** shall be of the same quality as white or yellow pine square timber.

*Square Birch.*

**SQUARE BIRCH** shall be free from rot, rotten knots, splits, and shakes, and shall be allowed two inches wane.

*Masts, Bowsprits, and Red Pine Spars.*

**MASTS**, **BOWSPRITS**, and **RED PINE SPARS** shall be sound, free from bad knots, rents and shakes; and the heart shall be visible in spots at or near the partners.

*Hickory Handspikes.*

HICKORY HANDSPIKES shall be six feet long, and three and a-half inches square at the smaller end.

*Ash Oars.*

ASH OARS shall be three inches square on the loin, and five inches broad on the blade: the blade shall be one-third of the length of the oar; and such oars shall be cleft straight on all sides, and free from large knots, splits and shakes.

*Lathwood.*

LATHWOOD shall be cut in lengths of from three to six feet, and measured by the cord of eight feet in length by four feet in height: the same, to be merchantable, shall be free from rot, and split freely; and each billet may contain to the extent of three or four open case-knots, provided they run in line, or nearly so; and it shall not have more than one twist.

*Pine or Fir Boards.*

PINE OR FIR BOARDS shall not be less than ten feet in length, not less than one inch in thickness, not less than seven inches in breadth, equally broad from end to end, edged with a saw, or neatly trimmed by a straight line, and shall be free from rot, bad knots, rents and shakes, and of equal thickness on both edges from end to end; but the colour alone of any board shall not be sufficient cause for its rejection, if it is in other respects sound and merchantable, and of the dimensions required by this Act.

*White or Yellow Pine Deals.*

WHITE OR YELLOW PINE DEALS, to be merchantable, shall be free from rot, rotten knots, grub-worm holes, open case

knots, shakes and splits (a slight sun-crack excepted); and sound knots and hard black knots to be allowed as follows: if not exceeding three in number, and not exceeding upon the average one inch and a quarter diameter; if exceeding three and not exceeding six in number, and upon the average not exceeding three-quarters of an inch in diameter;—this proportion of knots to be allowed for a deal eleven inches in width and twelve feet in length, and deals of greater or less dimensions to be allowed for in proportion, according to the judgment of the Culler; wane equal to half an inch on one edge, if running the whole length of the deal, to be allowed; and if not exceeding half the length of such deal, three-quarters of an inch to be allowed: they shall be free from black or dead sap (with a slight exception, at the discretion of the Culler).

#### *Red Pine Deals.*

RED PINE DEALS, to be merchantable, shall be free from rot, rotten knots, grub-worm holes, open case knots and splits: several small sound knots to be allowed, according to the judgment of the Culler; heart shake to be allowed, if it does not run far into the deal or form a split through at the ends; they shall be free (or nearly so) from black or dead sap; but sound sap on the corners, or on a portion of one face of a deal to be allowed, according to the judgment of the Culler.

#### *Spruce Deals.*

SPRUCE DEALS, to be merchantable shall be free from rot, rotten knots, grub-worm holes, open case knots, splits and shakes (a heart shake, not exceeding one-fourth of an inch to half an inch in depth, excepted); several small sound knots and hard black knots to be allowed, according to the judgment of the Culler; and in the exercise of such judgment, he shall keep in view the peculiar nature of the wood, and govern his judgment accordingly: wane equal to half an inch on one

edge, if running the whole length of the deal, to be allowed; and if not exceeding one-quarter the length of such deal, three-quarters of an inch to be allowed.

*White or Yellow Pine Second Quality Deals.*

WHITE OR YELLOW PINE SECOND QUALITY DEALS shall be free from rot, rotten knots and splits, with slight exceptions, at the discretion of the Culler; and sound knots and hard black knots to be allowed as follows: if not exceeding six in number, and not exceeding upon the average one inch and a-half diameter; if exceeding six and not exceeding twelve in number, and not exceeding upon the average one inch and a-quarter in diameter (small knots under half an inch in diameter not to be counted or considered),—this proportion of knots to be allowed for a deal eleven inches in width and twelve feet in length, and deals of greater or lesser dimensions to be allowed for in proportion, according to the judgment of the Culler;—heart-shakes and sun-cracks, not exceeding three-fourths of an inch to one inch in depth, to be allowed, as also worm-holes, at the judgment of the Culler; wane of half an inch to one inch to be allowed, according to the quality of the deal; in other respects, at the judgment of the Culler. Deals rejected as not coming within the standard of merchantable or second quality, shall be classed as culls, except that the Culler may, if requested by buyer and seller, select and classify as *third quality* the best of the deals so rejected.

*Spruce and Red Pine Second Quality Deals.*

SPRUCE and RED PINE SECOND QUALITY DEALS shall be deals not coming within the definition of merchantable, and which, in the opinion and judgment of the Culler, are not culls, and shall be classed as second quality; and the Culler, if required by seller and buyer, may select and classify as *third quality* the best of the deals unfit to be seconds.

*Quebec Standard Hundred of Deals.*

THE QUEBEC STANDARD HUNDRED OF DEALS shall be one hundred pieces, twelve feet long, eleven inches broad, and two and a-half inches thick; and deals of all other dimensions shall be computed according to the said standard. Deals of all qualities shall not be less than eight feet long, seven inches broad, and two and a-half inches thick. Deal-ends shall not be less than six feet long, and shall be computed according to the Quebec standard.

*Merchantable Deals.*

All MERCHANTABLE DEALS must be well sawn, and squared at the end with a saw; and the colour alone shall be no objection to their being merchantable. All deals, when culled, shall in all cases be stamped with the initials of the Culler, and the capital letter denoting their quality as such.

*Proviso as to Spruce Deals.*

Provided always, that SPRUCE DEALS, if not sawn at the ends prior to or at the time of culling, shall be marked with the capital letter denoting their respective qualities, with red chalk, in large bold letters.

*How other Deals shall be Marked.*

To prevent mistakes in piling, all other Deals shall be marked with bold strokes, in red chalk, as follows:

Merchantable shall be marked **I**;

Second Quality shall be marked **II**;

Third Quality (if made) shall be marked **III**;

Rejected or Culls shall be marked **X**;

## DIMENSIONS OF STAVES.

### *Standard or Measurement Staves.*

STANDARD OR MEASUREMENT STAVES shall be of the dimensions set forth in the words and figures following:  $5\frac{1}{2}$  feet long, 5 inches broad, and from 1 to 3 inches thick.

|                |     |                |     |
|----------------|-----|----------------|-----|
| $4\frac{1}{2}$ | do. | $4\frac{1}{2}$ | do. |
| $3\frac{1}{2}$ | do. | 4              | do. |
| $2\frac{1}{2}$ | do. | 5              | do. |

### *Heart Staves.*

HEART STAVES, five and a-half feet long and four and a-half inches broad, to be received as if of merchantable dimensions.

### *Standard Mille.*

The STANDARD MILLE shall be twelve hundred pieces, of five and a-half feet long, five inches broad, and one and a-half inches thick; and standard or measurement staves of other dimensions shall be reduced to the said standard by the tables of calculation now used.

### *West India or Puncheon Staves.*

WEST INDIA OR PUNCHEON STAVES shall be three and a-half feet long, four inches broad, and three-fourths of an inch thick: all staves shall be straight-grained timber, properly split, with straight edges, free from the grub or large worm-holes, knots, veins, shakes and splinters; and small worm-holes, not exceeding three in number, to be allowed, according to the judgment of the Culler, provided there are no veins running from or connected therewith; and the Culler shall measure the length, breadth and thickness of standard staves, at the shortest, narrowest and thinnest parts; and the thickness of West India and barrel staves exceeding the standard



breadth to be measured at such breadth, to wit: four and three and a-half inches, respectively, provided the thinnest edge is not less than half an inch.

### **Dimensions of Merchantable Timber.**

The dimensions of MERCHANTABLE TIMBER shall be as set forth in the following words and figures :

#### *Oak.*

OAK shall not be less than twenty feet in length, nor less than ten inches square in the middle.

#### *Elm.*

ELM shall not be less than twenty feet in length, nor less than ten inches square in the middle.

#### *White Pine.*

WHITE PINE shall not be less than twenty feet in length, and twelve inches square in the middle; and fifteen feet and upwards in length, if sixteen inches and upwards in the middle.

#### *Red Pine.*

RED PINE shall not be less than twenty-five feet in length, and ten inches square in the middle; and twenty feet and upwards in length, if twelve inches square and upwards in the middle.

#### *Ash, Basswood, and Butternut.*

ASH, BASSWOOD and BUTTERNUT shall not be less than fifteen feet in length, and twelve inches square in the middle; nor less than twelve feet in length, if fifteen inches and upwards in the middle.

#### *Birch.*

BIRCH shall not be less than six feet in length, nor less than twelve inches square in the middle.

## Taper of Merchantable Timber.

|                 |          |                |                                              |     |     |
|-----------------|----------|----------------|----------------------------------------------|-----|-----|
| OAK.....        | 3 inches | under 30 feet, | and in proportion<br>for any greater length. |     |     |
| ELM.....        | 2 do.    | for 30 do.     | do.                                          | do. | do. |
| WHITE PINE..... | 1½ do.   | for 20 do.     | do.                                          | do. | do. |
| RED PINE.....   | 2 do.    | - for 25 do.   | do.                                          | do. | do. |
| ASH.....        | 1½ do.   | under 20 do.   | do.                                          | do. | do. |
| BASSWOOD.....   | 1½ do.   | under 20 do.   | do.                                          | do. | do. |
| BUTTERNUT.....  | 1½ do.   | under 20 do.   | do.                                          | do. | do. |

Bends or twists not to exceed one in number.

## Hollow allowed on Merchantable Timber.

|                 |          |                                                                           |        |     |     |
|-----------------|----------|---------------------------------------------------------------------------|--------|-----|-----|
| OAK.....        | 3 inches | for every 20 feet in length, and in<br>proportion for any greater length. |        |     |     |
| ELM.....        | 3 do.    | do.                                                                       | 20 do. | do. | do. |
| WHITE PINE..... | 2½ do.   | do.                                                                       | 20 do. | do. | do. |
| RED PINE.....   | 3 do.    | do.                                                                       | 20 do. | do. | do. |
| ASH.....        | 2½ do.   | do.                                                                       | 20 do. | do. | do. |
| BASSWOOD.....   | 2½ do.   | do.                                                                       | 20 do. | do. | do. |
| BUTTERNUT.....  | 2½ do.   | do.                                                                       | 20 do. | do. | do. |

## Dimensions of White Pine Masts, Bowsprits, and Red Pine Spars.

### *Dimensions of Masts.*

|                   |                                                                                          |        |      |           |                 |
|-------------------|------------------------------------------------------------------------------------------|--------|------|-----------|-----------------|
| WHITE PINE MASTS, | 23 inches and upwards at partners, shall<br>be 3 feet in length to the inch in diameter. |        |      |           |                 |
| Do., -22 do.      | do.,                                                                                     | 3 feet | do., | and 2 ft. | extreme length. |
| Do., 21 do.       | do.,                                                                                     | 3 feet | do., | and 3 ft. | do. do.         |
| Do., 20 do.       | and under,                                                                               | 3 feet | do., | and 4 ft. | do. do.         |

Hollow or bend not to exceed six inches for seventy feet,  
and in proportion for any greater length.

