

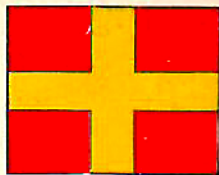


1901  
*Flags of the I.L.Y.A. Code of Signals*

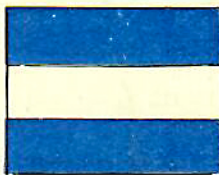
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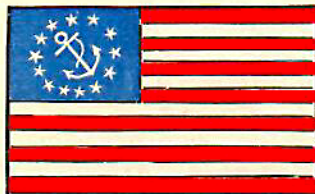
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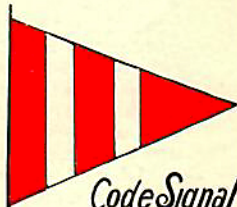
L



V



U.S. YACHT ENSIGN



Code Signal  
and  
Ans' Pennant

# Wig-Wag Signal Code.

## U. S. NAVAL.

### ALPHABET.

A 22.	H 122.	O 21	V 1222
B 2112.	I 1.	P 1212.	W 1121.
C 121.	J 1122.	Q 1211.	X 2122.
D 222.	K 2121.	R 211.	Y 111.
E 12.	L 221.	S 212.	Z 2222.
F 2221.	M 1221.	T 2.	
G 2211.	N 11.	U 112.	

### ALPHABET CLASSIFIED.

I 1.	J 1122.	A 22.	F 2221.
N 11.	C 121.	D 222.	S 212.
Y 111	Q 1211.	Z 2222.	X 2122.
E 12.	M 1221.	O 21.	B 2112.
H 122.	P 1212.	R 211.	K 2121.
V 1222.	W 1121.	L 221.	
U 112.	T 2.	G 2211.	

End of a Word	3	Cease signaling, A. A. A 331.
End of a sentence	33	Repeat last word C. C. 3.
End of a Message	333	Repeat last message C. C. C. 3.
I understand	A A 3	I have made an error, E E 3.

### FLAGS.

Signaling by wig-wag is carried on by waiving a flag fastened to a staff in certain defined ways, represented by the figures 1, 2 and 3, and thus letters are made and words spelled.

There are two wig-wag flags, one a square white flag with a red square in the centre, and the other a square red flag with a white square in the centre.

But one flag is used in signaling, and that one is selected which can be the easier seen against a flagman's background.

### RULES.

1. The flagman should face the person to whom he is signaling, and should hold the flag staff vertically in front of the centre of his body, with the butt at the height of his waist.

2. The motion represented by the figure 1 is made by waiving the flag down to the right; 2 by waiving it down to the left; and 3, by waiving it down in front of the sender.

3. Each motion should embrace an arc of ninety degrees, starting from and returning to the verticle without a pause.

4. When two or more motions are required to make a letter, there should be no pause between the motions.

5. At the end of each letter there should be a slight pause at the verticle.

6. At the end of each word, one front motion (3) should be made; at the end of a sentence, two fronts (33); and at the end of a message, three fronts (333).

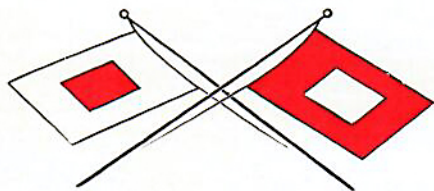
7. To call a yacht, signal the initial letter of her name until answered. To answer a call, signal A. A. 3 (I understand).

8. If the sender makes an error he should immediately signal E. E. 3 (I have made an error), and resume the message, beginning with the last word sent correctly.

9. If the receiver does not understand a signal, he should signal C. C. 3 (Repeat the last word); the sender should then repeat the last word and proceed with the message.

### NOTICE.

It is especially requested that all yacht owners carry a private signal, and that they design or have designed a special flag of their own, and that a cut or description of this be furnished the secretary of the Inter-Lake Yachting Association so that a full description of these private signals may be published in colors in the next annual catalogue of the Inter-Lake Yachting Association.



CONSTITUTION  
AND  
SAILING REGULATIONS  
OF THE  
*Inter-Lake  
Yachting  
Association.*



Organized March 19th, 1894.

I. F. MACK & BRO., Printers, Sandusky, O.

LIST OF YACHT CLUBS

BELONGING TO

THE INTER-LAKE YACHTING  
ASSOCIATION.

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CLEVELAND YACHT CLUB.....	Cleveland, O.
DETROIT YACHT CLUB.....	Detroit, Mich.
ERIE YACHT CLUB.....	Erie, Pa.
PUT-IN-BAY YACHT CLUB.....	Put-in-Bay, O.
SANDUSKY YACHT CLUB.....	Sandusky, O.
TOLEDO YACHTING ASSOCIATION.....	Toledo, O.
DETROIT BOAT CLUB YACHTSMEN .....	Detroit, Mich.
UP-RIVER YACHT CLUB.....	Toledo, O.
LAKWOOD YACHT CLUB.....	Cleveland, O.
MAUMEE RIVER YACHT CLUB.....	Toledo, O.

*OFFICERS—1901.*

Commodore,	
WM. R. HUNTINGTON, C. Y. C. and S. Y. C.,	Elyria, O.
Vice Commodore,	
FRANK B. RAWSON, S. Y. C.	Sandusky, O.
Rear Commodore,	
J. N. RICHARDSON, L. Y. C.,	Cleveland, O.
Secretary-Treasurer,	
WILLIAM F. SEITZ, JR., S. Y. C.	Sandusky, O.
Measurer,	
JOSEPH W. HEPBURN, T. Y. A.,	Toledo, O.
Fleet Surgeon,	
Dr. BERNHARD JACOBS, D. Y. C.,	Detroit, Mich.

*DIRECTORS.*

W. R. HUNTINGTON,	Cleveland Yacht Club
P. C. BAKER,	Detroit Yacht Club
J. A. RATHBONE,	Detroit Boat Club Yachtsman
GEORGE T. BLISS,	Erie Yacht Club
FRANK B. RAWSON,	Sandusky Yacht Club
ROLLIN D. POTTER,	Toledo Yachting Association
FRED PRITCHARD,	Up-River Yacht Club
WILLIAM HAAS,	Put-in Bay Yacht Club
MYRON B. VORCE,	Lakewood Yacht Club
F. D. KNISE,	Maumee River Yacht Club

*REGATTA COMMITTEE.*

GEORGE F. ANDERSON (Chairman),	S. Y. C.
J. M'KENZIE,	T. Y. A.
FRED PRITCHARD,	U.-R. Y. C.
WM. F. SEITZ, JR., (ex-of.),	S. Y. C.

*ENTERTAINMENT COMMITTEE.*

JOHN R. DEXTER (Chairman),	D. B. C. Y.
FRANK R. FREY,	T. Y. A.
M. B. VORCE,	L. Y. C.

OFFICERS SINCE ORGANIZATION.

Commodores,

GEORGE W. GARDNER,	C. Y. C.	1894
JOHN E GUNCKEL,	O. Y. C.	1895
GEO. H. WORTHINGTON,	C. Y. C.	1896
S. O. RICHARDSON,	T. Y. A.	1897
ALEX I. M'LEOD,	D. Y. C.	1898
GEORGE T BLISS,	E. Y. C.	1899
GEORGE F. ANDERSON,	S. Y. C.	1900

Vice Commodores,

JOHN E GUNCKEL,	O. Y. C.	1894
HARRY C. KENDALL,	C. Y. A.	1895
C. J. LICHTENBERG,	D. Y. C.	1896
HENRY LOOK,	C. Y. A.	1897
HENRY TRACEY,	T. Y. A.	1898
GEORGE F. ANDERSON,	S. Y. C.	1899
OTTO F. BARTHEL,	W. E. Y. C.	1900

Rear Commodores,

H. C. KENDALL,	C. Y. A.	1894
J. J. GILL,	S. Y. C.	1895
HENRY TRACEY,	T. Y. A.	1896
GEORGE T. BLISS,	E. Y. C.	1897
GEORGE T. BLISS,	E. Y. C.	1898
OTTO F. BARTHEL,	W. E. Y. C.	1899
E. P. SHARPE,	B. Y. C.	1900

Secretary-Treasurers,

E. W. RADDER,	C. Y. C.	1894
F. R. FREY,	T. Y. C.	1895
F. R. FREY,	T. Y. A.	1896
OTTO K. SCHIMANSKY,	S. Y. C.	1897
OTTO F. BARTHEL,	W. E. Y. C.	1898
L. D. DAVIS,	E. Y. C.	1899
WILLIAM F. SEITZ, JR.,	S. Y. C.	1900

# CONSTITUTION

OF THE

## Inter-Lake Yachting Association.

ARTICLE I.

NAME.

The name of this body shall be "INTER-LAKE YACHTING ASSOCIATION."

OBJECT.

The object of this Association shall be the advancement of yachting interests on the Great Lakes and rivers tributary thereto.

OFFICERS.

1, Commodore; 2, Vice-Commodore; 3, Rear Commodore; 4, Fleet Captain; 5, Secretary-Treasurer; 6, Measurer; 7, Surgeon; 8, Board of Directors; 9, Regatta Committee; 10, Entertainment Committee.

MEMBERS

Any organized Yacht Club on the lakes and rivers connecting therewith may become a member of this Association.

APPLICATION.

Clubs desiring to become members, shall make written application to the Secretary-Treasurer, who will bring it before the Board of Directors for action. Their decision shall be final.

GOVERNMENT.

The entire government and management of the Association shall be vested in a Board of Directors, consisting of one representative from each member, a majority of whom shall constitute a quorum.

ELECTIONS.

DIRECTORS.

Directors are elected by each Association member, as it thinks best, in December of each year.

All ex-Commodores of the I-L. Y. A. are ex-officio members of the Board of Directors, and shall have voice, but without vote, in all meetings of the Board of Directors.

#### COMMODORES.

Nominations for the three Commodores shall be confined to the Commodores and ex-Commodores of the clubs in this Association. Their term of office shall be one year, and they cannot be elected to succeed themselves. A plurality vote of the Directors constitutes an election.

#### OTHER OFFICERS.

All other officers are elected by a plurality vote of the Directors, and may succeed themselves

#### VOTING.

Voting shall be by ballot.

#### DUTIES.

##### COMMODORE.

It shall be the duty of the Commodore to preside at all meetings of the Association, to take command of the squadron, and perform such other duties as the Board of Directors may appoint.

He shall call special meetings of the Board, whenever he shall deem it necessary, or on a written request of two Directors.

All requests to call meetings, and calls, shall specify the objects of the meeting, and no other matters than those specified shall be considered.

##### VICE-COMMODORE.

It shall be the duty of the Vice-Commodore to assist the Commodore in the discharge of his duties, and, in his absence, officiate in his stead.

##### REAR COMMODORE.

It shall be the duty of the Rear-Commodore to assist the Commodore and Vice-Commodore in the discharge of their duties, and in their absence officiate in their stead.

##### FLEET CAPTAIN.

The Fleet Captain shall assist the Commodore or the Acting Commodore in the discharge of his duties, and in his absence, officiate in his stead.

He shall see that the squadron is in proper order when under way and report to the officer in command any infraction or disobedience to orders and rules, either while under way or at rendezvous.

#### SECRETARY-TREASURER.

It shall be the duty of the Secretary to keep a true record of the proceedings of all the meetings of the Board of Directors with the names of the members present thereat, in a book provided for that purpose, and to authenticate the same by his signature.

To keep a correct roll of all the Clubs and Directors. To notify every Club-elect of its election, and upon its becoming a member, to furnish it with copies of the Constitution, By-Laws and Sailing Regulations of the Association. To notify every Director of each special and adjourned meeting, at least ten days prior thereto.

He shall conduct all official correspondence of the Association.

He shall be an ex-officio member of every committee, either elected or appointed.

He shall make all collections for the Association, and pay all bills which have been passed by the Board of Directors and approved by the Commodore, out of the funds of the Association.

He shall make a quarterly report of all money in his hands, and a full detailed report at the annual meeting in December, of all receipts and disbursements.

He shall keep the accounts of the Association, and preserve proper vouchers for all payments.

To file all documents, records, reports and communications connected with the business of the Association.

To keep a correct list of the name, size, ownership, rig and builder of each yacht enrolled in the squadron, a copy of which list, corrected monthly he shall keep for inspection and mail to each Club semi-annually.

The Secretary-Treasurer shall have voice, but without vote, in the proceedings of the annual

meeting and other meetings of the I-L. Y. A., and the expense incurred by him through attending such meetings shall be paid from the funds of the I-L. Y. A.

#### MEASURER.

It shall be the duty of the Measurer to make a correct list of the name, size, rig and measurement of each boat enrolled in the squadron, and deliver the same to the Secretary-Treasurer.

To make a similar return of each boat entered for any regatta to the Regatta Committee, not less than two hours prior to such regatta.

#### FLEET SURGEON.

It shall be the duty of the Fleet Surgeon to look after the physical condition of the members, and perform such other duties connected with his office, as the Commodore may direct.

#### REGATTA COMMITTEE.

1. The Regatta Committee shall consist of five members. They shall have direction and control of all races sailed under the auspices of the Association and shall make report to the Secretary-Treasurer in writing immediately after each race.

2. Any member of the Committee having an interest in any yacht entered for a race, shall be ineligible to act in any capacity connected with such race, and the Committee shall have the power to fill such temporary vacancy.

3. They shall notify the owners of winning yachts, and shall have full charge of all matters pertaining to the procuring and awarding of prizes.

4. They shall appoint three persons who shall act as Judges of all races sailed by the Association, and who shall decide all questions of such races, and from whose decision there shall be no appeal.

5. They shall appoint two time keepers who shall act under direction of the Judges.

6. They shall appoint a surveyor whose duties shall be to make an accurate survey of the course described by the Regatta Committee and report

to them as soon as possible thereafter the true magnetic bearing of same. He shall also have charge of setting all work buoys, and stake boats.

7. They shall have power to disqualify with or without protest, a yacht that shall have violated any rule of the Association, and to postpone any race should unfavorable weather render such action desirable.

8. They may engage the service of a competent person who shall assist in the clerical work of the Committee during the Association meet, at a fair compensation, said compensation to be fixed by the Board of Directors.

9. Whenever it occurs that through lack of wind it will be impossible for the yachts to finish the race in the prescribed time, the Regatta Committee may declare the race finished when the yachts shall have sailed once over the course. Nothing shall, however, prevent the yachts from continuing on to finish, if, in their judgment, they can complete the course within the prescribed time. When the race is declared finished, after sailing once over the course, time shall determine from the moment the respective yachts finished the first half of the course.

10. The Regatta Committee shall have power to fill all temporary vacancies.

#### SAILING GROUNDS.

Sailing grounds must be selected from waters that will permit in all cases of a windward and leeward course, also a triangular course.

#### AMENDMENT TO THE CONSTITUTION.

No amendment or alteration of the Constitution shall be made except by a vote of three-fourths of the members present, and a resolution to that effect, setting forth the alteration proposed, shall have been before the Association for one previous meeting, and notice thereof given at such meeting by the chairman, and also notice given in the call for the meeting when such alteration shall be acted upon, that an alteration of the Constitution is on the table and will be taken up.



## BY-LAWS.

### MEETINGS.

There shall be an annual meeting of Directors held on the first Saturday of each December, and at other times to which it may be adjourned, at such place as may be decided upon at the previous meeting.

To hear the Secretary-Treasurer's report, to audit the same, and elect officers for the ensuing year.

Special meetings may be called by the Commodore, as provided by the Constitution.

The notice of special meetings shall state the object thereof, and at such meetings none but stated business shall be in order.

Directors may be represented at any meeting by proxy duly authorized in writing, but no Director shall give a proxy to any person who is not a member in good standing of his own Club.

### ORDER OF BUSINESS.

The Commodore (or in his absence the officer of highest rank present) shall take the chair, and call the meeting to order.

The Secretary-Treasurer shall call the roll. A quorum being present, the order of business shall be as follows:

1. Reading the minutes of the previous meeting, which shall stand approved if not corrected.
2. Report of the Secretary-Treasurer.
3. Reports of Committees.
4. Miscellaneous business.
5. Election of officers and members.
6. Adjournment.

### RULES OF ORDER.

Any Director wishing to speak, shall rise and address the chair. If two or more Directors shall claim the floor at the same time, the chair shall decide who is entitled to it.

No motion may be entertained by the chair until seconded; and, until decided, no other motion shall be in order, except for the previous question, to lay on the table, to amend, to recommit, or to adjourn.

All motions and resolutions must be reduced to writing if required by any Director present.

When a question is put, every Director present must vote, unless personally interested or excused by the chair. No Director may move the reconsideration of any vote, unless he voted with the majority which decided the question.

Any Director may appeal to the Association from the decision of the chair, and if seconded, the question shall be: "Shall the decision of the chair be sustained?"

No Director may speak more than twice upon the same question, without the permission of the meeting.

When the floor is not occupied a motion to adjourn is always in order, and is not debatable.

Any two Directors can call for the yeas and nays upon any debatable motion, and the Secretary - Treasurer shall call the names present and enroll the vote.

Any of the foregoing rules of order may be suspended at the regular or special meeting by a vote of two-thirds of the Directors present, but such suspension will terminate with the meeting.

Robert's Rules of Order shall be authority for the construction of the foregoing rules, and to decide disputed questions of order not herein provided.

### YACHTS ELIGIBLE TO RACE.

Each club must furnish the Secretary-Treasurer with a list of yachts, in good standing, giving full measurements of each (see sailing rules.)

Yachts not on these lists cannot enter Association races except on written order from the Secretary-treasurer and countersigned by the Commodore in charge.

A yacht as defined by this Association must

be a vessel of at least 16 ft. L. W. L., and must carry not less than 300 lbs. of ballast permanently stowed or have a beam of not less than one-fifth of her load-line length. She must have standing rigging, a fixed mast, and must be kept permanently on the water during the season.

#### DUES.

The annual dues shall be \$25.00 in advance, payable on the date of the annual meeting.

If any Club shall be in arrears to the Association, the Secretary-Treasurer shall make report thereof to the Board of Directors, and notify such delinquent Club in writing, that unless the same shall be paid within thirty days, their privileges as a member shall cease.

#### AMENDMENTS TO BY-LAWS.

These By-Laws may be amended at any regular or special meeting of the Association, by a vote of three-fourths of the Directors present.

## RACING RULES.

### I.—MANAGEMENT.

The Regatta Committee shall have full charge of each Regatta

All races, and all yachts sailing therein, shall be under the direction of the Regatta Committee of the Association or Club under whose auspices the races are being sailed. All matters shall be subject to their approval and control, and all doubts, questions and disputes which shall arise shall be subject to their decision. Their decision shall be based upon these rules as far as they apply, but as no rules can be devised capable of meeting every incident and accident of sailing, the Regatta Committee should keep in view the ordinary customs of the sea, and discourage all attempts to win a race by other means than fair sailing and superior skill and speed. The decision of the Regatta Committee shall be final, unless they think fit, on the application of the parties interested, or for other reasons, to refer the questions at issue for the decision of the Council of the Yacht Racing Union, whose decision shall be final. No member of the Regatta Committee or Council shall take part in the discussion or decision upon any disputed question in which he is interested.

### II.—APPLICATION.

1. The rules shall apply to all yachts, whether sailing in the same or different races.
2. Yachts shall be amenable to the rules from the time the preparatory signal is given until the finish of the race.

### III.—MEASUREMENT.

1. Yachts shall be rated by racing measurement

which shall be determined by adding together the load-waterline length, the beam, .75 of the girth, .5 of the square root of the sail area, and dividing the sum by 2.

Formula:

$$\frac{L. W. L. + B. + .75 G. + .5 \sqrt{\text{Sail Area}}}{2} = R. M.$$

2

2. The load-waterline length shall be the distance in a straight line between the points farthest forward and farthest aft, where the hull, exclusive of the rudder stock, is intersected by the surface of the water, when the yacht is afloat in racing trim in smooth water, with any person or persons who may be aboard when the measurement is being taken, stationed amidship.

If any part of the stem, stern post, or other part of the yacht below the load-waterline projects beyond the length thus measured, such projection shall be added to the measured length; and a form, resulting from the cutting away of the fair line of the stem, stern post, or the ridge of the counter, for the apparent purpose of shortening the load-waterline, shall be measured between fair lines.

The measurement for load water length and girth shall be made with the same number of persons on board as are allowed for crew in the yacht's class, whose average weight shall not be less than 150 pounds; or, at the option of the measurer, with a dead weight equivalent thereto.

The measurer, at the time of taking his measurements, shall affix a metal plate as a distinctive, permanent mark at each end of the load-waterline.

3. The beam shall be taken from outside to outside of the planking on the broadest part of the yacht, and no allowance should be made for wales, double planks or moulding of any kind.

To the girth of centerboard yachts must be added twice the distance between the lower side of the keel

to the center of the area of the centerboard when lowered to its fullest extent. Centerboards are measured as fixed keels:

First, when of metal, but this shall not apply to boats built previous to October 14, 1899, which have solid metal boards not exceeding in thickness the sizes prescribed in Stephen's Scantling Table.

Second, when weighted or ballasted more than necessary to overcome the flotation of an oak board of the same superficial area and thickness as the one being measured.