*Dimensions of Bowsprits.*

BOWSPRITS shall be two feet in length for every inch in diameter at the partners, adding two feet for extreme length.

*Dimensions of Red Pine Spars.*

RED PINE SPARS shall be three feet to the inch in diameter at the partners, and nine feet extreme length; hollow not to exceed seven inches for sixty feet, and in proportion for any greater length.—(8 V., c. 49, s. 14.)

*Lumber Improperly Squared, &c., to be Re-Dressed.*

27. In all cases where it appears that timber, masts, spars, boards, planks, deals, staves, oars, or any other description of lumber, are not properly hewn, squared, butted, or edged, but are merchantable in other respects, and sold as such, the Supervisor and Culler, respectively, shall order or cause the same to be properly dressed and chopped, at the expense of the seller or the buyer, as the case may be, previously to their being respectively received and certified to be merchantable; such dressing and chopping to be done under the direction of the Culler in charge of the measuring or culling.—(8 Vic., cap. 49, sec. 15.)

*Provision in Case of Disputes between Owners, &c., and Cullers.**Board for Deciding the same on Survey.*

28. If any dispute arises between the first buyer or seller, or the person making the requisition, and the Culler employed to cull or measure any article of lumber, with regard to the dimensions or quality thereof, the Supervisor or his Deputy shall (upon a written complaint thereof being made, demanding a survey), as soon as possible, cause a Board of Survey to be held for examining the quality and dimensions of such lumber; and such Board shall take into consideration the position of such lumber when measured or culled, and all other

circumstances and considerations connected therewith, in reporting thereon; and such Board shall consist of three persons, one to be appointed by the Culler whose decision is disputed, one by the party complaining, and one by the Supervisor, and their determination shall be final and conclusive; and if the opinion and act of the Culler be confirmed, the reasonable costs and charges of re-examination shall be paid by the party complaining; but if otherwise, by the Culler.

*When Survey must be Demanded.*

2. But such survey must be demanded when the culling or measuring is completed, or within two lawful days after the party demanding the survey shall have been furnished with the specification thereof; and such right of survey shall cease on and after the fifteenth day of November in each year.

*One Culler may be Appointed to act, by Consent.*

3. And for the more ready settlement of disputes, with the consent and at the request of buyer, seller, and culler concerned, the Supervisor or his Deputy may name one Culler to act as Surveyor; and if the Culler so named is not objected to by any of the parties interested, he shall act in the capacity of a Board of Survey, and his determination shall be final and conclusive.—(8 Vic, cap. 49, sec. 23.)

**Miscellaneous Provisions, Offences, and Penalties.**

*Supervisor's Books to be Open to Inspection.*

34. The Measurement Books, and all other Public Documents in the office of the Supervisor, shall be open to the perusal of the seller and buyer of lumber, with reference to any transactions between them, and to the perusal of any other party interested therein.—(8 Vic., cap. 49, sec. 20.)

*Licensed Cullers may Hire themselves to Merchants, on certain Conditions.*

**36.** Any Culler licensed under this Act, and not employed by the Supervisor, may engage or hire himself to Merchants or others as a Shipping Culler; but such Culler shall in no case measure, cull, count, stamp or mark any description of lumber before the same has been first measured by some licensed Culler, other than himself, under the direction of the Supervisor, except by the written permission of the Supervisor, and in accordance with the same rules and on the same terms by which Cullers acting under the Supervisor are bound, according to this Act; and he shall also keep a record of all his operations, returns of which he shall make monthly to the Supervisor.

*Penalty for Infringement.*

And any Culler, so hired and engaged, offending against this Act, shall incur a penalty not exceeding four hundred dollars, or imprisonment for a term not exceeding six months, in the discretion of the Court, for each offence.—(8 V., c. 49, s. 22.)

*Unlicensed Culler Measuring, Stamping, &c., to incur a Penalty.*

**37.** Any person not licensed as a Culler, who measures, culls, marks or stamps any article of lumber, the same being shipped or intended to be shipped by such measurement, or measured, culled, marked or stamped with intent to evade or elude the provisions of this Act, shall incur a penalty not exceeding four hundred dollars, or imprisonment for a term not exceeding six months, in the discretion of the Court, for each such offence.

*Penalty on Culler Measuring without the Knowledge and Consent of the Supervisor.*

And any Culler employed by the Supervisor, who shall privily, and without the knowledge and consent of the

Supervisor, or for hire and gain, and without the same being duly entered on the books of the Supervisor, measure, cull, mark or stamp any article of lumber, shall incur a penalty not exceeding four hundred dollars, or imprisonment for a term not exceeding six months, in the discretion of the Court, for each such offence.—(8 V., cap. 49, sec. 22.)

*Cullers to Obey all Lawful Commands of the Supervisor, &c.*

**40.** All Cullers employed by the Supervisor shall obey his lawful commands, and shall respectively hold themselves in readiness, on all lawful days, to execute the duties of their office from day-light until dark.

*Penalty for Neglect, Refusal, or Delay.*

And for each neglect, refusal, or delay, when not otherwise employed about the duties of his office, the Culler shall forfeit eighty dollars, to the use of the person injured by such neglect, refusal, or delay; and any Culler so employed, guilty of impropriety of conduct or disobedience of orders, or incapacity, may be suspended from office by the Supervisor, subject to an appeal to the Board of Examiners.—(8 V., c. 49, s. 10.)

*Culling of Lumber not Compulsory when Shipped by the Producer.*

**46.** Nothing in this Act shall make it compulsory for any article of lumber to be measured, culled, or assorted, under this Act, provided such lumber be shipped for exportation by sea, for account (in good faith) of the actual and *bonâ fide* producer or manufacturer thereof; but all other lumber shipped for exportation by sea shall be either measured, culled, or counted (at the option of parties) by a licensed Culler, under the control and superintendence of the Supervisor, under a penalty equal to the market-value of any article of lumber so illegally shipped, to be imposed upon the owner or shipper

of such lumber, or upon the proprietor or proprietors, lessee or lessees of the premises from which such lumber has been so illegally shipped.

2. Proof of the fact of lumber having been placed alongside or taken on board any sea-going ship or vessel, shall be sufficient evidence of such illegal shipping for exportation by sea.

3. And the proof of the measuring, culling, or counting of such lumber, in conformity with this Act, shall lie upon the party charged with such illegal shipping; and the market-value of any article of lumber so illegally shipped shall be ascertained by the certificate of the Council of the Quebec Board of Trade, or by a certificate under the hand of the Supervisor.

*Act not to Extend below Island of Orleans.*

4. Provided, always, that the provisions of this Act shall not extend to any place below the Eastern end of the Island of Orleans.—(8 V., cap. 49, sec. 24.)





# TARIFF OF FEES.

DEPARTMENT OF INLAND REVENUE,  
OTTAWA, 23rd February, 1871.

HIS EXCELLENCY THE GOVERNOR-GENERAL has been pleased, by an Order in Council, dated on the 13th instant, to authorize, under the 31st Section of the Consolidated Statutes of Canada, that the following "TARIFF OF FEES" shall be levied and received by the Supervisor of Cullers:

## For Measuring-off or Counting Lumber.

| NAME OF TIMBER.                                           | TOTAL FEES.                        | OFFICE FEES.                       | CULLERS' FEES.                     |
|-----------------------------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| White Pine, Basswood, or Butternut, per ton.....          | \$0 5 <sup>7</sup> / <sub>10</sub> | \$0 2 <sup>5</sup> / <sub>10</sub> | \$0 3 <sup>2</sup> / <sub>10</sub> |
| Red Pine, per ton.....                                    | 0 7 <sup>5</sup> / <sub>10</sub>   | 0 3 <sup>3</sup> / <sub>10</sub>   | 0 4 <sup>2</sup> / <sub>10</sub>   |
| Hard Wood, per ton.....                                   | 0 7 <sup>5</sup> / <sub>10</sub>   | 0 3 <sup>3</sup> / <sub>10</sub>   | 0 4 <sup>2</sup> / <sub>10</sub>   |
| Oars and Handsplikes, counted off, per 100 pieces.....    | 0 23 <sup>4</sup> / <sub>10</sub>  | 0 5                                | 0 18 <sup>4</sup> / <sub>10</sub>  |
| Deals, counted off, per 100 standard..                    | 0 11 <sup>7</sup> / <sub>10</sub>  | 0 5                                | 0 6 <sup>7</sup> / <sub>10</sub>   |
| Planks, two inches thick and under, per 100 pieces.....   | 0 33 <sup>4</sup> / <sub>10</sub>  | 0 5                                | 0 28 <sup>4</sup> / <sub>10</sub>  |
| Waney Timber, per ton.....                                | 0 7                                | 0 2 <sup>5</sup> / <sub>10</sub>   | 0 4 <sup>5</sup> / <sub>10</sub>   |
| Do. do. string measurement, per ton.....                  | 0 8 <sup>5</sup> / <sub>10</sub>   | 0 3                                | 0 5 <sup>5</sup> / <sub>10</sub>   |
| Hemlock, per ton.....                                     | 0 4                                | 0 1 <sup>7</sup> / <sub>10</sub>   | 0 2 <sup>3</sup> / <sub>10</sub>   |
| Do. Deals, counted off, per 100 std.                      | 0 8                                | 0 3                                | 0 5                                |
| Do. Planks, 2 inches thick and under, per 100 pieces..... | 0 25                               | 0 5                                | 0 20                               |

Cancelled

For Culling and Measuring in a Merchantable state, or Measuring in "Shipping Order," or Counting-off, when not otherwise herein provided.