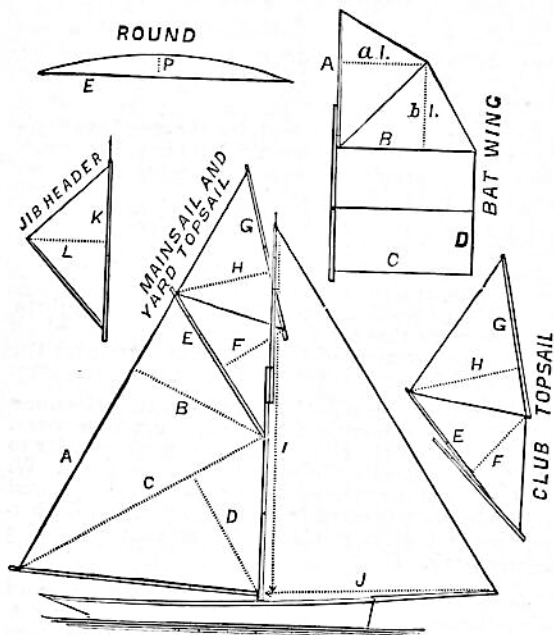
For the purpose of determining the weights of ballast necessary to overcome the flotation of such oak board, the specific gravity of oak is calculated at 53 pounds per cubic foot.

Measurers shall mark the points for measuring the girth as follows: By fixing three metal plates of suitable size on each side of the yacht not less than two inches, or more than six inches, above the L. W. L. level, and parallel thereto, and not less than three feet, or more than six feet, from end to end, and so that the center mark of the three coincides with the distance 0.6 from the fore edge of the bow marks.

The measurer shall also place a plate coinciding with this center mark under the rail or covering board, and another on the side of the keel perpendicular to the L. W. L. level. The distance between the L. W. L. level and the horizontal marks to be measured when the yacht is afloat in smooth water, and deducted from the girth as obtained from center mark to center mark.

Measurers may accept for the measurement of girth the designer's written certificate or drawing, certified to as being correct by designer and builder, but this shall not relieve the owner from fixing the marks heretofore described, or relieve him from the responsibility of the accuracy of the certificate and proper position of the marks. In the event of a measurement protest, the yacht must be measured as heretofore provided.

5. The sail area shall be ascertained as follows :



#### Mainsail.

*A*—Measured from top of boom at end to under side of gaff at end : any extension of gaff or boom to be considered part of gaff or boom, and to be extended when measured to its full limit.

*B*—Perpendicular to *A*, measured to under side of gaff close in to mast.

*C*—Measured from top of boom at end, or any extension thereof, when extended to its full limit to under side of gaff close in to mast.

*D*—Perpendicular to *C*, measured in to mast in a line with top of boom, or to tack cringle of mainsail if below top of boom.

#### Yard Topsail or Club Topsail.

*E*—Measured from upper side of gaff close in to mast to pin of sheave for topsail sheet, or to lacing-hole in jackyard.

*F*—Perpendicular to *E*, measured to lacing-hole in yard.

*G*—From lacing-hole to lacing-hole in yard.

*H*—Perpendicular to *G*, measured to pin of sheave for topsail sheet in gaff, or to lacing-hole in jackyard.

#### Jib Header.

*K*—Measured from top of gaff close in to mast to pin of halyard sheave in topmast.

*L*—Perpendicular to *K*, measured to pin of topsail sheet sheave in gaff, or to lacing-hole in jackyard.

#### Head Sails.

*I*—Measured from main boom goose-neck to shoulder of topmast, or in case where no sails are attached to topmast-stay, or pole-stay, the measurement shall be taken from main boom goose-neck to pin of highest sheave in or on topmast or pole, or to pin of sheave of any block secured to topmast or pole, and used in

either case for head sail or spinnaker. In the case of a schooner which has no fore-topmast, but has a main spinnaker, the perpendicular for the fore-triangle shall be measured from main boom goose-neck to shoulder of main topmast

*J*—Measured from fore side of mast to top of crane iron on bowsprit end, or where bowsprit is cut by line of topmast stay or pole stay; or, in cases where no sail or sails are attached to stay, the measurement shall be taken from the fore side of mast to pin of sheave for jib out haul.

In all cases if the distance from the center fore and aft line of the mast to the outer end of spinnaker boom, (when shipped in its place and square to the keel), exceeds the distance from the heel of the spinnaker boom, when shipped in its place, to the crane iron on the bowsprit end, (where cut by the line of topmast stay), or pin of sheave for jib out-haul, as the case may be, the excess shall be added to the base of the triangle formed by the head sails, and the area of the head sail shall be computed accordingly.

In case of a yacht having no head sail, but carrying a spinnaker, the area for head sail shall be computed from the length of spinnaker boom and the height from main boom goose-neck to shoulder of topmast, or highest pin in sheave of polemast, as provided for in this rule.

The length of head stick or head yard to spinnaker shall not exceed one twentieth the length of spinnaker boom. Foot yards not allowed on spinnakers.

In the case of a yacht carrying a square sail, or square topsail, or raffe (together or separately), the actual area of the same shall be computed, if such area exceeds the area of the fore triangle, such excess shall be added thereto.

#### Foresail of Schooner.

*A*—Measured from fore side of mainmast (in a line with main boom goose-neck) to under side of gaff, at end; any extension of gaff to be considered part of gaff, and to be extended when measured to its full limit

*B*--Perpendicular to *A*, measured to under side of gaff close in to mast.

*C*--Measured from fore side of mainmast (in a line with main boom goose neck) to gaff close in to mast.

*D*--Perpendicular to *C*, measured in to mast in a line with top of fore boom or tack cringle.

#### Area of Mainsail.

To find the area of the mainsail: Multiply *A* by *B* and *C* by *D*, and add the two products together and divide by 2

#### Area of Yard Topsail or Club Topsail

To find the area of yard topsail or club topsail: Multiply *E* by *F* and *G* by *H*, and add the two products together and divide by 2.

#### Area of Jib Header.

To find the area of Jib header: Multiply *K* by *L*, and divide the product by 2.

#### Area of Head Sails.

To find the area of head sails, jib topsail or spinnaker: Multiply *I* by *J* and divide by 2.

#### Area of Pole Mast Head Sails.

To find the area of head sail for pole mast: Multiply *I* by *J* and divide by 2.

#### Area of Bat Wing Sails.

To find the area of bat wing sail: Multiply *A* by *A* 1 and *B* by *B* 1, and add the two products together and divide by 2, and multiply *C* by *D* and add the product to the others

#### Area of Schooners' and Yawls' Sails.

The area of a schooner's sail or a yawl's sail would similarly be found. In the case of a yawl having a lug mizzen, the lacing holes in the yard would be taken as the upper boundaries.

## Area of Lug-Sails and Head-Sails.

In the case of a lug-sail, standing lug-sail, or balance lug-sail being carried, the actual area of the same shall be computed; and if head sail be also carried, the measurements for computing the area of the same shall be taken from fore side of mast, ect., in accordance with the method provided in the rule for head sails.

## Area of Round in Sail.

To compute the area bound by the round in the head of lug sail, or the foot of a loose footed main sail when extending below the boom (or leach, luff, ect., if extended by battens), multiply the base  $E$  by two-thirds of the perpendicular  $P$  (see diagram),

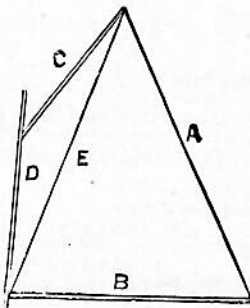
## Formula.

The following formula can be used at the option of the measurer:

To find the area of any triangle of which the three sides are given—

In a triangle having sides  $a, b$  and  $c$ : Let  $S$  = Semi-Perimeter, *i. e.*, one-half the sum of the three sides of  $\frac{a+b+c}{2}$ .

Then area of triangle =  $\sqrt{S(S-a)(S-b)(S-c)}$ .



## EXAMPLE:

To find area of a mainsail having the dimensions  $a, b, c, d$ , and diagonal  $e$

If  $a = 38, b = 29, c = 18, d = 20$ , and  $e = 37$ ,  
Then first in triangle  $a, b, e$ ,

$$S = \frac{a + b + e}{2} = \frac{38 + 29 + 37}{2} = 52$$

$\therefore$  Area of triangle  $a, b, e$ ,

$$\begin{aligned} &= \sqrt{S(S-a)(S-b)(S-e)} \\ &= \sqrt{52 \times 14 \times 23 \times 15} \\ &= \sqrt{251160} \\ &= 501.16 \end{aligned}$$

And 2nd in triangle  $c, d, e$ ,

$$S = \frac{c + d + e}{2} = \frac{18 + 20 + 37}{2} = 75$$

$\therefore$  Area of triangle  $c, d, e$ ,

$$\begin{aligned} &= \sqrt{\frac{75}{2} \left( \frac{75}{2} - 18 \right) \left( \frac{75}{2} - 20 \right) \left( \frac{75}{2} - 37 \right)} \\ &= \sqrt{\frac{75}{2} \times \frac{39}{2} \times \frac{35}{2} \times \frac{1}{2}} \\ &= \sqrt{\frac{102375}{16}} \\ &= \frac{319.96}{4} = 79.99 \end{aligned}$$

Therefore, area of mainsail—

$$= 501.16 + 79.99 = 581.15.$$

**Mode of Measuring.**

In cases of disputed measurements, or if the necessary measurements cannot be obtained from the sailmaker, the sails can be measured in the manner following: Take the length of boom from mast to end, and length of gaff from mast to end (any extension of gaff or boom to be considered part of gaff or boom, and to be extended when measured to its full limit), then hoist the sail with the tack fast, and set the luff and peak up taut, and let go the topping lifts, so that the weight of the boom comes on the leach of the sail. With a line and tape, measure the leach and luff and the diagonal C. For the head sail, measure the height i and the distance J, as provided for in the section dealing with head sail. For topsail, the sail would be hoisted and marked in a line with the gaff, then lowered and the other dimensions taken. From the measurements so taken a sail plan would be made and the areas calculated as described.

**Sails of Unusual Form.**

If the various methods of measuring sails, as herein shown, do not, in the opinion of the measurer, cover the case, he is to divide the sails into such triangles or figures as will get at accurate results, and, a sail plan showing the manner in which the yacht has been measured, giving the different measurements, and the points from which they have been taken, shall be furnished by the measurer to the owner of every yacht measured by him.

6. If a yacht, after having been officially measured, be increased in load-waterline length, beam, girth, or sail area, the yacht must be re-measured before starting the race.

**IV.—RESTRICTION ON CONSTRUCTION.**

The frame timbers, keels, planking, and other parts of all wooden yachts built after November 7th, 1896, or brought to the lakes after that date, shall be restricted to the minimum sizes fixed in Stephens' Scantling Table, contained herein.

**V.—CLASSIFICATION**

1. All yachts shall be classified by racing length, and shall be divided into classes as follows:

- |  |
|--|
| 1st Class, A—Yachts over 45 feet R. L.                   |
| 45-foot Class, B—Not over 45 feet and over 40 feet R. L. |
| 40-foot Class, C—Not over 40 and over 35 feet R. L.      |
| 35-foot Class, D—Not over 35 feet and over 30 feet R. L. |
| 30-foot Class E—Not over 30 feet and over 25 feet R. L.  |
| 25-foot Class, F—Not over 25 feet R. L.                  |
2. Each yacht shall be entitled to sail in her own class and no other.

**VI.—RESTRICTION OF DRAFT.**

The maximum draft of any yacht built after November 7th, 1896, or brought to the lakes after that date, when in racing trim, shall not exceed that specified for her class in the following table, exclusive of centerboard, if it be not a board weighted for ballast:

- |                             |
|-----------------------------|
| 1st Class—Unlimited draft.  |
| 45-foot Class—9 foot draft. |
| 40-foot Class—8 foot draft. |
| 35-foot Class—7 foot draft. |
| 30-foot Class—6 foot draft. |
| 25-foot Class—5 foot draft. |

**VII.—TIME ALLOWANCE.**

1. Time allowance shall only be allowed in the first-class, and shall be calculated on the racing length, according to the appended table; but in class racing the racing measurement of a yacht shall be assumed to be the maximum limit of her class.

**VIII.—ALLOWANCE FOR RIG.**

In races where yachts of different rigs sail together, schooners shall be rated for time allowance at 85 per cent of their R. L.; yawls at 93 per cent., and all other yachts at their actual R. L.

**IX.—OWNERSHIP.**

1. No person shall be the owner of more than one yacht entered for a race in the same class.

2. Each yacht entered for a race must be the bona fide property of the person or persons in whose name she is entered, who must be a member or members of a recognized yacht club belonging to one of the Clubs of the Association. A yacht chartered for the season shall be considered the property of the person or persons chartering it.

**X.—ENTRIES.**

1. All entries shall be in writing, and shall be signed by the owner or his representative, giving name of yacht, racing length and racing number, and must be lodged with the Regatta Committee not later than noon of the day before the race, exclusive of Sundays, unless otherwise ordered by the Committee.

2. The Regatta Committee may refuse to accept any entry made after the time of closing.

3. The same yachts shall not be entitled to enter for a race under different rigs.

4. The Regatta Committee may, if they consider it expedient, reject any entry.

**XI.—INSTRUCTIONS AND POSTPONEMENT.**

1. Each yacht entered for a race shall, at the time of entry, or as soon after as possible, be supplied with written or printed instructions as to the conditions of the race, the course to be sailed, marks, etc.

2. The Regatta Committee shall have power to change the courses, or amend the instructions, on or before the day of the race, provided notice of such change is given to each yacht in writing before the preparatory signal is given.

3. The Regatta Committee shall also have power to postpone any race should such a course appear to them desirable. No race, however, in which there is a time limit, shall be postponed merely because of lack of wind if any of the competing yachts shall have sailed round the course once within the allotted time; but should such

race not be finished, the prizes shall be awarded in the order in which the last completed round shall have been finished. The Regatta Committee may, in their discretion, suspend this rule in the case of special races.

**XII.—SAILS.**

There shall be no restriction as to sails, or the manner of setting or working them, but no yacht shall carry any sail for which she has not been measured.

**XIII.—FITTINGS AND BALLAST.**

1. Floors shall be kept down, and bulkheads and doors left standing. All yachts shall keep their fixtures on board and in their proper places. All yachts must carry one serviceable anchor and cable on board, and a life buoy on deck.

2. Trimming by dead weight shall not be allowed after the preparatory signal. Ballast shall not be taken in or discharged after noon of the day preceding the race. A race postponed or re-sailed shall, so far as regards this rule, be considered a new race.

**XIV.—CREWS.**

1. The total number of persons on board a yacht shall not exceed the allowance in the following schedule:

First Class—One person to every five feet of racing length or fraction thereof.

45-foot Class—Nine persons.

40-foot Class—Eight persons.

35-foot Class—Seven persons.

30-foot Class—Five persons.

25-foot Class—Four persons.

In the First Class and 45-foot Class, one guest or owner may be carried, and a cook and waiter, if regularly employed during the season. They shall not, however, assist in working the yacht.

2. No person shall board or leave a yacht after the starting signal has been given, except in case of accident or injury to a person on board.

3. In all races each yacht of 45 feet racing length, or under, must be steered by a Corinthian,



who must be a member of a recognized yacht club belonging to one of the Clubs of the Association, and must be manned by Corinthians, except that any such yacht may carry and use not more than the number of professionals regularly employed on the yacht, and not more than two in any case.

#### XV.—TIME OF MAKING RACES.

There shall be no limit to the time in which a race is to be sailed, except when it is otherwise specified in the instructions.

#### XVI.—RE-SEAILED RACES.

No new entries shall be received for a race re-sailed, but a yacht duly entered shall be entitled to start though she originally failed to start, or having started was withdrawn. No yacht disqualified in a race shall be entitled to start in case the race shall be re-sailed.

#### XVII.—NUMBERS.

Each yacht shall display a number, which will be assigned to her, on both sides of the main-sail, above the reef bands, at an equal distance from the luff and leach.

#### XVIII.—LIGHTS AND FOG SIGNALS.

The Government regulations regarding lights and fog signals shall be observed.

#### XIX.—PROPULSION.

1. No means of propulsion other than sails shall be employed.
2. Manual power only shall be used for working a yacht.

#### XX.—STARTING AND FINISHING.

1. All starts shall be flying, and shall be one-gun starts.
2. Half an hour before the time of starting a gun shall be fired and a flag hoisted as a signal for the yachts to approach the starting line. Ten minutes before the start a preparatory gun shall be fired. At the expiration of ten minutes exactly the flag shall be hauled down and a third gun fired as a signal to start. Should the gun miss fire the lowering of the flag shall be the signal to start.

3. In the event of different classes starting in succession, not more than ten minutes apart, the starting gun of each class shall be the preparatory gun for the next class to start. Each yacht shall be timed from the starting signal of her class.

4. If any yacht, or any part of her hull or spars, be on or across the line before the signal to start is given she must return and re-cross the line. A yacht so returning, or one working into position from the wrong side of the line after the signal to start has been given, must keep clear of all competing yachts.

5. A yacht shall be considered to have finished a race when, on completing the course, any part of her hull or spars shall be on or across the line.

#### XXI.—MARKS.

1. A mark is any vessel, boat, buoy, float or other object used to indicate the course.
2. Should any mark be absent or moved from its proper position during the race, the Regatta Committee shall, if possible, replace it or substitute the Committee boat with a plain red flag hoisted, and call attention by gun or whistle. Failing thus to re-establish the mark, the race may be ordered to be re-sailed or not, at the option of the Regatta Committee.

#### XXII.—ANCHORING.

A yacht may anchor, but must weigh her anchor again and not slip. A yacht shall not warp or kedge or make fast to a buoy, pier, vessel or other object, except as provided under these rules.

#### XXIII.—RUNNING AGROUND AND FOULING.

A yacht running aground or fouling a buoy, pier, vessel or other object may use her anchors, warps, boats, etc., to get clear, but may not receive any assistance except from the crew of the vessel fouled. Any anchor, warp or boat so used must be taken on board again before continuing the race.

## XXIV.—ACCIDENTS.

Every yacht shall render all possible assistance to any vessel or person in peril, and if, in the judgment of the Regatta Committee, she shall thereby have impaired her chance of winning, they shall order the race to be resailed between such yacht and the winner in her class.

## XXV.—SOUNDING.

No other means of sounding than the hand lead and line shall be employed.

## XXVI.—RIGHT OF WAY.

When one yacht is approaching another so as to involve a risk of fouling, one of them shall keep clear of the other as follows:

1. *On different points of sailing*

A yacht free shall keep clear of one close hauled.

2. *On the same point of sailing with the wind on opposite sides.*

When both yachts are close hauled, or both free, or both have the wind aft and on opposite sides, the yacht with the wind on the port side shall keep clear.

3. *On the same point of sailing with the wind on the same side.*

When both yachts are free, or have the wind aft and on the same side, the yacht to windward shall keep clear.

4. *Wind aft.*

A yacht with the wind aft is deemed to have the wind on the side opposite to that on which she is carrying her main boom. A yacht with the wind aft shall keep clear of a yacht on any other point of sailing.

5. *Overtaking.*

An overtaking yacht shall in every case, as long

as an overlap exists keep clear of the yacht which is being overtaken.

6. *Definition of overlap.*

An overlap is established when an overtaking yacht has no longer a free choice on which side she will pass, and continues to exist as long as the leeward yacht by luffing, or the weather yacht by bearing away, is in danger of fouling.

7. *Altering course.*

When of two yachts one is obliged to keep clear the other shall not alter her course so as to involve the risk of fouling.

8. *Luffing.*

A yacht may luff as she pleases in order to prevent another from passing her to windward, provided she begins to luff before an overlap is established.

9. *Bearing away.*

A yacht shall not bear away out of her course so as to hinder another in passing to leeward.

10. *Rights on new courses.*

A yacht shall not be entitled to her rights on a new course until she has filled away.

11. *Converging close-hauled.*

When two yachts, both close-hauled, on the same tack are converging by reason of the leeward yacht holding a better wind, and neither can claim the rights of a yacht being overtaken, then the yacht to windward shall keep clear.

12. *Passing and rounding marks.*

If an overlap exists between two yachts when both of them without tacking are about to pass a mark on the required side, then the outside yacht must give the inside yacht room to pass clear of the mark. A yacht shall not, however, be justified in attempting to establish an overlap, and thus force a passage between another yacht

and the mark, after the latter has altered her helm for the purpose of rounding.

13. *Obstruction to sea room*

If an overlap exists between two yachts when both of them without tacking are about to pass a mark on the required side, then the outside yacht must give the inside yacht room to pass clear of the mark. A yacht shall not, however, be justified in attempting to establish an overlap, and thus force a passage between another yacht and the mark, after the latter has altered her helm for the purpose of rounding.

When a yacht is approaching a shore, shoal, rock, vessel, or other dangerous obstruction and cannot go clear by altering her course without fouling another yacht, then the latter shall, on being hailed by the former, at once give room; and in case one yacht is forced to tack or bear away in order to give room, the other shall also tack or bear away as the case may be, at as nearly the same time as possible without danger of fouling; but should such obstruction be a designated mark of the course, a yacht shall not force another to tack under the provisions of this rule.

**XXVII -- PROTESTS.**

1. A yacht having cause during a race to protest against another yacht for a violation of these rules may display a flag in the rigging, and keep such flag flying till answered from the Regatta Committee's boat by the answering pennant.