| NAME OF TIMBER.                                                                                | TOTAL FEES.                       | OFFICE FEES.                      | CULLERS' FEES.                    |
|------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| White Pine, Waney, string measurement.....per ton.                                             | \$0 14                            | \$0 5                             | \$0 9                             |
| Do. do. Square and Waney..... do.                                                              | 0 10 <sup>6</sup> / <sub>10</sub> | 0 3 <sup>3</sup> / <sub>10</sub>  | 0 7 <sup>3</sup> / <sub>10</sub>  |
| Red Pine Timber..... do.                                                                       | 0 12 <sup>3</sup> / <sub>10</sub> | 0 3 <sup>9</sup> / <sub>10</sub>  | 0 8 <sup>4</sup> / <sub>10</sub>  |
| Hardwood..... do.                                                                              | 0 13 <sup>9</sup> / <sub>10</sub> | 0 4 <sup>5</sup> / <sub>10</sub>  | 0 9 <sup>4</sup> / <sub>10</sub>  |
| Deals.....per 100 standard.                                                                    | 0 60                              | 0 10                              | 0 50                              |
| Planks, two inches thick and under.....per 100 pieces.                                         | 0 50                              | 0 15                              | 0 35                              |
| Standard Slaves.....per mille.                                                                 | 3 50                              | 1 00                              | 2 50                              |
| West India Slaves..... do.                                                                     | 1 62                              | 0 50                              | 1 12                              |
| Barrel Staves..... do.                                                                         | 1 13 <sup>4</sup> / <sub>10</sub> | 0 33 <sup>4</sup> / <sub>10</sub> | 0 80                              |
| Oars.....per 100 pieces.                                                                       | 0 90                              | 0 10                              | 0 80                              |
| Handspikes..... do.                                                                            | 0 65                              | 0 10                              | 0 55                              |
| Spars, from 12 to 19 inches.....each.                                                          | 0 46 <sup>8</sup> / <sub>10</sub> | 0 13 <sup>4</sup> / <sub>10</sub> | 0 33 <sup>4</sup> / <sub>10</sub> |
| Masts and Bowsprits, 19 to 24 inches..... do.                                                  | 0 73 <sup>4</sup> / <sub>10</sub> | 0 23 <sup>4</sup> / <sub>10</sub> | 0 50                              |
| Masts and Bowsprits, 24 inches and upwards..... do.                                            | 0 85 <sup>1</sup> / <sub>10</sub> | 0 23 <sup>4</sup> / <sub>10</sub> | 0 61 <sup>7</sup> / <sub>10</sub> |
| Lathwood.....per cord.                                                                         | 0 38 <sup>4</sup> / <sub>10</sub> | 0 10                              | 0 28 <sup>4</sup> / <sub>10</sub> |
| Flatted and Round Timber.....per 1000 lineal feet.                                             | 0 80                              | 0 25                              | 0 55                              |
| Boards.....per 100 pieces.                                                                     | 0 40                              | 0 5                               | 0 35                              |
| Sawed Lumber, other than Deals for exportation by sea, (when counted only).....per 100 pieces. | 0 5                               | 0 0                               | 0 5                               |
| Hemlock, Waney, "string measure".....per ton.                                                  | 0 10                              | 0 3                               | 0 7                               |
| Do. Square and Waney..... do.                                                                  | 0 7 <sup>4</sup> / <sub>10</sub>  | 0 2 <sup>3</sup> / <sub>10</sub>  | 0 5 <sup>1</sup> / <sub>10</sub>  |
| Do. Deals.....per 100 standard.                                                                | 0 45                              | 0 8                               | 0 37                              |
| Do. Planks, 2 inches and under.....per 100 pieces.                                             | 0 28                              | 0 5                               | 0 23                              |
| Do. Flatted & Round Spruce or Hemlock, per 1000 ft.                                            | 0 56                              | 0 20                              | 0 36                              |

And one-half of such rates for culling, measuring, or counting, shall be paid by the buyer, and the other half by the seller; but the whole of such fees and rates shall, in all cases, be paid to the Supervisor or his Deputy (on the delivery of the Specification, or on the presentation of an account thereof,) by the person or by the persons, jointly or severally, who shall have fyled a requisition or order for such measuring, counting, or culling, whether such person or persons be buyer, seller, owner, or possessor of such lumber.—(8 Vic., cap. 49, section 16.)

### **Governor in Council may alter Tariff of Fees.**

**31.** The Governor in Council may make such regulations as may be, from time to time, necessary for giving effect to the provisions of this Act, and may apply such funds as have been collected, or as may hereafter be collected, over and above the cost of the Culler's office, to the granting of gratuities to such of the Cullers employed at the time of the passing of this Act, as are incapable by reasons of age, infirmity or otherwise, from pursuing their business of Culling, or whose services may no longer be required.—(12 Vic., cap. 34, 1875.)

# A P P E N D I X.

## TIMBER REGULATIONS.

The following are, in substance, the Regulations for cutting Timber on Public Lands in the Province of Quebec, as finally revised on the 5th October, 1868 :

It shall be no longer permitted to cut, on Crown Lands, pine trees measuring less than twelve inches in diameter at the stump.

Licenses to cut Timber on vacant Public Lands shall be offered for sale at public auction, to be held at certain dates, to be fixed by the Commisioner of Crown Lands; but the Commissioner of Crown Lands shall have the power, whenever he may think it advisable, in the interest of the Government, to grant limits by private sale, and to settle the amount of bonus to be paid for the same, according to their relative value, subject in other respects to general Timber Regulations.

Besides the bonus bid at public auction, or fixed by authority in the case of private sales, the grantee shall pay a uniform yearly ground-rent of \$2.00 per square mile for Limits, whether occupied or not. The Regulation of 21st July, 1868, respecting non-occupied Limits, is hereby repealed.

All Licenses for Limits or Timber-Berths shall be renewable annually, on the 30th April, for a period extending to 30th April, 1889; Government reserving its power of changing once during that period the Tariff of Dues for cutting Timber, but not, however, before 1st September, 1878.

The grantees of all old and new Limits shall be bound to hold the same, and to pay therefor the annual ground-rent imposed by the present Regulations, until the said 30th April, 1889. But in cases of total or partial loss in value of a Limit, whether by fire, by the extending of settlement, or other causes, the Commissioner of Crown Lands shall have the discretionary power of annulling the License in whole or in part. He shall also have the discretionary power of refusing to renew any License in the case of contravention of the Regulations.

Excepting the first transfer made of Limits granted before the 10th January, 1868, a uniform Bonus of \$8.00 per square mile will be exacted in all cases of transfer by the grantee of his License. In cases where the License-holder shall take in one or more partners, the same Bonus shall be payable, less the proportion of it compared to the share retained by him. Limits granted without Bonus shall be subject to a Bonus of \$8.00 per square mile in cases of transfers, and in proportion if a part only is transferred or if the license-holder takes in one or more partners with him.

Limit-holders, in order to enable them to obtain advances necessary for their operations, shall have the right to pledge their Limits as security, without a Bonus becoming payable. Such pledge, in order to affect the Limit against the debtor, must be noted on the back of the License by an authorized officer of the Department of Crown Lands. If the party giving such pledge fail to perform his obligations towards his creditors, the latter, on establishing the fact to the satisfaction of the Commissioner, may obtain the next annual renewal in his own name, subject to payment of the Bonus, the transfer being then deemed complete.

The Tariff of Timber Dues (*Stumpage*) established by the Regulations of the 13th June, 1866, is revoked, and the following substituted therefor :

|                                                                                         |        |
|-----------------------------------------------------------------------------------------|--------|
| Oak and Walnut, per cubic foot.....                                                     | \$0 03 |
| Elm, Ash, and Tamarac, per cubic foot.....                                              | 0 02   |
| Red and White Pine, Birch, Basswood, Cedar, Spruce,<br>&c., per cubic foot.....         | 0 01½  |
| Pine Logs, 13½ feet long, measuring 17 inches or more<br>in least diameter, each.....   | 0 15   |
| Pine logs, 13½ feet long, measuring less than 17 inches<br>in least diameter, each..... | 0 10   |
| Spruce logs, 13½ feet long, each.....                                                   | 0 05   |
| Staves pipe, per mille.....                                                             | 7 00   |
| “ W.I. “ .....                                                                          | 2 25   |
| Cordwood (hard) per cord .....                                                          | 0 16   |
| Cordwood (soft) “ .....                                                                 | 0 08   |

Railway Timber, Knees, &c., 10 per cent., *ad valorem*, to be charged upon the quantities shewn by measurement under the direction of the Supervisor of Cullers at Quebec or Montreal, or other place of sale or shipment, or by other reliable measurement where that cannot be obtained; otherwise, each stick of White Pine may be estimated as containing..... 70 cubic feet  
Red Pine as containing..... 38 do.  
Other kinds of wood..... 34 do.

And when any License-holder is in default for, or has evaded the payment of, dues to the Crown on any part of his Timber, they may be levied on any other Timber of his, cut under License, together with the dues thereon.

Timber cut in either Ontario or Quebec is also subject to the following provisions, contained in the Regulations of the 13th June, 1866, passed by the late Province of Canada:

Before moving any Raft or parcel of Timber, Lumber, or Saw-Logs, from the Agency in which it has been cut, the owner or person in charge thereof shall make report thereof to the Crown Timber Agent, making, if required, declaration upon

oath as to the number of pieces of each kind of wood contained therein, and the number of cribs; and, to exempt Timber from private land, if any, from dues as Crown Timber, must furnish satisfactory affidavit stating what lots it was cut upon, and how much on each lot; whereupon he shall obtain a Clearance from the Crown Timber Agent, stating the number of pieces in the raft or parcel, how many, if any, have been satisfactorily proved to be from private lands, and on how many, if any, the dues have been previously or then paid. On the arrival of any such raft or parcel at Quebec, or any intermediate place, or other port, for sale or shipment, the owner or holder of it shall make report thereof to the Collector of Crown Timber Dues, Supervisor of Cullers, or other appointed officer, within forty-eight hours; and in addition to the quantity shewn by the clearance as subject to dues, any surplus Timber beyond the number of pieces stated therein, on being ascertained by the Collector of Crown Timber Dues, Supervisor of Cullers, or other authorized officer, if not satisfactorily accounted for, shall be held as having been cut upon Crown Lands, and be subject to the payment of dues accordingly.

Owners or Lessees of Saw-Mills, cutting under License, must shew, by sworn statements, the total number of each kind and length of logs cut or acquired by them and taken to their mills, or where left each season, giving the number in standards also; and must prove, by satisfactory affidavits, on what lots and how many on each lot, such as are from private lands, have been cut.