2. Protests must be filed in writing with the Regatta Committee within twelve hours after the finish of the race, and must be signed by the owner or his representative.

3. If through protest the measurement of a yacht be called in question the Regatta Committee shall direct the Measurer to re-measure such yacht, and the result as reported by him shall be final.

A charge of ten cents per foot R. L. for measuring shall be collected from the owner, if the measurement be found wrong to a greater extent

than one per cent of the R. L., and from the person protesting, if the measurement be found within that limit.

**XXVIII.--DISQUALIFICATION.**

1. Every yacht must go fairly around the course, and must not touch any mark, but shall not be disqualified if wrongfully compelled to do so by another yacht.

2. A yacht shall not, after crossing the finishing line, interfere with any yachts still in the race so as to affect the times of such yachts at the finish. A yacht so doing may be disqualified.

3. A yacht in any way causing a mark boat to shift her position to avoid being fouled by such yacht may be disqualified.

4. A yacht which in consequence of her neglect or violation of any of these rules shall foul another yacht or compel another yacht to foul a mark or obstruction or run aground may be disqualified, and shall pay all damages, and a yacht which shall wrongfully cause another to luff or bear away in order to avoid fouling, or shall without cause compel another yacht to give room or tack as otherwise provided in these rules, or shall herself fail to tack or bear away as required, or shall in any way infringe or fail to comply with any of these rules, may be disqualified.

5. The Regatta Committee may, without protest, disqualify any yacht should it come to their knowledge that she has committed a breach of these rules.

6. A yacht whose measurement has not been filed with the Regatta Committee prior to the start of the race may be disqualified and forfeit all claim to a prize, and such yacht may, at the discretion of the Regatta Committee, be debarred from entering any other race of the Association or Club until her certificate of measurement has been filed with the Regatta Committee.

7. If a yacht which has been officially measured makes any alteration causing an increase of her racing length, and starts in a race without

having been remeasured or notifying the Regatta Committee in writing previous to the start that such alteration has been made, she must be disqualified.

8. If a winning yacht be disqualified the next yachts in order shall be awarded the prizes.

#### XIX.--AWARD OF PRIZES.

1. When a prize has been offered for competition any yacht duly entered may claim to sail over the course, and shall be entitled to a prize of not less than one-half the value of the first prize, subject, however, to Rule XI.

2. Before receiving a prize the owner of a winning yacht, or in his absence the person representing him on the yacht, shall sign a declaration that the rules governing the race have been complied with.

### DEFINITIONS.

#### I. -CORINTHIANISM.

Corinthianism in yachting is that attribute which represents participation for sport as distinct from gain, and which also involves the acquirement of nautical experience through the love of sport rather than through necessity or the hope of gain. It is consistent with the motive higher than mercenary found in the ranks of officers of the navy and naval architects, notwithstanding the remuneration they receive, while it is inconsistent with the trade of the fisherman, even though one following such a trade has never been a paid sailor. In this respect the following general definition is given:

No person who follows the sea as a means of livelihood, or who has accepted remuneration for services rendered in handling or serving on a yacht, or who is a professional in any other sport, shall be considered a Corinthian yachtsman.

#### II.--YACHTS.

A yacht shall be defined as a vessel of not less than 16 feet L. W. L., and must carry not less than 300 pounds of ballast permanently stowed under the platform or in lockers, or have a beam of not less than one-third of her L. W. L. length. She must have standing rigging, or a fixed mast, and must be kept permanently on the water during the season, and must not be engaged in trade. Yachts built after November 7th, 1896, or brought to the lakes after that date, shall comply with the restrictions on draft and size of timbers, keels, planking and other parts required by the rules.

### TABLE OF TIME ALLOWANCE.

The allowances in this table are based upon the rule accepted by naval architects, that within economic limits opportunities for speed vary in different vessels as the square roots of their respective lengths. As strong winds are required, however, to give to larger vessels the full extent of their advantage in size, and as such a scale of allowance is not adapted to ordinary summer racing, 50 per cent only of the allowance due to the rule is given in the table, and may be stated thus:

$$\text{Time equals } .5 \left\{ \frac{3600}{\sqrt{1}} - \frac{3600}{\sqrt{L}} \right\} ; 3,600 \text{ represent-}$$

ing the number of seconds in an hour, 1 the smaller yacht and L the larger one. Practically the formula

$$\text{is } \frac{1800}{\sqrt{1}} - \frac{1800}{\sqrt{L}} ; 5\text{-10ths of } 3,600 \text{ being } 1,800.$$

#### Rules for using the Table.

The figures to be found in the table show in seconds and hundredths of a second what a yacht of the measurement opposite to these figures would be allowed by one of 130 feet in sailing one nautical mile. To find what a yacht of any

measurement should receive from a larger one, take the figures to be found opposite to the smaller measurement; from these subtract the figures opposite to the measurement of the larger yacht, and the difference multiplied by the number of nautical miles in the course will give the amount of the allowance due to the smaller vessel, in seconds and hundredths of a second.

## EXAMPLE;

What time will a yacht of 39 feet racing length have to allow to one of 36.7 feet racing length in a course of 20 nautical miles?  
 The time opposite 37 feet is . . . . . 139.26  
 The time opposite 39 feet is . . . . . 130.37

.6	284.05
.7	282.70
.8	281.36
.9	280.02
8.89	
20	

Allowance . . . . . 177.80  
 Or 2 minutes 57 4-5 seconds.

For part of a foot use the nearest fraction that can be expressed in hundredths, and take its proportion of the difference shown in the table between the time stated opposite to the figure to which the fraction is attached and the next higher number.

What time will a yacht of 30 feet have to allow one of 25.86 feet on a course of 30 nautical miles?  
 The time opposite 25.8 feet is . . . 196.51  
 The time opposite 25.9 feet is . . . 195.83    195.83  
 Difference . . . . . .68  
 4-10ths of difference . . . . . .272    272

Time for 25.86 feet for one nautical mile . 196.102  
 Time for 30 feet for one nautical mile. . . 170.77

Number of seconds yacht 30 feet allows yacht 25.86 feet for one mile. . . 25.332

.6	218.79
.7	217.74
.8	216.70
.9	215.66
759.96	

Or 12 minutes 39 96-100ths seconds.

## TIME ALLOWANCE FOR ONE NAUTICAL MILE

In Seconds and Decimals.

Measure- ment.	Allow- ance.	Measure- ment.	Allow- ance.	Measure- ment.	Allow- ance.	Measure- ment.	Allow- ance.				
16.	.1	292.11	20.	.1	244.62	24.	.1	209.56	28.	.1	182.30
	.2	290.76		.2	243.62		.2	208.80		.2	181.69
	.3	289.42		.3	242.63		.3	208.04		.3	180.49
	.4	288.08		.4	241.64		.4	207.28		.4	179.89
	.5	286.73		.5	240.66		.5	206.53		.5	179.30
	.6	285.39		.6	239.69		.6	205.79		.6	178.71
	.7	284.05		.7	238.72		.7	205.05		.7	178.12
	.8	282.70		.8	237.76		.8	204.32		.8	177.54
	.9	281.36		.9	236.81		.9	203.59		.9	176.96
	.9	280.02		.9	235.86		.9	202.86		.9	176.38
17.	.1	278.68	21.	.1	234.92	25.	.1	202.14	29.	.1	175.81
	.2	277.44		.2	233.99		.2	201.42		.2	175.24
	.3	276.21		.3	233.07		.3	200.70		.3	174.67
	.4	274.97		.4	232.14		.4	199.99		.4	174.10
	.5	273.74		.5	231.23		.5	199.29		.5	173.54
	.6	272.51		.6	230.33		.6	198.59		.6	172.98
	.7	271.27		.7	229.43		.7	197.89		.7	172.42
	.8	270.04		.8	228.54		.8	197.10		.8	171.87
	.9	268.80		.9	227.65		.9	196.51		.9	171.32
	.9	267.57		.9	226.77		.9	195.83		.9	170.77
18.	.1	266.34	22.	.1	225.89	26.	.1	195.15	30.	.1	170.22
	.2	265.21		.2	225.02		.2	194.47		.2	169.68
	.3	264.08		.3	224.16		.3	193.72		.3	169.14
	.4	262.95		.4	223.30		.4	193.02		.4	168.60
	.5	261.82		.5	222.45		.5	192.45		.5	168.06
	.6	260.69		.6	221.60		.6	191.79		.6	167.53
	.7	259.56		.7	220.76		.7	191.14		.7	167.00
	.8	258.43		.8	219.93		.8	190.48		.8	166.48
	.9	257.30		.9	219.10		.9	189.83		.9	165.96
	.9	256.17		.9	218.28		.9	189.18		.9	165.44
19.	.1	255.05	23.	.1	217.46	27.	.1	188.54	31.	.1	165.44
	.2	254.00		.2	216.65		.2	187.90		.2	164.92
	.3	252.96		.3	215.84		.3	187.26		.3	164.40
	.4	251.92		.4	215.04		.4	186.63		.4	163.88
	.5	250.87		.5	214.24		.5	186.00		.5	163.36
	.6	249.83		.6	213.45		.6	185.37		.6	162.85
	.7	248.79		.7	212.66		.7	184.75		.7	162.34
	.8	247.74		.8	211.88		.8	184.13		.8	161.83
	.9	246.70		.9	211.10		.9	183.52		.9	161.33
	.9	245.66		.9	210.33		.9	182.91		.9	160.83

## TIME ALLOWANCE—CONTINUED.

Measure- ment.	Allow- ance.	Measure- ment.	Allow- ance.	Measure- ment.	Allow- ance.	Measure- ment.	Allow- ance.
32.	160.34	36.	142.14	40.	126.75	44.	113.50
.1	159.84	.1	141.72	.1	126.39	.1	113.19
.2	159.34	.2	141.30	.2	126.03	.2	112.88
.3	158.85	.3	140.89	.3	125.67	.3	112.57
.4	158.36	.4	140.48	.4	125.32	.4	112.27
.5	157.87	.5	140.07	.5	124.97	.5	111.96
.6	157.38	.6	139.66	.6	124.62	.6	111.66
.7	156.90	.7	139.26	.7	124.28	.7	111.36
.8	156.43	.8	138.86	.8	123.93	.8	111.06
.9	155.96	.9	138.46	.9	123.59	.9	110.76
33.	155.49	37.	138.06	41.	123.25	45.	110.47
.1	155.01	.1	137.66	.1	122.90	.1	110.17
.2	154.53	.2	137.26	.2	122.56	.2	109.87
.3	154.06	.3	136.86	.3	122.22	.3	109.57
.4	153.59	.4	136.46	.4	121.88	.4	109.27
.5	153.12	.5	136.07	.5	121.54	.5	108.97
.6	152.66	.6	135.68	.6	121.20	.6	108.68
.7	152.20	.7	135.29	.7	120.87	.7	108.39
.8	151.74	.8	134.90	.8	120.54	.8	108.10
.9	151.29	.9	134.52	.9	120.21	.9	107.82
34.	150.84	38.	134.14	42.	119.89	46.	107.54
.1	150.38	.1	133.75	.1	119.55	.1	107.25
.2	149.93	.2	133.37	.2	119.22	.2	106.96
.3	149.48	.3	132.99	.3	118.89	.3	106.67
.4	149.03	.4	132.61	.4	118.56	.4	106.38
.5	148.58	.5	132.23	.5	118.23	.5	106.09
.6	148.14	.6	131.85	.6	117.91	.6	105.80
.7	147.70	.7	131.47	.7	117.59	.7	105.52
.8	147.26	.8	131.10	.8	117.27	.8	105.24
.9	146.83	.9	130.73	.9	116.95	.9	104.97
35.	146.40	39.	130.37	43.	116.64	47.	104.70
.1	145.96	.1	130.00	.1	116.32	.1	104.42
.2	145.53	.2	129.63	.2	116.00	.2	104.14
.3	145.10	.3	129.26	.3	115.68	.3	103.86
.4	144.67	.4	128.89	.4	115.36	.4	103.58
.5	144.24	.5	128.53	.5	115.04	.5	103.31
.6	143.81	.6	128.17	.6	114.73	.6	103.04
.7	143.39	.7	127.81	.7	114.42	.7	102.77
.8	142.97	.8	127.45	.8	114.11	.8	102.49
.9	142.55	.9	127.10	.9	113.81	.9	102.22

## TIME ALLOWANCE—CONTINUED.

Measure- ment.	Allow- ance.	Measure- ment.	Allow- ance.	Measure- ment.	Allow- ance.	Measure- ment.	Allow- ance.
48.	101.95	52.	91.76	56.	82.67	60.	74.52
.1	101.67	.1	91.51	.1	82.45	.1	74.32
.2	101.40	.2	91.27	.2	82.23	.2	74.12
.3	101.13	.3	91.03	.3	82.02	.3	73.93
.4	100.86	.4	90.79	.4	81.81	.4	73.74
.5	100.59	.5	90.55	.5	81.59	.5	73.55
.6	100.32	.6	90.31	.6	81.38	.6	73.36
.7	100.06	.7	90.08	.7	81.17	.7	73.17
.8	99.81	.8	89.85	.8	80.96	.8	72.98
.9	99.55	.9	89.62	.9	80.76	.9	72.79
49.	99.29	53.	89.39	57.	80.56	61.	72.61
.1	99.02	.1	89.15	.1	80.34	.1	72.42
.2	98.75	.2	88.91	.2	80.13	.2	72.23
.3	98.49	.3	88.68	.3	79.92	.3	72.04
.4	98.23	.4	88.45	.4	79.71	.4	71.85
.5	97.97	.5	88.22	.5	79.50	.5	71.66
.6	97.71	.6	87.99	.6	79.30	.6	71.47
.7	97.46	.7	87.76	.7	79.10	.7	71.28
.8	97.20	.8	87.53	.8	78.90	.8	71.10
.9	96.95	.9	87.31	.9	78.70	.9	70.92
50.	96.70	54.	87.09	58.	78.50	62.	70.74
.1	96.44	.1	86.86	.1	78.29	.1	70.55
.2	96.18	.2	86.63	.2	78.08	.2	70.36
.3	95.93	.3	86.40	.3	77.87	.3	70.17
.4	95.68	.4	86.18	.4	77.67	.4	69.99
.5	95.42	.5	85.95	.5	77.47	.5	69.81
.6	95.17	.6	85.73	.6	77.27	.6	69.63
.7	94.92	.7	85.51	.7	77.07	.7	69.45
.8	94.67	.8	85.29	.8	76.87	.8	69.27
.9	94.43	.9	85.07	.9	76.68	.9	69.09
51.	94.19	55.	84.85	59.	76.49	63.	68.92
.1	93.94	.1	84.63	.1	76.28	.1	68.73
.2	93.69	.2	84.41	.2	76.08	.2	68.55
.3	93.44	.3	84.19	.3	75.88	.3	68.37
.4	93.20	.4	83.96	.4	75.68	.4	68.19
.5	92.95	.5	83.75	.5	75.48	.5	68.01
.6	92.71	.6	83.53	.6	75.28	.6	67.84
.7	92.47	.7	83.31	.7	75.09	.7	67.66
.8	92.23	.8	83.09	.8	74.90	.8	67.48
.9	92.00	.9	82.88	.9	74.71	.9	67.31

## TIME ALLOWANCE—CONTINUED.

Measure- ment	Allow- ance.	Measure- ment.	Allow- ance.	Measure- ment.	Allow- ance.	Measure- ment.	Allow- ance.
64.	67.14	68.	60.42	72.	54.27	76.	48.61
.1	66.96	.1	60.25	.1	54.12	.1	48.47
.2	66.78	.2	60.09	.2	53.97	.2	48.33
.3	66.60	.3	59.93	.3	53.82	.3	48.19
.4	66.43	.4	59.77	.4	53.67	.4	48.06
.5	66.26	.5	59.61	.5	53.53	.5	47.93
.6	66.08	.6	59.45	.6	53.38	.6	47.80
.7	65.91	.7	59.29	.7	53.23	.7	47.66
.8	65.74	.8	59.14	.8	53.09	.8	47.53
.9	65.57	.9	58.99	.9	52.95	.9	47.40
65.	65.40	69.	58.84	73.	52.81	77.	47.27
.1	65.22	.1	58.68	.1	52.66	.1	47.13
.2	65.05	.2	58.52	.2	52.51	.2	46.99
.3	64.88	.3	58.36	.3	52.37	.3	46.86
.4	64.71	.4	58.20	.4	52.23	.4	46.73
.5	64.54	.5	58.04	.5	52.09	.5	46.60
.6	64.37	.6	57.89	.6	51.95	.6	46.47
.7	64.20	.7	57.74	.7	51.81	.7	46.34
.8	64.03	.8	57.59	.8	51.67	.8	46.21
.9	63.87	.9	57.44	.9	51.53	.9	46.08
66.	63.71	70.	57.29	74.	51.39	78.	45.95
.1	63.54	.1	57.13	.1	51.24	.1	45.81
.2	63.37	.2	56.97	.2	51.09	.2	45.68
.3	63.20	.3	56.81	.3	50.95	.3	45.55
.4	63.03	.4	56.66	.4	50.81	.4	45.42
.5	62.86	.5	56.51	.5	50.67	.5	45.29
.6	62.69	.6	56.36	.6	50.53	.6	45.16
.7	62.53	.7	56.21	.7	50.39	.7	45.03
.8	62.37	.8	56.06	.8	50.25	.8	44.90
.9	62.21	.9	55.91	.9	50.12	.9	44.78
67.	62.05	71.	55.76	75.	49.99	79.	44.66
.1	61.88	.1	55.60	.1	49.85	.1	44.53
.2	61.71	.2	55.45	.2	49.71	.2	44.40
.3	61.54	.3	55.30	.3	49.57	.3	44.27
.4	61.38	.4	55.15	.4	49.43	.4	44.14
.5	61.22	.5	55.00	.5	49.29	.5	44.01
.6	61.06	.6	54.85	.6	49.15	.6	43.88
.7	60.90	.7	54.70	.7	49.01	.7	43.75
.8	60.74	.8	54.55	.8	48.87	.8	43.63
.9	60.58	.9	54.41	.9	48.74	.9	43.51

## TIME ALLOWANCE—CONTINUED.

Measure- ment.	Allow- ance.	Measure- ment.	Allow- ance.	Measure- ment.	Allow- ance.	Measure- ment.	Allow- ance.
80.	43.39	81.	42.14	82.	40.91	92.	29.79
.1	43.26	.1	42.01	.1	39.79	.1	29.77
.2	43.13	.2	41.88	.2	38.52	.2	27.79
.3	43.00	.3	41.76	.3	37.36	.3	26.80
.4	42.87	.4	41.63	.4	36.22	.4	25.84
.5	42.75	.5	41.51	.5	35.11	.5	24.80
.6	42.62	.6	41.39	.6	34.01	.6	23.96
.7	42.50	.7	41.27	.7	32.92	.7	23.04
.8	42.38	.8	41.15	.8	31.86	.8	22.12
.9	42.26	.9	41.03	.9	30.82	.9	21.24
83.	38.52	84.	37.36	85.	36.22	86.	35.11
87.	34.01	88.	32.92	89.	31.86	90.	30.82
91.	29.79	92.	29.77	93.	27.79	94.	26.80
95.	25.84	96.	24.80	97.	23.96	98.	23.04
99.	22.12	100.	21.24				

## YACHTING ETIQUETTE.

1. Guns should be fired ONLY as herein directed, and each salute answered.
2. Whether in squadron, or otherwise, salutes should not be fired before "colors," after sunset, nor during meal hours, except upon special order or on national holidays.
3. Yachts not carrying guns, or in the failure of a gun to discharge at the proper time, the ensign should be dipped once in answer to a salute.
4. On joining other yachts at anchor a salute should be given at the moment of letting go anchor, and should be responded to by the senior officer then present by dipping the ensign.
5. When two yachts under way meet, the junior officer should salute first.
6. A flag-officer should be saluted always and wherever met.
7. A flag-officer's pennant should be flying ONLY when he is on board the yacht. In port on a cruise, a Flag-officer's yacht should show a light at the ensign halliards between sunset and sunrise while the Flag-officer is on board; for Commodore a blue light; for Vice Commodore a red light, and for Rear Commodore a white light.
8. On joining fleet during a cruise a yacht should salute the flag-ship, and the flag-ship alone should respond. The Captain then should, as soon as possible, report in person on board the flag-ship.
9. No yacht should pass from a fleet during a cruise without first receiving permission from the Commodore, and on parting company should salute the flag-ship, and the flag-ship alone should respond.

10. On joining fleet at a rendezvous or under way or in port during a cruise, a yacht flying a flag-officer's pennant should be saluted by all the fleet; and when all have saluted one salute should be given in response.

If two or more flag-officers join fleet at the same time, the senior alone should be saluted.

11. When a Flag-officer joins fleet between "colors" and sunset at rendezvous or in port during a cruise, a gun should be fired at the same time his pennant is displayed; and if he joins fleet between sunset and "colors," a gun should be fired when his colors are displayed next morning.

12. On parting from a fleet during a cruise, a yacht flying a Flag-officer's pennant should salute the fleet and each yacht should answer.

13. On arriving at anchorage during a cruise, if between "colors" and sunset, each yacht should fire a gun on letting go anchor, but no answer need be made by any.

14. The morning gun at 8 o'clock and the evening gun at sunset should be fired ONLY by the flag-ship, and the colors should be promptly hauled down by all the fleet.