Persons evading or refusing the payment of Timber or Slide Dues, or the final settlement of bonds or promissory notes given for the same, or in default with the Crown Timber Office or Agent; also, persons taking violent possession of disputed ground before obtaining decision in their favor, and persons refusing to comply with the decision of arbitrators or with





|                                |                      |
|--------------------------------|----------------------|
| Lathwood .....                 | \$0 60 per Cord.     |
| Staves, Standard.....          | 5 00 per Mille.      |
| Do. West India.....            | 1 75 do.             |
| Do. Barrel.....                | 1 33½ do.            |
| Boards, 1¾ inch and under..... | 0 80 per 1000 f. BM. |

*Delivering.*

|                                                          |                       |
|----------------------------------------------------------|-----------------------|
| Oak and Walnut, from the bank.....                       | \$0 50 per ton.       |
| Do. Afloat or from Drums..                               | 0 42 do.              |
| Elm, Ash, and all other Hardwood not<br>enumerated ..... | 0 35 do. (as before.) |
| Birch and Maple, from the bank.....                      | 0 50 do.              |
| Do. from Rafts.....                                      | 0 35 do.              |
| Boards, 1¾ inch and under.....                           | 0 80 per 1000 f. BM.  |
| Staves, Standard.....                                    | 5 50 per Mille.       |
| Do. West India.....                                      | 1 70 do.              |
| Do. Barrel .....                                         | 1 40 do.              |

White Pine, Red Pine and Tamarac continued at former rates.

*Wintering.*

|                                |                        |
|--------------------------------|------------------------|
| Boards, 1¾ inch and under..... | \$0 40 per 1000 f. BM. |
|--------------------------------|------------------------|

*Delivering* ~~to be paid by the buyer~~

|                                      |                        |
|--------------------------------------|------------------------|
| Oak and Hard Wood, from the bank..   | 2s. 2d. per ton.       |
| Red Pine .....                       | 1s. 10d.               |
| White Pine.....                      | 1s. 5d.                |
| Deals.....                           | 7s. 3d. per std. hund. |
| Standard Staves.....                 | 22s. 6d. per M.        |
| West India do. ....                  | 7s. 6d.                |
| Barrel do. ....                      | 6s.                    |
| Lathwood.....                        | 3s. 6d. per cord.      |
| Oars and Handspikes.....             | 10s. per 100 ps.       |
| Oak and all Hard Wood, from Cribs... | 1s. 9d. per ton.       |
| Red Pine.....                        | 1s. 6d. per ton.       |
| White Pine.....                      | 1s. 7d.                |

|                      |      |                |
|----------------------|------|----------------|
| Deals.....           | 6s.  | per std. hund. |
| Standard Staves..... | 17s. | 6d. per M.     |
| West India do. ....  | 6s.  |                |
| Barrel do. ....      | 5s.  |                |

*Ground Rent.*

|                             |      |                    |
|-----------------------------|------|--------------------|
| Timber handed up.....       |      | 6d. per piece.     |
| Standard Staves.....        | 10s. | per M.             |
| West India do. ....         | 3s.  | 4d. do.            |
| Barrel do. ....             | 2s.  | 6d. do.            |
| Deals.....                  | 2s.  | 6d. per std. hund. |
| Lathwood.....               | 2s.  | per cord.          |
| Oars and Handspikes.....    | 2s.  | 6d. per 100 ps.    |
| Wintering within Booms..... | 1s.  | per piece.         |
| Do. ....                    | 10s. | per M.             |
| Do. ....                    | 3s.  | 4d. do.            |
| Do. ....                    | 2s.  | 6d. do.            |
| Do. ....                    | 2s.  | 6d. per std. hund. |

All ground rents and wintering shall become due and payable on 1st December in each year, and no further charge shall be made for ground rent or wintering until the 1st December following.

When Red and White Oak, Standard and West India Staves are mixed together in the same Crib, the Lumberman to pay the expense occasioned thereby.

In Culling Staves the Lumberman to lay them in cord preparatory to culling, and to provide a man to hand them to the Culler.

Timber returned to pay the hauling down and up if it has been shipped from the Bank, and Staves and Deals returned to pay for delivering and repiling.

# TIMBER, SHIPPING AND FREIGHTS.

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**Deals.**—A Quebec Standard Deal is 12 feet long, 11 inches broad, and  $2\frac{1}{2}$  inches thick, and contains 2 ft. 3 in. 6 pts. cubic. One Hundred Quebec Standard contain 229 ft. 2 in. cubic, or 4.29.50 loads, and are equivalent to 2750 feet superficial board measure of one inch thick.

One Quebec Standard Hundred is 100 pieces of 12 feet by 11 in. by  $2\frac{1}{2}$  in., and is equal to 1 hd. 1 qr. 16 pcs. of St. Petersburg Standard; and 240 Quebec Standard Deals are equal to 11 loads.

One St. Petersburg Standard Hundred is equal to 120 pcs. of 12 ft. by 11 in. by  $1\frac{1}{2}$  in., and is equal to 72 Quebec Standard, and equal to  $3\frac{3}{10}$  loads of Timber.

A Load of Deals is 600 square feet by one inch in thickness, equal to 50 cubic feet; or 300 square feet of two inch, or 400 of one-and-a-half inch.

A Load is equal to 21 deals, 1 foot,  $10\frac{1}{2}$  inches, Quebec Standard, and equal to  $36\frac{1}{3}$  Petersburg Standard deals.

To convert Quebec Standard Hundred into St. Petersburg Standard:—Add two-thirds of the quantity, and divide the sum by 120. If there should be any remainder, divide it by 30, for quarters, or, multiply the Quebec Standard by 25, and divide by 18.

**Staves.**—One Standard Stave is  $5\frac{1}{2}$  feet long,  $1\frac{1}{2}$  inch thick, and 5 inches broad.

One Mille, or 1200 Standard Staves, is equal to 343 feet 9 inches, or  $6\frac{4}{5}$  loads.

175 Standard Staves are equal to 50 feet 1 inch  $6\frac{3}{4}$  parts, or 1 load 1 inch  $6\frac{3}{4}$  parts.

One Mille West India Staves, 1200 pieces, is equal to 87 $\frac{1}{2}$  feet, or  $1\frac{37}{6}$  loads of timber.

Owing to the variations in breadth and thickness of Staves, it is customary to allow one Mille, Quebec Standard, to be equal to 13 loads.

**Lathwood.**—One Cord of Lathwood is 8 feet long and 4 feet high, English measure.

## Customary Allowance for Freight and Broken Stowage.

**Deals.**—A hundred St. Petersburg Standard at twice the charged rate for timber per load.

**Staves.**—A Mille Standard at 6-times the rate charged for timber per load. A Mille West India at twice the rate charged for timber per load.

**Lathwood.**—A fathom of Lathwood at the same rate as charged for timber per load.

**Freight and Shipping.**—Freight measurements, or cubical contents of packages, are found by multiplying length, breadth and thickness together; for surfaces, length and breadth only.

*To Multiply Feet and Inches by Feet and Inches.*

Under the multiplicand write the multiplier,—feet under feet, inches under inches, &c. Then commencing with the highest denomination in the multiplier, multiply the multiplicand, and set down the whole product; then multiply by the next highest denomination, and so on, observing to set the result of each multiplication one place to the right; then add up for answer. The example annexed is for surface or square measure, length and breadth only; for solid or cubical contents, this product would have to be multiplied by the thickness.

| FT.          | IN. | PTS. |   |   |  |
|--------------|-----|------|---|---|--|
| 3            | 2   | 3    |   |   |  |
| 3            | 2   | 3    |   |   |  |
|              |     |      |   |   |  |
| 9            | 6   | 9    |   |   |  |
|              | 6   | 4    | 6 |   |  |
|              |     | 9    | 6 | 9 |  |
|              |     |      |   |   |  |
| 10           | 1   | 11   | 0 | 9 |  |
|              |     |      |   |   |  |
| FT. IN. PTS. |     |      |   |   |  |

**For Stowage.**—97 quarters of Wheat, or 140 barrels of Flour, or 80 barrels of Ashes, are considered equal.

**For Grain.**—42 cubic feet equal 1 ton of shipping. One bushel is equal to 60 lbs.  $2218\frac{1}{2}$  cubic inches are equal to an Imperial bushel. 8 bushels are equal to one-quarter = 17,745 cubic inches, or  $10\frac{27}{100}$  cubic feet. Therefore, 1 ton will take  $4\frac{1}{10}$  quarters, 1 bushel being = 60 lbs.; 1 quarter = 480 lbs.; 1 ton = 1968 lbs. A ship of 200 tons measurement can, therefore, carry 820 quarters; but it can generally carry much more.

# WEIGHTS AND MEASURES.

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The Act for the Inspection of Weights and Measures was assented to by His Excellency the Governor-General on the 3rd of May, 1873.

**WINE GALLON MAY BE USED TILL 1880.**—The change from the old Wine to the Imperial Gallon is not compulsory till 1880. Up to that time the old Wine Gallon may be used by those who desire to do so, upon the condition that all bargains effected by it shall be specially mentioned. The ratio which the Wine Gallon and Winchester bushel shall bear to the Standard Measures shall be as follows:

12 Wine Gallons..... equal 10 Imperial Gallons.  
1·031 Winchester Bushels..... “ 1 Imperial Bushel.

**THE METRIC SYSTEM.**—The 49th section of the Act provides, that the Metric or Decimal system may be legally used in any contract. This permission was given as far back as 1871, but has not up to this time been acted upon.

Previous to 1826, there were used in Great Britain as legal standards, the Ale Gallon, Wine Gallon, and Corn Gallon, all of different capacities; also the Winchester Bushel for dry measure, besides Heaped Measure; all of these are now abolished, and but one Standard Bushel and Gallon for all measures, both dry and liquid, is used, called the Imperial Bushel, one-eighth of which is the Imperial Gallon.

The Imperial Bushel is an upright cylinder, whose internal diameter is 18·789 inches and depth 8 inches. The Imperial Gallon is one-eighth of this, and cubical contents equal to 10 lbs. of water. We may quote from this, as Imperial Measure, “a pint of water a pound and a quarter;” and from the weight of water given below corresponding to the different measures, it follows, that if measures were lost, we could find their equivalents by weight of water, and if weights were lost, we could find their equivalents by cubical contents of water.

The Winchester Bushel, so called because the standard measure was formerly kept at Winchester, England, is an upright cylinder, whose internal diameter is  $18\frac{1}{2}$  inches, and depth 8 inches, and its contents equal to 2150·2·5 cubic inches and equal to 77·627 lb. of pure or distilled water at a temperature of 62 and barometer at 30.

The proportion between the Imperial Liquid Measure and ours is very simple and convenient for reduction, being nearly 5 to 6. Thus 5 Imperial Gallons are equal to 6 gallons Canada or United States Standard. The Imperial Bushel is about 1.32 part more than the Winchester, 31 Bushels Imperial being equal to 32 Winchester.