15. When the fleet is disbanded, each yacht, on departing should salute the flag-ship, and the flag-ship alone should respond with colors.

16. When a flag-officer gives notice of intention to visit a yacht, and not otherwise, the visit shall be deemed official and one gun shall be fired at the time he comes on board.

17. The Sailing Master of a yacht should under no circumstances be designated as Captain.

18. Salutes, by touching cap, should be required of Sailing Master and crew on addressing the Captain, or a guest on board, and such salutes should always be returned.

19. The starboard gangway should be used only by the Captain and his guests.



20. The order of entering and leaving boats is, juniors enter first and leave last.

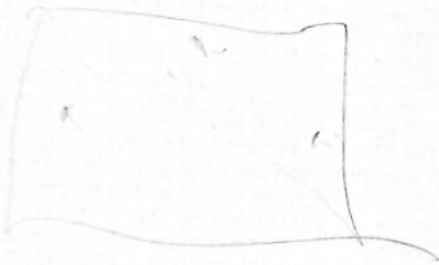
21. Captains should fly their private signal only when on board; at all other times the Club signals, except, of course, between sunset and "colors."

22. Except for purpose of signaling, more than one flag should never be displayed from any mast head or peak.

23. When two or more yachts are sailing in company, or at anchor in sight of each other, they will take their time for hoisting their colors in the morning and hauling them down at sunset, from the senior officer in command.

24. No guns should be fired or setting or hauling down at sunset except by the yacht giving the time.

25. No salute should be fired on Sundays, or before sunrise or after sundown.



## INSIGNIA OF RANK.

### FOR COMMODORE.

Cap. On the front the gold, block letters, I-L. Y. A. with a five-pointed star, embroidered in silver, on each side of and one above the letters.

Coat. Double breasted, square cut of navy-blue cloth with gilt yacht buttons. Three stripes one-half inch apart of black braid three-eighths of an inch wide on sleeves, the lower stripe to be two and one-half inches from edge of cuff. The top stripe to form an oval loop on upper side of sleeves. A five-pointed star embroidered in silver on each side of and one above the loop.

### FOR VICE-COMMODORE.

Cap. Same as Commodore, omitting the star above letters.

Coat. Same as Commodore, omitting the star above loop.

### FOR REAR-COMMODORE.

Cap. Same as Commodore, omitting the stars on each side of letters.

Coat. Same as Commodore, omitting the stars on each side of loop.

### FLEET CAPTAIN, SECRETARY-TREASURER, FLEET SURGEON AND MEASURER.

Cap. Same as Commodore, omitting stars and substituting the initial letters of their office, embroidered in silver above the letters I-L. Y. A.

Coat. Same as Commodore, omitting the three stars.

### FLAGS.

The Commodore shall fly an oblong blue flag, on which is a foul anchor and three white stars

The Vice-Commodore shall fly a red oblong flag on which is a foul anchor and two white stars.

The Rear-Commodore shall fly a white oblong flag, on which is a foul anchor and one blue star.

The Fleet Captain shall fly a pointed white flag on which are the letters F. C. in red.

These flags shall be furnished by the Association and shall be returned by the officers upon the expiration of their term of office.

## Inter-Lake Yachting Association.

### SIGNAL CODE.

The signal Code of the Association comprises seven flags, viz.: H., J., L., R., S., V., and the answering pennant.

All yachts of this Association should be provided with the flags above designated.

In signaling hoist the flags where they will be best seen.

The answering pennant must be shown as soon as the signal is seen and hoisted.

Yachts will commence to execute an order when the signal order is hauled down.

Flags and Pennants for this Code to correspond with those of U. S. Navy.

### CODE.

#### PREPARATORY

H Yes.

J No.

L Repair on board all hands.

R Boats recall.

S Prepare to get under way.

V Get under way.

H J Captains come aboard.

H L All hands come aboard.

#### SAILING ORDERS.

H R Anchor without regard to order of sailing.

H S Anchor as near the flag-ship as possible.

H V Bear away at right angles to present course.

J H Bear up at right angles to present course.

J L Flag-ship will lead, other vessels will follow.

J R Bear away, in succession, in wake of leading vessel.

J S Bear up, in succession, in wake of leading vessel.

J V Tack, in succession, in wake of leading vessel.

L H Tack all together.

L J Wear altogether.

L R Wear in succession, in wake of leading vessel.

L S Haul by the wind on starboard tack.

L V Haul by the wind on port tack.

R H Leading vessel shorten sail.

R J Leading vessel lay to.

R L Close more the order of sailing.

R S Fleet shorten sail.

R V Fleet lay to.

S H Disregard all particular order of sailing.

S J Sail direct for (name of place to be designated in next signal.)

S L Race postponed. Look for further orders.

S V Sail in course to be designated by next signal.

V H Cannot understand your signals.

V R Race will come off at \_\_\_\_\_

#### ABOARD.

H J L Will you come aboard?

H J R Do you wish us to come aboard?

#### ACCIDENT.

H J S Have you met with an accident?

H J V We have met with an accident.

H L J There was an accident, but not to us.

H L R The accident is serious.

H L S The accident is not serious.

#### ANCHOR.

H L V Where shall we anchor?

H R J Do you wish to anchor before dark?

H R L We wish to anchor before dark.

H R S Anchor near us.

H R V Is the anchorage good?

H S J The anchorage is bad; do not come to.

H S L The anchorage is very good; well sheltered.

H S R The anchorage is open, but good holding ground.

#### ASHORE.

H S V Are you going ashore?

H V J We are going ashore.

H V L Will you go ashore in our boat?

H V R There are letters for you ashore.  
 H V S There are some friends of yours ashore.

## ASSISTANCE.

J H L Are you in need of assistance?  
 J H R We are in need of assistance.

## BUOY-BEACON

J H S Leave the buoy (or beacon) to starboard.  
 J H V Leave the buoy (or beacon) to port.

## COMMUNICATION.

J L H Come nearer; we have important communication.

## COURSE.

J L R Are we on a safe course?  
 J L S What is the proper course?  
 J L V Keep your present course.  
 J R H North.  
 J R L Northeast.  
 J R S East.  
 J R V Southeast.  
 J S H South.  
 J S L Southwest.  
 J S R West.  
 J S V Northwest.

## BOAT.

J V H We have no boat.  
 J V L Can you send us a boat?

## DANGER.

J V R You are standing into danger.  
 J V S You are in dangerous position.

## ENSIGN.

L H J Show your ensign.

## HARBOR.

L H R What harbor are you from?  
 L H S To what harbor are you bound?  
 L H V What harbor will you make tonight?  
 L J H What is the nearest good harbor?

## LANDING.

L J R Where is the best landing?

## LEAD.

L J S Keep your lead going.

## ROCKS.

L J V There are dangerous rocks; look out.  
 L R H Rocks are covered with water.  
 L R J If you sight rocks signal us.  
 L R S The rocks are in sight.

## SHORE.

L R V Keep in near the shore.  
 L S H Keep clear of the shore.

## SHOAL.

L S J There is shoal water ahead.  
 L S R What depth of water is there?  
 L S V There is over a fathom of water.  
 L V H There is over five feet of water.  
 L V J There is over four feet of water.

## WEATHER.

L V R Weather looks bad; you better make harbor.

## NAMES OF PLACES.

R V L Amherstburg.  
 R V S Ballast Island.  
 R H J Bar Point.  
 R H L Bay Point or North Cape.  
 R H S Black River.  
 R H V Bois Blanc Island.  
 R J H Catawba Island.  
 R J S Cedar Point, Maumee Bay.  
 R J V Cedar Point, Sandusky Bay.  
 R L H Cleveland.  
 R L J Detroit.  
 R J L Dunkirk.  
 R L S Erie.  
 R L V East Sister.  
 R S H Fighting Island.  
 R S J Gard's Island.  
 R S L Gibraltar.  
 R S V Grosse Isle.  
 R V H Green Point.  
 R V J Grassy Point.

R V L Huron.  
 S H L Ironville.  
 R V S Hen and Chickens.  
 S H R Johnson's Island.  
 S V H Jamestown.  
 S J H Kelley's Island.  
 S J L Lakeside.  
 S J R Locust Point.  
 S J V Middle Island.  
 S L H Middle Bass Island.  
 S L J Middle Sister Island.  
 S L R Monroe.  
 S L V Moores Point.  
 S R H Mouse Island.  
 S R J Marblehead Light.  
 S R L Manhattan.  
 S R V North Bass.  
 S V H Ottawa.  
 S V J Edgewater.  
 S V L Put-in Bay.  
 S V R Point au Pelee.  
 V H S Presque Isle.  
 V H L Port Clinton.  
 V H R Point Mouillee.  
 V H S Rondeau Harbor.  
 V J H Rattlesnake Island.  
 V J L Rocky River.  
 V J R Raisin Point.  
 V J S Scott's Point.  
 V L H Sandusky.  
 V L J South Bass.  
 V L R Swan Creek.  
 V L S Stoney Point.  
 V S L Toledo.  
 V R H Trenton.  
 V R J Turtle Light.  
 V R L West Sister.  
 V R S Wheeling Bridge.  
 V S H Ward's Canal.  
 V S J West Harbor.  
 V S R Wyandotte.

## MISCELLANEOUS.

H J L R Ashtabula River.  
 H J R S Buffalo.  
 H J L S Belle Isle.  
 H J S R Conneaut.  
 H J V R Canada.  
 H L J R Erie.  
 H L R S Gibraltar Light.  
 H L V R Grand River (Ohio).  
 H R J S Inner Bay (Long Point Island).  
 H R L S Long Point Island.  
 H R V S Port Burwell.  
 H S J R Port Colborne.  
 H S L R Port Dover.  
 H S L V Port Huron.  
 H S R V Port Maitland.  
 H S V R Port Stanley.  
 H S V L St. Clair Flats.  
 H V R S Vermillion River.  
 H V R L Kingston.  
 H V R J Montreal.  
 H V S L Toronto.

TABLE OF SCANTLING FOR YACHTS OF THE GREAT LAKES, PREPARED FOR THE YACHT RACING UNION OF THE GREAT LAKES BY W. P. STEPHENS, 1897.