The following are the cubical contents and weight in pounds of water, of the different Standard Bushels, Gallons, and sub-divisions.

*Contents in Cubic Inches.*

|                | Bushel.<br>Cubic Ins. | Gallon.<br>Cubic Ins. | Quart.<br>Cubic Ins. | Pint.<br>Cubic Ins. |
|----------------|-----------------------|-----------------------|----------------------|---------------------|
| Imperial.....  | 2218.192              | 277.274               | 69.318               | 34.659              |
| Winchester ... | 2150.40               | 268.80                | 67.20                | 33.60               |
| Wine.....      |                       | 231.                  | 57.75                | 27.875              |

*Weight of Contents in Pounds of Distilled Water.*

|               | Bushel. | Gallon. | Quart.    | Pint.    |
|---------------|---------|---------|-----------|----------|
| Imperial..... | 80 lbs. | 10 lbs. | 2.50 lbs. | 1.25 lb. |
| Winchester... | 77.627  | 9.703   | 2.426     | 1.213    |
| Wine.....     |         | 8.338   | 2.084     | 1.042    |

Diameter of a Cylinder, containing an Imperial Gallon at one inch high equal 18.78933 inches.

|                         |             |       |                          |
|-------------------------|-------------|-------|--------------------------|
| Imperial Bushel         | × 1.0315... | equal | Winchester.              |
| Winchester do.          | × .9694...  | “     | Imperial.                |
| 100 Imp. do.            | ....        | “     | 103.15 Winchester.       |
| 1 Imp. Quarter of Grain | ....        | “     | 8 25 Winchester Bushels. |
| Wine Gallons            | × .8331...  | “     | Imperial Gallon.         |
| Winchester Galls.       | × .9604...  | “     | “ “                      |
| Imperial Galls.         | × 1.2003... | “     | Wine “                   |
| Imperial Galls.         | × 1.0315... | “     | Winchester “             |

There are still used in the United States the old Beer or Ale Gallon of 282 cubic inches, equal to 10.18 lbs. of water, and a New York State Bushel of 2211.84 cubic inches, and gallon of 221.184 cubic inches, or 8 lbs. water. All transactions involving the measuring or purchasing of liquids, &c., should state the measures understood. By Act of Canadian Parliament, the following are the legal weights per bushel of the different kinds of grain :

|                                                       |      |
|-------------------------------------------------------|------|
|                                                       | lbs. |
| Wheat, Peas, Beans, Cloverseed, Potatoes, Turnips.... | 60   |
| Carrots, Parsnips, Beets, Onions.....                 | 60   |
| Indian Corn, Rye, Salt.....                           | 56   |
| Flaxseed 50, Barley, Timothy Seed, Buckwheat .....    | 48   |
| Hempseed 44, Castor Beans 40, Malt 36, Oats.....      | 34   |
| Dried Peaches 33, Dried Apples 22, Blue Grass Seed..  | 14   |
| A Ton weight 2000 lbs., a Hundred weight.....         | 100  |
| A Ton of Timothy, Clover, or other Hay or Straw.....  | 2000 |

### Weights.

|                    |       |                    |
|--------------------|-------|--------------------|
| 100 lbs.....       | equal | 1 Quintal of fish. |
| 196 lbs.....       | "     | 1 Barrel of Flour. |
| 280 lbs.....       | "     | 1 Sack.            |
| 25½ Cwt.....       | "     | 1 Chaldron.        |
| 15½ Chaldrons..... | "     | 1 Keel.            |

#### ENGLISH.

|                |       |                |
|----------------|-------|----------------|
| 1 oz.....      | equal | 28.35 Gramme.  |
| 3.528 ozs..... | "     | 1 Hectogramme. |
| 2.205 lbs..... | "     | 1 Kilogramme.  |
| 1 lb.....      | "     | 0.4536 "       |
| 1 cwt.....     | "     | 50.80 "        |

#### FRENCH.

A Bundle of Straw 12 lbs., of Hay 15 lbs., and if tied with a withe, one pound additional.

The new Copper Coinage of Great Britain, 1860, is composed of 95 parts Copper, 4 of Tin and one of Zinc. A pound of this is coined into 48 pence or 80 half pence or 160 farthings, and the half-penny measures one inch in diameter. The Canadian Cent is the same diameter, and 100 of them weigh one pound.

In the absence of Apothecaries' weights and measures, the following items are worth remembering:

About 25 drops of thin liquid will fill a common sized tea-spoon,—three table spoons will fill an ordinary sized wine glass,—four wine glasses will fill a common sized tumbler.

#### Fluid Drachm.

|                      |       |         |
|----------------------|-------|---------|
| 1 Teaspoonful.....   | equal | 1       |
| 1 Dessert ".....     | "     | 2       |
| 1 Thimbleful.....    | "     | 0½      |
| 1 Tablespoonful..... | "     | 4       |
|                      |       | Ounces. |
| 1 Wineglassful.....  | equal | 2       |
| 1 Teacupful.....     | "     | 5       |
| 1 Tumblerful.....    | "     | 8       |

Subjoined are the dimensions and material of the new Weights and Measures:

*Dimensions of Measures of Capacity.*

| Denomination     | Diameter. | Depth.  |
|------------------|-----------|---------|
|                  | Inches.   | Inches. |
| Bushel.....      | 17.35     | 9.38    |
| Half Bushel..... | 14.55     | 6.67    |
| Peck.....        | 10.31     | 6.64    |
| Gallon.....      | 5.93      | 10.04   |
| Half Gallon..... | 4.98      | 7.12    |
| Quart.....       | 4.05      | 5.38    |
| Pint.....        | 3.07      | 4.68    |
| Half Pint.....   | 2.48      | 3.59    |
| Gill.....        | 2.01      | 2.73    |
| Half Gill.....   | 1.64      | 2.05    |

*Measures of Capacity that may be Admitted for Verification.*

| Denomination.                      | Materials.                                                                                                                                                                                                                                                                      |                                                                                   |                                                                                                                                                                                         |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A—Bushel.<br>Half-Bushel.<br>Peck. | { May be made of:—<br>1. Bronze or Brass, cast.<br>2. Hammered Sheet Brass or Copper, strengthened by rims of similar metal, and upright straps.<br>3. Sheet Iron, strengthened by iron rim top and bottom, and by upright straps.<br>4. Wood, Oak, Elm, or Ash, with iron rim. |                                                                                   |                                                                                                                                                                                         |
|                                    |                                                                                                                                                                                                                                                                                 | B—Gallon.<br>Half Gallon.<br>Quart.<br>Pint.<br>Half Pint.<br>Gill.<br>Half Gill. | { May be made of:—<br>1. Bronze or Brass, cast.<br>2. Hammered Sheet Brass or Copper, with suitable rim of similar metal.<br>3. Hard Pewter.<br>4. Stout tin-plate of approved quality. |

Note.—1. Every measure must have cast, engraved, stamped or branded on it, its denomination or capacity, in bold, legible characters, duly proportioned to the size of the measures.

2. No measure of capacity, of which the sides or bottom are indented, battered, or knocked out of the regular form, will be admitted to verification.



## Lineal Measure.

|                   |       |                    |
|-------------------|-------|--------------------|
| 1 Cubit.....      | equal | 1½ Foot.           |
| 6 Feet.....       | “     | 1 Fathom.          |
| 120 Fathoms.....  | “     | 1 Cable's length.  |
| 5½ Yards.....     | “     | 1 Rd. Pole, Pr.    |
| 69½ “.....        | “     | Side of sqr. acre. |
| 40 Rods.....      | “     | 1 Furlong.         |
| 1760 Yards.....   | “     | 1 Mile.            |
| 8 Furlongs.....   | “     | 1 do.              |
| 7 92-100 Ina..... | “     | 1 Link.            |
| 25 Links.....     | “     | 1 Rod or Perch.    |
| 4 Rods.....       | “     | 1 Chain= 66 ft.    |
| 80 Chains.....    | “     | 1 Mile.            |
| 3 Miles.....      | “     | 1 League.          |

| ENGLISH. |             |       | FRENCH.  |             |
|----------|-------------|-------|----------|-------------|
| 44       | Inches..... | equal | 1        | Eng. Ell.   |
| 54       | “.....      | “     | 1        | French Ell. |
| 12·789   | “.....      | “     | 1        | “ Foot.     |
| 16114·38 | Feet.....   | “     | 1        | “ League.   |
| 39·371   | Inches..... | “     | 1        | “ Metre.    |
| 3·2809   | Feet.....   | “     | 1        | “ “         |
| 1        | Mile.....   | “     | 1609·315 | “           |
| 1        | Yard.....   | “     | 0·9144   | “           |
| 1        | Foot.....   | “     | 0·3048   | “           |
| 6·395    | Feet.....   | “     | 6        | Pieds.      |
| 0·621    | Mile.....   | “     | 1        | Kilometre.  |
| 3·052    | “.....      | “     | 1        | League.     |
| “        | “.....      | “     | 84       | Arpents.    |

Rods may be reduced to chains and decimals of a chain by dividing by 4; Yards to chains by dividing by 22; and Feet to chains by dividing by 66.

## Shipping Measure.

|                                        |       |                    |
|----------------------------------------|-------|--------------------|
| 42 solid feet.....                     | equal | 1 ton of shipping. |
| 40 solid feet, round or unhewn.....    | “     | 1 ton or load.     |
| 50 solid feet, hewn or squared timber. | “     | 1 “ “              |
| 5 cubic feet.....                      | “     | 1 barrel of flour. |
| 8 barrels.....                         | “     | 1 ton.             |
| 5 quarters.....                        | “     | 51½ cubic feet.    |
| 5 quarters.....                        | “     | 1 load.            |

## Cubic Measure.

|                  |                   |       |       |             |
|------------------|-------------------|-------|-------|-------------|
| 1                | Cubic Inch.....   | equal | 03617 | lbs. water. |
| 27               | 27-100th do. .... | "     | 1     | lb. "       |
| 1.732            | Cubic do. ....    | "     | 1     | oz. "       |
| 1                | do. Feet.....     | "     | 1728  | Cubic In.   |
| 1                | do. ....          | "     | 1000  | oz. water.  |
| 58 $\frac{2}{3}$ | do. ....          | "     | 1     | Chaldron.   |
| 1                | Cubic Yard.....   | "     | 27    | Cubic Ft.   |
| 8                | " " .....         | "     | 1     | " Fthm.     |

## ENGLISH.

## FRENCH.

|         |                           |       |       |                   |
|---------|---------------------------|-------|-------|-------------------|
| 36      | 1 Gl. Ale or 1 Bl.....    | equal | 5.776 | Fm.               |
| 61.028  | Cubic Inches.....         | "     | 1     | Litre.            |
| 35.317  | " Feet .....              | "     | 1     | Stere.            |
| "       | " " .....                 | "     | 1     | Metre.            |
| 2150.42 | " Inches Winchester B.... | "     | 1     | Min., 35.236 Lit. |

## Square Measure.

|                  |                    |             |          |                  |
|------------------|--------------------|-------------|----------|------------------|
| 144              | Square Inches..... | equal       | 1        | Square Foot.     |
| 9                | " Feet.....        | "           | 1        | " Yard,          |
| 30 $\frac{1}{4}$ | " Yards.....       | "           | 1        | " Rod or Perch.  |
| 40               | " Rods.....        | "           | 1        | " Rood.          |
| 4                | " Roods.....       | } 1 Acre. { | " 160    | " Perches.       |
| 4840             | " Yards.....       |             | " 435060 | " Feet.          |
| 10               | " Chains.....      | "           | 100000   | " Links.         |
| 6400             | " do. ....         | "           | 1        | " Mile.          |
| 640              | " Acres.....       | "           | 1        | " do.            |
| 625              | " Links.....       | "           | 1        | " Pole or Perch. |
| 16               | " Poles.....       | "           | 1        | " Chain.         |

## ENGLISH.

## FRENCH.

|         |                  |       |        |                |
|---------|------------------|-------|--------|----------------|
| 36801.7 | Square Feet..... | equal | 1      | Square Arpent. |
| 0.845   | " Acres.....     | "     | 1      | do. do.        |
| 2.471   | " do. ....       | "     | 1      | do. Hectare.   |
| 1       | " Foot.....      | "     | 0.929  | do. Metre.     |
| 1       | " Yard.....      | "     | 0.8361 | do. Metre.     |
| 3.955   | " Perches.....   | "     | 1      | Acre.          |

If links be multiplied by links, the product is reduced to acres by pointing off five decimals from the right hand. Chains multiplied by chains, to acres, by pointing off one place; and chains by links, by pointing off three places.

# TIMBER CALCULATIONS.

The following rules, which may be found useful by the trade, have been kindly communicated to us by Mr. WM. QUINN, Supervisor of Cullers at this port:

1ST.—*To Reduce Square Timber, of different sizes, to an Average Square*:—Add the lengths (in feet) together; reduce the cubic contents of the whole to parts; divide the product by the total lineal feet; the square root of the quotient will be the average square, in inches.

2ND.—*The reverse of the preceding Rule is*:—The cubical contents and the average girth being given to find the number of lineal feet. Rule:—Reduce the cubical contents to inches; divide this by the square of the average girth, in inches; the quotient will be the number of lineal feet required.

3RD.—*To find the Cubic Contents of Round Timber*:—Square the diameter; multiply the product by 11 and divide by 14; multiply the result by the length of the log; then reduce the product to feet, inches, and parts, dividing by 12 and by 12 (or by 144).

4TH.—*To find the Cubic Contents of Square or Rectangular Timber, by the Rule of Practice*:—Say a piece 36 feet long and 17 × 18 inches wide:

|                                                    | FT.   | IN. | PTS. |
|----------------------------------------------------|-------|-----|------|
| To.....                                            | 36    | 0   | 0    |
| Add $\frac{5}{12}$ —thus: 3 is $\frac{1}{4}$ ..... | 9     | 0   | 0    |
| 2 is $\frac{1}{8}$ .....                           | 6     | 0   | 0    |
|                                                    | <hr/> |     |      |
|                                                    | 51    | 0   | 0    |
| Add $\frac{6}{12}$ —thus: 6 is $\frac{1}{2}$ ..... | 25    | 6   | 0    |
|                                                    | <hr/> |     |      |
| Cubic contents .....                               | 76    | 6   | 0    |
|                                                    | FT.   | IN. | PTS. |

*Explanation*:—To 36 feet, the length of the stick, add the difference between 12 inches and the dimension of one side—17 inches; difference, 5 inches, or  $\frac{5}{12}$ ths of the 36—say 15 feet. To the result thus obtained, 51 feet, as a new factor, add 6 inches, or  $\frac{6}{12}$ ths, the difference between 12 inches and the other side of the square—18 inches. The result is the cubic contents of the stick, 76 ft. 6 in. 0 pts. N.B.—When the sides of the square of the stick are less than 12 inches, proceed inversely—deducting proportionately.

**BOARD MEASURE.**

One cubic foot of timber is equal to 12 feet superficial measure, of board, one inch thick; or, 12 feet superficial of boards of one inch thick, divided by 12, gives one foot cubic measure. Therefore, cubic measure multiplied by 12 produces board measure, and board measure divided by 12 produces cubical content.

*Rule for Measuring Rectangular Boards.*

Multiply the length in feet by the width in inches, and divide the product by 12, to find the contents in superficial feet.

*Rule for any Dimension.*

Multiply the number of feet in the face of the piece to be measured, by the thickness in inches, and it will give the contents in feet of board measure.

*Rule for Measuring Logs or Round Timber.*

Multiply the length, taken in feet, by the square of one fourth of the mean girth, taken in inches, and this product divided by 144 will give the contents in cubic feet.

*To find the largest Square Piece of Timber that may be sawed from a Round Stick of Timber, having the Diameter or Circumference of the Small End given.*

*Rule 1.*—Multiply the given diameter by .707106, or, multiply the given circumference by .225079. Or, as the diameter of a circle is equal to the diagonal of the inscribed square.

*Having the Side of a Square Stick given, to find the Diameter of the Tree from which it was sawn.*

*Rule.*—Square the side and double it, and out of the product extract the square root.

*Rule for finding the Average Square of Timber, the total lengths and total contents being given.*

Divide the total contents in feet by the total length in feet; the square root of the quotient will give the side of the square in feet.

*Mental Rule for finding Cubic or Board Measure.*

3 in. by 10 by 15 feet long. 3 times 10 are 30 (divided by 12) equal to  $2\frac{1}{2}$  times the length, for board measure, this again by 12 produces cubic contents.

4 in. by 4 by 10 feet long. Then 4 times 4 are 16 equal to  $1\frac{1}{4}$  times the length.

7 in. by 7 by 9 feet long. Then 7 times 7 are 49 equal to  $4\frac{1}{2}$  times the length.

NOTE.—The above is taken from Kinsley's Work on Lumber Measuring.



A Cordwood pile is 4 feet 0 in. high and 8 feet 0 in. long.

A French Cord is 4 feet  $3\frac{1}{2}$  in. high and 8 feet  $6\frac{3}{4}$  in. long.

The side of a square acre is  $69\frac{1}{2}$  yards in length, and is often quoted by French-Canadians as a unit of length for short distances.

1 French foot is equal to  $12\frac{19}{12}$  English Inches.

104 " lbs. " 112 " Pounds.

1 Canadian Minot " 1-054 Imperial Bushel.

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## MEASUREMENT OF CIRCLES, SQUARES, TRIANGLES CONES AND PYRAMIDS.

To compute the Circumference of a Circle:—Multiply the Diameter by 3.1416; or, as 7 is to 22, so is the Diameter to the Circumference.

To compute the Diameter of a Circle:—Divide the Circumference by 3.1416; or, as 22 is to 7, so is the Circumference to the Diameter.

To compute the Area of a Circle:—Multiply the Square of the Diameter by decimal .7854; or, multiply the Square of the Circumference by decimal .07958 or .08; or, multiply half the Circumference by half the Diameter; or, multiply the Square of the Radius by 3.1416.

To compute the Convex Surface of a Sphere or Globe:—Multiply the Diameter by the Circumference.

To compute the Volume or Solidity of a Sphere:—Multiply the cube of the Diameter by the decimal .5236; or, multiply the surface by one-third of the Radius.

To compute the Surface of a Square, Rectangle, or Quadrilateral:—Multiply the length by the breadth or height.

To compute the Solidity of a Square, Rectangle, or Quadrilateral:—Multiply length, breadth, and thickness.

To compute the Area of a Triangle:—Multiply the base by the perpendicular height, and divide the product by 2.

To compute the Surface of a Cone or Pyramid:—Multiply the circumference of the base by the slant height; halve the product, and add it to the area of the base.

To find the Volume or Solidity of a Cone or Pyramid:—Multiply the area of the base by the perpendicular height, and take one-third of the product.

To compute the Surface of a Cylinder:—Multiply the length by the Circumference, and add the product to area of both ends.

To compute the Volume or Solidity of a Cylinder:—Multiply the area of the base by the height.

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#### TABLE OF APPROXIMATE RATIOS BETWEEN CIRCLES AND SQUARES.

1. The diameter of a circle, multiplied by .8862, equal the side of a square of nearly equal area.

2. The circumference of a circle, multiplied by .2821, equal the side of a square of nearly equal area.

3. The diameter, multiplied by .7071, equal the side of the inscribed square.

4. The circumference, multiplied by .2251, equal the side of the inscribed square.

5. The area of a circle, multiplied by .6366, equal the area of the inscribed square.

6. The side of an inscribed square, multiplied by 1.4142, equal the diameter of the circumscribing circle.

7. The side of an inscribed square, multiplied by 4.4430, equal the circumference of the circumscribing circle.

8. The side of a square, multiplied by 1.1280, equal the diameter of an equal circle.

9. The side of a square, multiplied by 3.5450, equal the circumference of an equal circle.

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### A VALUABLE TABLE.

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The following table will be found exceedingly valuable :

A box 24 inches by 16 inches square, and 28 inches deep, will contain a barrel, (5 bush.) or 10.752 cubic inches.

A box 24 inches by 16 inches square, and 14 inches deep, will contain half a barrel, or 5376 cubic inches.

A box 16 inches by 16.8 inches square, and 8 inches deep, will contain one bushel, or 2,150.4 cubic inches.

A box 12 inches by 11.2 inches square, and 8 inches deep, will contain half a bushel, or 1,075.2 cubic inches.

A box 8 inches by 8.4 inches square, and 8 inches deep, will contain one peck, or 537.6 cubic inches.

A box 8 inches by 8 inches square, and 4.2 inches deep, will contain one gallon, or 268.8 cubic inches.

A box 7 inches by 4 inches square, and 4.8 inches deep, will contain a half a gallon, or 134.4 cubic inches.

A box 4 inches by 4 inches square, and 4.2 inches deep, will contain one quart, or 67.2 cubic inches.

# QUINN'S WANNEY TIMBER TABLES.

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These Tables have been calculated so as to give the full cubic contents of Timber of from 6 to 60 feet in length, 15 to 40 inches in breadth and depth, and made with a wane of from 1 to 12 inches, and have been approved and adopted by order of His Excellency the Governor-General in Council, under date 29th May, 1860, and ordered to be used in the Office of the Supervisor of Cullers by the Honorable the Commissioner of Crown Lands.