CLASS RACING LENGTH.	First Class.	45 Feet.	40 Feet.	35 Feet.	30 Feet.	25 Feet.
A—Average length and sail	36	43	44	44	44	44
B—Stem, sided at head	5½	4½	4½	4½	4½	4½
C—Keel, sided at tuck	6	5½	5	4½	4½	4½
C—Keel, minimum thickness	100	75	60	50	40	30
C—Keel, sectional area	7½	6¾	6	5½	5	4½
D—Frames, sectional area, heads	6¾	6	5½	5	4½	4
D—Frames, sectional area, bilge-heads	6¾	6	5½	5	4½	4
D—Frames, sectional area, heads	15	14	13	12	11½	11
E—Floors, wood, sectional area	15	14	13	12	11½	11
E—Floors, wood, sectional area, equivalent, steel	15	14	13	12	11½	11
F—Shelf or clamp, sectional area, spacing, L	2x2x¼	2x2x¼	2x2x¼	2x2x¼	2x2x¼	2x2x¼
F—Shelf or clamp, sectional area, middle	24	24	22	20	18	18
G—Bulge stringer, sectional area, ends	16	12	8½	7	5	5
G—Bulge stringer, sectional area, middle	13	9	6	5	4	4
H—Deck beams, main, sectional area, auxiliary	10	8	6½	4	3½	3
H—Deck beams, main, sectional area, auxiliary	10	8	7	6	5	5
H—Deck beams, main, sectional area, auxiliary	6	5	4½	4	3	3
H—Deck beams, main, sectional area, auxiliary	6	5	4½	4	3	3
I—Planking, to finish full, spacing	15	13	12	11	10	9
J—Deck to finish full, hood-ends, above L, W, L	1½	1½	1½	1½	1½	1½
K—Keel bolts, spaced 12in	1½	1½	1½	1½	1½	1½
L—Metal centerboard, thickness	¾	¾	¾	¾	¾	¾

All dimensions in inches.

GENERAL SPECIFICATIONS AND EXPLANATION OF TABLE.

Those portions in italics are compulsory; the others are only suggested.

THE sizes in the accompanying table are based upon the assumption that the construction, as a whole, is planned by a competent naval architect, with the usual complement of minor members not specifically called for in the table; that the yacht is built under cover; and that the materials and workmanship are what is commonly called "first class"—namely, all wood, sound, well seasoned, and free from loose knots, shakes and sap, all knees and crooks being cut with the grain; all metal work properly wrought and neatly finished; all parts carefully fitted, with adjoining surfaces in actual contact throughout the full area; and all fastenings carefully selected with regard to their relative strength and the sizes and material of the parts they are intended to unite, and that they are properly located and driven.

A—Stem, Oak.—The minimum siding (thickness) measured at the rabbet at highest point on stemhead, no decrease of siding allowed.

Apron—In some cases an apron is necessary inside of stem, with breasthook, and in the larger classes with knightheads.

B—Stempost, Oak—Minimum siding at tuck (the crossing of the rabbet). The siding may diminish from tuck to heel. The rudder stock, if of wood, to be equal in diameter to the siding of post.

C—Keel Oak or Southern Pine.—Minimum depth allowed for middle. With the usual iron or lead keel and good floor construction, there is no necessity for great depth of main (wood) keel to secure vertical strength. The depth called for in the table is intended to secure sufficient wood outside the rabbet for the proper caulking of the garboard seam, for the depth of rabbet, and for additional wood inside up to the bearding line, as well as for scarphs. The minimum of sectional area (breadth multiplied by depth in the middle of keel) may be made up, if desired, by a deeper keel. The breadth of keel will taper from

point of greatest section to siding of stem and stern-post.

**Keelson.**—In keel yachts of moderate depth a keelson is not absolutely necessary, and the required strength may sometimes be obtained to better advantage by the floor construction alone. A keelson may be worked to advantage over the throats of the floors in some cases, the centerline bolts of metal keel passing through it. In centerboard yachts, especially in the absence of a deep metal outside keel, side keelsons should be worked over the heels of floors, or the bedpieces of the trunk should be of ample scantling and worked well fore and aft of the slot, to serve as keelsons. No absolute sizes of keelson are laid down.

**D—Frames, Oak or Elm.**—The many different methods of framing now in use, and the possibility of new methods in the future, make it impossible to prescribe exact dimensions or spacing. Both sizes and spacing necessarily differ with the various methods of all sawn frames, in futtocks and tops, doubled; of single sawn frames, from knees, in single lengths; of all bent frames of uniform size; and of combinations of sawn and bent frames.

*The sizes laid down in the table show the minimum sectional area of frames (the siding multiplied by the moulding) at three points—the heel of frame where it is boxed into the keel, the middle of frame about the flat of the floor and turn of bilge, and the head, at planksheer. The sectional area is that of a single frame for a uniform spacing of one foot in each class. This required area may be made up of smaller frames spaced closer together, or larger frames further apart; or of combinations of large and small frames with appropriate spacings. This minimum sectional area shall apply to a space of at least two-thirds of the L. W. L. length in the center of the vessel; forward and aft of this, the sectional area may be reduced 20 per cent. Two adjoining frames abreast each mast, and one at each runnerplate should be increased in size in proportion as they are cut by the chainplate fastenings.*

Where bent frames are used in combination with

sawn, the bent frames may be of uniform scantling from end to end; *but the sawn frames must be large enough to make up the required average sectional area at the heels where they are cut by the fastenings of floors.*

*Spacing of Frames.*—The maximum spacing of frames, as given in the table, is based not on the size of frames, this being variable, but on the thickness of planking allowed for the class, being the greatest spacing that will insure a tight seam with the usual caulking for the minimum thickness of planking allowed.

**E—Floors.**—The many varieties of floor construction make it difficult to establish any standard, but there should be at least six strong floors in the center of the vessel in way of the metal keel, and two at each mast step. The table gives the minimum sectional area over centerline of keel, of wood floor knees, and the equivalent sizes of steel angles, with approximate spacing. The arms of the main floor should run up to a length at least equal to the spacing given in the table, to allow space for fastening through heels of frames. In yachts of S section with all bent frames, the arms of floors should run up at least to the height of the waterline. Provided that the main floors are of ample strength, the floors on the smaller frames in the middle of the vessel and on all frames in the ends may be of flat iron or straight-grained plank. All floors should be thoroughly bolted to the keel, stem and horn timbers. It is not essential that the main keel bolts should pass through the floors, as the large size of the holes weakens the knees unnecessarily. The keel bolts may set up on top of the wood keel, in which case the floors should be very thoroughly fastened by smaller bolts to the wood keel, or a keelson may be worked over the throats of the floors and the keel bolts may set up on it.

**F—Shelf or Clamp.**—The minimum sectional area given for the middle shall cover a length of at least one half of the shelf (or clamp) and in the middle, a taper being allowed to the size given at each end. The ends of deck beams may be jogged into top of shelf a distance not exceeding one-third of their own depth.

*If a beam clamp is used, fitted close up to the plank-sheer, the beams being thus jogged in for their full depth, the sectional area shall be increased in proportion.*

**G—Bilge Stringer.**—*The minimum sectional area at middle shall cover at least one-half the full length of bilge stringer, with taper allowed at the ends. At least one bilge stringer must be run on each side, at about the lower part of turn of bilge, and two are recommended in any case, the sectional area of each being at least one-half of that of the single stringer. In yachts whose extreme beam exceeds twice the greatest depth from underside of deck to upper side of keel, two such stringers on each side should always be fitted.*

**H—Deck Beams**—*The minimum sectional area of deck beams shall cover at least the middle third of the beam, allowing a taper, in the moulding, to each end. There must be one main beam at the bits, two at each mast (partner beams), one at fore-end of cabin trunk, one at astereud, two at each skylight, hatch and companion in flush-decked vessels, and one at transom. The auxiliary beams and the half-beams abreast of house, skylights, etc., may be of the smaller areas given for each. The beams may be spaced at will, provided the maximum distance between centers does not exceed that given in the table, which is based upon the thickness of deck planking. The beams should be jogged into the shelf or clamp a distance equal to one-third of the moulded depth of beam at ends.*

**I—Planking.**—*The dimensions given in the table are the minimum thicknesses allowed after final planing, over a distance in the middle of the vessel equal to at least one half of the over-all length. It is not compulsory that the garboards be of greater thickness than the rest of the planking, but this is sometimes desirable, especially in the larger yachts.*

The rabbet from the waterline upward on the stem, and along the horn timbers, may be cut to the depths given in the table, the hood ends of the planks being slightly tapered to this reduced depth.

It is recommended that wherever practicable, the

planking shall be in single lengths, without butts, and that where butts are unavoidable they should be made, not on the frames, but on butt-blocks between the frames. Butts in adjoining strakes should be at least 8 ft. apart, and butts in the same space should be separated by at least three intervening strakes. The planking should be worked in narrow widths, especially in the topsides.

**J—Decking.**—*The thickness given for the deck plank applies also to the plank-sheer (covering board), and the partner planks. The ends of the deck plank should be well supported, and in no case should they be wrought to a shim edge, which will crush down in caulking.*

**K—Keel Bolts**—*The sizes given are the minimum diameters for the main (center line) keel bolts when spaced 12 in. apart. The sizes and spacing may be varied as long as the equivalent strength is maintained. These sizes are sufficient for the average metal keel, of about 50 per cent. of the total displacement, but if the keel be deep and narrow it is recommended that the side bolts, of smaller size, driven diagonally from each side in alternation, be used in addition in the spaces between the main bolts. Where considerably less than 50 per cent. of the total displacement is carried in the metal keel, all bolts may be reduced in proportion. For yachts to be used only in fresh (lake) water, steel bolts may be used, without galvanizing, both with lead and iron keels.*

It is recommended that the outside metal keel, whether of lead or iron, be cast before the wood keel is worked out; the contraction of the iron or lead is more or less an unknown quantity, and the keel, when finally cast, may not be of the exact dimensions intended and may not fit the wood keel as worked from the plans.

**L—Metal Centerboards.**—*Solid plate centerboards not exceeding the thicknesses given in the table shall be allowed. In built up metal boards and wooden boards weighted with metal, the total weight shall not exceed that of a solid steel plate of the same superficial area and of the thickness allowed by the table.*

*Weighted wooden boards exceeding the weight necessary to overcome the flatation of an oak board of like size (figuring oak at 53 pounds to the cubic foot) shall be measured as fixed keels.*

General Details.—It is recommended that diagonal straps of steel be worked across the deck frame in way of masts and runners, being scored into the beams, and that similar straps be worked across the main frames, two at the main chainplates on each side and one at the runner plate. The deck frame should be specially strengthened about the bits and masts, and ample provision should be made for the pull of the halyards on the bits, blocks and hooks around the mast. For this purpose bolts may be run from deck to keel, or iron braces may be fitted below deck, well bolted to the mast. At least three hanging knees should be worked on each side, and in the larger yachts there should be hanging knees on the main beams at bits, partners, middle and after end of house and transom. Lodging knees should also be worked about the partners and at either end of house.

The shelf or clamp may be reinforced by fore and aft pieces abreast of the channels, worked inside the shelf and up under the deck beams and covering at least six frame spaces. Similar pieces may also be worked lower down, to take the lower bolts of the main chainplates.

Draw plan for  
measuring yacht  
& let Fred copy a  
number of them  
July 13-1901