“WOODS AND FORESTS,

“*Crown Lands Department,*

“Quebec, 31st May, 1860.

“Notice is hereby given, that His Excellency the Governor-General in Council has been pleased, by an Order dated the 29th instant, to provide for the measuring of wanney or octagonally-shaped Timber as follows :

“FIRST.—*The Mode of Measurement to be Adopted*:—The extreme breadth and thickness of each stick to be taken at the measuring point, measuring also the waney, and making an average of them; the quantity represented by the four waney to be deducted from the gross contents (as computed from the extreme breadth and thickness and the length), in order to obtain the solid contents of the stick.

“SECOND.—*The Tables to be Adopted* are those compiled by Mr. JOHN QUINN, which are computed to meet the above mode of measurement.

“THIRD.—*The Measuring Rod* to be 40 inches in length, having two arms of  $8\frac{1}{2}$  inches in length each, one at the end fixed, the other sliding; both arms as well as the rod itself to be graduated with inches, and the sliding arm so arranged that it shall be always at right angles with the rod itself. This rod to be used in connection with the implements at present in use, or such other implements or rods, for small waney, as may be found necessary by the Supervisor of Cullers.

“ANDREW RUSSELL,

“Assistant Commissioner of Crown Lands.”



# USEFUL INFORMATION ABOUT WOODS. 3

**Charcoal.**—The best quality is made from Oak, Maple, Beach, and Chestnut.

Wood will furnish, when properly burned, about 23 per cent. of coal.

Charcoal absorbs, upon an average of the various kinds, about 5.5 per cent. of water, Oak absorbing about 4.28, and Pine 8.9.

Its evaporative power, in the furnace of a boiler and under pressure, is 5½ lbs. of fresh water per lb. of coal.

The volume of air chemically required for the combustion of 1 lb. of charcoal is 293.5 cubic feet.

138 bushels of charcoal and 432 lbs. of limestone, with 2612 lbs. of ore, will produce 1 ton of pig iron.

## Produce of Charcoal from various Woods.

|            |      |            |      |            |       |               |      |
|------------|------|------------|------|------------|-------|---------------|------|
| Apple..... | 23.8 | Birch..... | 24.1 | Oak.. .... | 22.85 | Red Pine..... | 23.0 |
| Ash.....   | 26.7 | Elm.....   | 25.1 | “ young..  | 33.3  | White Pine... | 23.5 |
| Beech..... | 21.1 | Maple..... | 22.9 | Poplar ... | 20.5  | Willow.....   | 18.6 |

The produce of charcoal by a slow process of charring is very nearly 50 per cent. greater than by a quick process.

## Wood.—Weights and Comparative Values of different Woods.

| Woods.                | Cord. | Value. | Woods.               | Cord. | Value. |
|-----------------------|-------|--------|----------------------|-------|--------|
|                       | Lbs.  |        |                      | Lbs.  |        |
| Shell-bark Hickory... | 4469  | 1.00   | New-Jersey Pine..... | 2137  | .54    |
| Red-heart Hickory.... | 3705  | .81    | Yellow Pine .....    | 1904  | .43    |
| White Oak.....        | 3821  | .81    | White Pine.....      | 1868  | .42    |
| Red Oak.....          | 3254  | .69    | Beech?.....          | —     | .7     |
| Virginia Pine.....    | 2689  | —      | Spruce.....          | —     | .52    |
| Southern Pine.....    | 3375  | —      | Hemlock .....        | —     | .44    |
| Hard Maple.....       | 2878  | .6     | Cottonwood.....      | —     | —      |

The evaporative power of 1 cubic foot of pine wood is equal to that of 1 cubic foot of fresh water; or, in the furnace of a steam-boiler and under pressure, it is 4½ lbs. fresh water for 1 lb. of wood.

**NORTHERN WOOD.**—One cord of *hard* wood and one cord of *soft* wood, such as is used upon Lakes Ontario and Erie, is equal in evaporative effects to 2000 lbs. anthracite coal.

**WESTERN WOOD.**—One cord of the description used by the river steamboats is equal in evaporative qualities to 12 bushels (960 lbs.) of Pittsburg coal.

9 cords cotton, ash, and cypress wood are equal to 7 cords of yellow pine.

The solid portion (*lignin*) of all woods, wherever and under whatever circumstances of growth, are nearly similar, the specific gravity being as 1.46 to 1.53.

The densest woods give the greatest heat, as charcoal produces greater heat than flame.

For every 14 parts of an ordinary pile of wood there are 11 parts of space; or a cord of wood in pile has 71.68 feet of solid wood and 56.32 feet of space.

Trees in the early part of April contain 20 per cent. more water than they do in the end of January.

## Ash.—Proportion of Ash in 100 lbs. of several Woods.

| Woods.     | Wood.     | Leaves.   | Woods.          | Wood.     | Leaves.   |
|------------|-----------|-----------|-----------------|-----------|-----------|
|            | Per Cent. | Per Cent. |                 | Per Cent. | Per Cent. |
| Ash.....   | .5        | —         | Elm.....        | 1.88      | 11.8      |
| Beech..... | .35       | 5.4       | Oak.....        | 0.21      | 4.0       |
| Birch..... | .34       | 5.0       | Pitch Pine..... | 0.25      | 3.15      |

**Peat.**—The proportion of ash in peat varies very much, ranging from 1.25 per cent. in grass peat to 18.47 per cent. in other varieties, the mean of Irish peat being about 3.5 per cent.

The distillation of peat produces, upon an average : Water, 31 parts ; Tar, 3 ; Charcoal, 29 ; and Gas, 37.

In the distillation of peat, the following products have been obtained :

Charcoal, 41.1 per cent. ; Watery Liquor, 19.3 ; Tar, 0.6 ; and Gaseous matter, 39.

Its evaporative power, in the furnace of a steam-boiler and under pressure, is from  $3\frac{1}{2}$  to 5 lbs. of fresh water per lb. of fuel.

### *Decrease in Dimensions of Timber by Seasoning.*

| Woods.                | Ins.  | Ins.                                | Woods.                | Ins.             | Ins.                |
|-----------------------|-------|-------------------------------------|-----------------------|------------------|---------------------|
| Cedar, Canada.....    | 14    | to 13 $\frac{1}{2}$                 | Pitch Pine, South.... | 13 $\frac{3}{8}$ | to 13 $\frac{1}{2}$ |
| Elm.....              | 11    | to 10 $\frac{1}{2}$                 | Spruce.....           | 8 $\frac{1}{2}$  | to 8 $\frac{1}{2}$  |
| Oak, English.....     | 12    | to 11 $\frac{1}{2}$                 | White Pine, American  | 12               | to 11 $\frac{1}{2}$ |
| Pitch Pine, North.... | 10x10 | to 9 $\frac{1}{2}$ x9 $\frac{1}{2}$ | Yellow Pine, North .  | 18               | to 17 $\frac{1}{2}$ |

The weight of a beam of English oak, when wet, was reduced by seasoning from 972.25 to 630.5 pounds.

### **Proportion of Water in Various Woods.**

|                     |      |                   |      |
|---------------------|------|-------------------|------|
| Alder.....          | 41.6 | Pine.....         | 39.7 |
| Ash.....            | 28.7 | Red Beech.....    | 39.7 |
| Birch.....          | 30.8 | Red Pine.....     | 45.2 |
| Elm.....            | 44.5 | Sycamore.....     | 27.0 |
| Horse Chestnut..... | 38.2 | White Oak.....    | 36.2 |
| Larch.....          | 48.6 | White Pine.....   | 37.1 |
| Mountain Ash.....   | 28.3 | White Poplar..... | 50.6 |
| Oak.....            | 34.7 | White Willow..... | 26.0 |

### **Relative Value of Various Woods.**

THEIR CRUSHING STRENGTH AND STIFFNESS BEING COMBINED.

|                  |      |                  |      |
|------------------|------|------------------|------|
| Ash.....         | 3571 | Quebec Oak.....  | 2927 |
| Beech.....       | 3079 | Spruce.....      | 2522 |
| Cedar.....       | 700  | Sycamore.....    | 1833 |
| Elm.....         | 3468 | Teak.....        | 6555 |
| English Oak..... | 4074 | Walnut.....      | 2378 |
| Mahogany.....    | 2571 | Yellow Pine..... | 2198 |

**NOTE.**—The preceding three pages, as also the following one, have been carefully compiled from the latest edition of Haswell's Engineers' and Mechanics' Hand-Book, and may be relied upon as correct in every particular.

# SPECIFIC GRAVITIES.

---

WATER is well adapted for the Standard of Gravity; and as a cubic foot of it weighs 1000 ounces avoirdupois, its weight is taken as the unit.—viz., **1000**; and the weight of a cubic foot of any one of the following articles is in ounces avoirdupois:

## Woods (Dry).

|                         |      |
|-------------------------|------|
| Ash.....                | 845  |
| Apple.....              | 793  |
| Boxwood (Brazilian).... | 1031 |
| Beech.....              | 852  |
| Birch.....              | 567  |
| Butternut.....          | 376  |
| Cedar.....              | 561  |
| Cherry.....             | 715  |
| Chestnut.....           | 610  |
| Cocoa.....              | 1040 |
| Cork.....               | 240  |
| Cypress.....            | 644  |
| Ebony (American).....   | 1331 |
| Elm.....                | 570  |
| Fir, White.....         | 512  |
| Hackmatack.....         | 592  |
| Hazel.....              | 860  |
| Hemlock.....            | 368  |
| Holly.....              | 760  |
| Lignum-vitæ.....        | 1333 |
| Lime.....               | 804  |
| Logwood.....            | 913  |
| Mahogany (Honduras).... | 560  |
| Maple.....              | 750  |
| Maple, bird's-eye.....  | 576  |
| Oak (Canadian).....     | 872  |
| Oak (English).....      | 932  |
| Pear.....               | 661  |
| Pine, White.....        | 554  |
| Pine, Red.....          | 590  |
| Pine, Yellow.....       | 461  |
| Pine, Pitch.....        | 660  |
| Plum.....               | 785  |
| Poplar.....             | 383  |
| Spruce.....             | 500  |
| Tamarac.....            | 383  |
| Walnut, Grey.....       | 671  |
| Walnut, Black.....      | 500  |
| Willow.....             | 585  |

## Liquids, Metals, &c.

|                         |       |
|-------------------------|-------|
| Alcohol, pure, 60°..... | 794   |
| Beer.....               | 1034  |
| Brandy.....             | 924   |
| Blood (human).....      | 1054  |
| Beeswax.....            | 965   |
| Brass, cast.....        | 8396  |
| Brick, fire.....        | 2201  |
| Coal (Anthracite).....  | 1436  |
| Coal (Newcastle).....   | 1270  |
| Coke.....               | 1000  |
| Copper, cast.....       | 8788  |
| Earth, common.....      | 2194  |
| Glass, window.....      | 2642  |
| Gold, 22 carats.....    | 17486 |
| Granite (Scotch).....   | 2625  |
| Guttapercha.....        | 980   |
| Honey.....              | 1450  |
| Iron, cast.....         | 7207  |
| Ivory.....              | 1825  |
| Lead, cast.....         | 11352 |
| Lime, hydraulic.....    | 2745  |
| Marble (Vermont).....   | 2650  |
| Milk.....               | 1032  |
| Petroleum.....          | 878   |
| Plaster of Paris.....   | 1176  |
| Platinum, native.....   | 16000 |
| Quicksilver.....        | 13568 |
| Salt.....               | 2130  |
| Sand, common.....       | 1670  |
| Silver, pure cast.....  | 10474 |
| Soap, Castile.....      | 1071  |
| Starch.....             | 950   |
| Steel Plates.....       | 7806  |
| Tallow.....             | 941   |
| Tin, pure.....          | 7291  |
| Tarperentine.....       | 870   |
| Water, common.....      | 1000  |
| Water, sea.....         | 1026  |
| Zinc, rolled.....       | 7191  |

## THE BEST TIME TO CUT TIMBER

---

The best time for cutting Timber is "in the dark of the moon," and the very best time is in the dark of the moon in the month of August. An Ontario farmer, who had ample opportunity for making experiments, proved, to his own satisfaction and that of many others, that timber felled during the aforesaid time never becomes affected by insects or worms; nor does it become brittle in seasoning; but, on the contrary, remains tough, and appears somewhat oily. The sap of trees ascends with every increase of the moon, and descends with every decrease of the moon; and at its full and at its dark, it will neither ascend nor descend, but will spread in a circular form. There is no doubt but that the moon has the same effect on all vegetation; but he never tested or experimented on any but standing trees. The proper time, or season, for testing or experimenting on this matter is during the month above mentioned (August), when any person disposed to test the theory for themselves can do so. The following is the way he gained his knowledge of the matter:—About fifty years ago, he and his brother cleared an addition to their then improvement; and as timber for firewood had become an object, they left quite a number of small oaks standing; but, to make the best of them, they peeled or stripped the bark off them, upward, as convenient, for tanning purposes, in the month of June, when it peeled readily. There was then, as there always is at that season of the year, a new wood, or soft substance, forming between the bark and the hard-wood, through which the sap flowed or passed rapidly, but with greater force in its ascent than in its descent: and, marring this soft substance, it received a bluish color from the axe. Sometimes he threw dust or spit tobacco-juice on it: in either case it absorbed coloring enough to see very distinctly which way, up or down according to the time of the moon, the sap was passing. Since then, he removed to another farm, also covered with timber, and for many years chopped a new field each spring; and at the time the bark peeled he would frequently strip off a piece of bark from a standing tree of any kind (some, however, peeled more readily than others), without cutting into the tree or too much marring the new soft-wood forming; and he always found that the sap ascended or descended, invariably, with the increase or decrease of the moon. During the month of August, if he required timber for rails, stakes, posts, or building purposes, he would send a man or two to fell such trees as might be required, at the proper time of the moon, and then would sometimes, to suit his own convenience, let them lay for several years before working them up; even then, he would find the green bark inside of the dead or dry bark still green, though somewhat dried; but, *in no case did he ever find insects or worms inside of the bark.*

# LIST OF SPECIMENS OF WOODS OF THE CANADIAN FORESTS,

WITH THEIR ENGLISH, FRENCH AND BOTANICAL NAMES.

(Revised and corrected by Abbé BRUNET.)

| No. | ENGLISH NAME.                       | FRENCH NAME.               | BOTANICAL NAME.               |
|-----|-------------------------------------|----------------------------|-------------------------------|
| 1   | Alder.....                          | Aulne Commun.....          | <i>Alnus incana.</i>          |
| 2   | Ash, Mountain.....                  | Cormier, (Masquabina)..... | <i>Pyrus Americana.</i>       |
| 3   | Ash, Kim.....                       | Frêne de Savane.....       | <i>Fraxinus juglandifolia</i> |
| 4   | Ash, Swamp.....                     | Frêne rouge.....           | <i>Fraxinus pubescens.</i>    |
| 5   | Ash, Black.....                     | Frêne noir.....            | <i>Fraxinus sambucifolia</i>  |
| 6   | Ash, White.....                     | Franc Frêne.....           | <i>Fraxinus Americana.</i>    |
| 7   | Aspen, Large-toothed.....           | Grand Tremble.....         | <i>Populus grandidentata.</i> |
| 8   | Basswood.....                       | Bois blanc, (Tilleul)..... | <i>Tilia Americana.</i>       |
| 9   | Beech.....                          | Hêtre.....                 | <i>Fagus ferruginea.</i>      |
| 10  | Beech, Blue.....                    | Charme.....                | <i>Carpinus Americana,</i>    |
| 11  | Birch, Black.....                   | Merisier rouge.....        | <i>Betula lenta.</i>          |
| 12  | Birch, Yellow.....                  | Merisier blanc.....        | <i>Betula excelsa.</i>        |
| 13  | Birch, White.....                   | Bouleau.....               | <i>Betula papyracea.</i>      |
| 14  | Butternut, Smooth.....              | Noyer tendre.....          | <i>Juglans cinerea.</i>       |
| 15  | Button-wood.....                    | Platane.....               | <i>Platanus Occidentalis.</i> |
| 16  | Cedar, White.....                   | Cèdre blanc.....           | <i>Thuja Occidentalis.</i>    |
| 17  | Cedar, Red.....                     | Cèdre rouge.....           | <i>Juniperus Virginiana.</i>  |
| 18  | Cherry, Choke.....                  | Cerisier à grappes.....    | <i>Cerasus Virginiana.</i>    |
| 19  | Cherry, (Wild) Black.....           | Cerisier noir.....         | <i>Cerasus Serotina.</i>      |
| 20  | Chestnut.....                       | Châtaignier.....           | <i>Castanea Americana.</i>    |
| 21  | Chestnut, Horse.....                | Marronnier d'Inde.....     | <i>Æsculus hippocastanum.</i> |
| 22  | Cherry, (wild) Red.....             | Petite merise.....         | <i>Cerasus Pennsylvanica.</i> |
| 23  | Cotton-wood, (necklace poplar)..... | Peuplier du Canada.....    | <i>Populus monilifera.</i>    |
| 24  | Cornell, (Flowering Dogwood).....   | Cornouiller.....           | <i>Cornus Florida.</i>        |
| 25  | Elm, Grey or White.....             | Orme blanc.....            | <i>Ulmus fulva vel rubra.</i> |
| 26  | Elm, Red.....                       | Orme rouge.....            | <i>Ulmus fulva.</i>           |
| 27  | Elm, Slippy.....                    | Orme gras.....             | <i>Ulmus fulva.</i>           |
| 28  | Elm, Soft.....                      | Orme.....                  | <i>Ulmus racemosa.</i>        |

# LIST OF SPECIMENS OF WOODS, &c., (Continued.)

| No. | ENGLISH NAME.                     | FRENCH NAME.                    | BOTANICAL NAME.          |
|-----|-----------------------------------|---------------------------------|--------------------------|
| 29  | Fir, Balsam.                      | sapin.                          | Abies balsamea.          |
| 30  | Hemlock.                          | Pruche.                         | Abies Canadensis.        |
| 31  | Hickory, Nocker-nutt.             | Noyer à noix douces.            | Carya tomentosa.         |
| 32  | Hickory, Rough Bark.              | Noyer dur.                      | Carya alba.              |
| 33  | Iron Wood.                        | Bois dur.                       | Ostrya Virginica.        |
| 34  | Maple, Hard.                      | Erable.                         | Acer saccharinum.        |
| 35  | Maple, Mountain.                  | Plaine bâtarde.                 | Acer spicatum.           |
| 36  | Maple, Soft Curly.                | Plaine.                         | Acer rubrum.             |
| 37  | Maple, Soft, (plane).             | Plaine blanche.                 | Acer dasycarpum.         |
| 38  | Moose Wood.                       | Bois barré, (Bois noir).        | Acer Pennsylvanicum.     |
| 39  | Oak, Black.                       | Chêne noir.                     | Quercus tinctoria.       |
| 40  | Oak, Gray, (Lake).                | Chêne gris.                     | Quercus ambigua.         |
| 41  | Oak, Red.                         | Chêne rouge.                    | Quercus rubra.           |
| 42  | Oak, White.                       | Chêne blanc.                    | Quercus alba.            |
| 43  | Oak, White (Ottawa).              | Chêne blanc (Ottawa).           | Quercus alba.            |
| 44  | Pine, Red.                        | Pin rouge.                      | Pinus resinosa.          |
| 45  | Pine, White.                      | Pin blanc.                      | Pinus strobus.           |
| 46  | Pine, Yellow.                     | Pin jaune.                      | Pinus mitis.             |
| 47  | Plum, Wild, Yellow.               | Prunier sauvage.                | Prunus Americana.        |
| 48  | Poplar Balsam, or Balm of Gilead. | Peuplier baumier, (Tacamahaca). | Populus balsamifera.     |
| 49  | Poplar, (Common Aspen).           | Tremble.                        | Populus tremuloïdes.     |
| 50  | Sassafras.                        | Sassafras.                      | Sassafras officinalis.   |
| 51  | Scrub Pine.                       | Pin gris (ou cyprès).           | Pinus rupestris.         |
| 52  | Spruce, White.                    | Epinette blanche.               | Abies alba.              |
| 53  | Spruce, Black.                    | Epinette noire.                 | Abies nigra.             |
| 54  | Sumac.                            | Vinaigrier.                     | Rhus typhina.            |
| 55  | Tamarac.                          | Epinette rouge.                 | Larix Americana.         |
| 56  | Thorn, Apple.                     | Pommettier rouge.               | Crataegus punctata.      |
| 57  | Thorn, White.                     | Senelier.                       | Crataegus coccinea.      |
| 58  | Walnut, Black.                    | Noyer noir.                     | Juglans nigra.           |
| 59  | Willow, Black.                    | Saule noir.                     | Salix nigra.             |
| 60  | White Wood.                       | Tulipier.                       | Liriodendron tulipifera. |

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