THE B.S.R.A. METHODICAL SERIES—AN OVERALL PRESENTATION

[GE]OMETRY OF FORMS AND VARIATION OF RESISTANCE WITH BLOCK COEFFICIENT AND LONGITUDINAL CENTRE OF BUOYANCY

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Summary

A number of papers giving geometrical particulars and experimental results for particular groups of B.S.R.A. Methodical Series forms have been presented to The Institution from time to time. This paper presents a series of charts from which may be obtained the offsets, hydrostatic particulars, and cross-faired resistance for a Methodical Series form with any required block coefficient and longitudinal centre of buoyancy within the limits of the Series. It is hoped to present charts covering cases where the proportions differ from those of the methodical series parent forms and corresponding propulsion data in subsequent papers.

The cross-faired resistance is presented in terms of Ⓒ for 400-ft. ships, on the basis of the R. E. Froude friction coefficients. Curves are provided which enable the corresponding values based on the 1957 I.T.T.C. Model–Ship Correlation line to be obtained.

A worked example illustrating the uses of the various charts is given in an Appendix.

Introduction

[Th]e B.S.R.A. Methodical Series grew out of three independent [series] begun by the Shipbuilding Conference towards the end of [the Se]cond World War. In these series, the effects of change in [bilge] radius and in longitudinal position of centre of buoyancy [were] being investigated on fast, intermediate, and slow single-[screw] cargo vessel forms, with block coefficients 0·65, 0·70, and [0·75] respectively. The forms of all three series had the same [length], breadth, and draught; bow and stern profiles; and [midsh]ip section, but the parent forms were each designed quite [separ]ately and, apart from the common features mentioned, [were] not related in any way.

[Aft]er the formation of the British Shipbuilding Research [Associ]ation, the control of the work on the three series was [transf]erred to the new Association, and the scope of the work [was g]reatly extended until today there is a large continuous [Meth]odical Series covering the whole range of dimensions, block [coeffic]ient and longitudinal position of centre of buoyancy of [single-]screw ocean-going ships met in the British mercantile [marin]e, as well as a number of smaller independent series [cover]ing changes in other parameters.

[The] present paper describes the geometry of the forms of the [Meth]odical Series, and presents the cross-faired results of investi[gation]s into the effect on resistance of changes in block coefficient [and lo]ngitudinal centre of buoyancy. Subsequent papers will [presen]t the cross-faired results of investigations into the effect [of cha]nging proportions on resistance, and of all the changes [mentio]ned on propulsion. From the curves given, a Methodical [Series] form may be derived with the dimensions, block coefficient [and lo]ngitudinal position of centre of buoyancy of any design [under] consideration within the limits of the Series, together with [its hyd]rostatics and its resistance curves.

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Geometry of Forms

Dimensions

All the data in this paper are for a single-screw ship 400 ft. between perpendiculars, with 55 ft. moulded breadth, and a moulded draught in the design load condition of 26 ft.

The length will be recognized as the widely used standard comparison length, which, while rather short for many modern ocean-going ships, has the simple and easily manipulated square root 20.

The breadth corresponds closely to the average of single-screw ships built both during the Second World War and since. The design load draught was originally selected to correspond to the average draught of wartime vessels sailing as closed shelter deckers, and is rather higher than average post-war practice, which gives a corresponding figure of about 24 ft.[1] In particular, the draught is much deeper than the corresponding value for large modern tankers, but in order to have as few variables as possible in the Series, it was decided to maintain the same draught throughout the first investigations, followed by additional investigations into the effect of change in breadth and draught.

In addition to the design load draught, two other standard draughts were chosen: an intermediate draught of 21 ft. moulded and a ballast draught of 16 ft. moulded. Besides the level trim associated with all three draughts, the ballast draught was also associated with a standard trim of 8 ft. (8/400 = 2 per cent *LBP*) by the stern.

Parent Forms

As mentioned above, the three original Shipbuilding Conference series had three unrelated parent forms, with block coefficient 0·65, 0·70, and 0·75 respectively.

Early experiments on these series coincided with now well-known investigations into the effect of laminar flow on models, and it was soon found that inconsistent results were being obtained with the 0·70 block coefficient form, while the resistance characteristics of the 0·75 block coefficient form were not considered satisfactory. Some experiments with these forms had already been finished and were accordingly published,[2] but new forms which gave more satisfactory results were designed and adopted for subsequent work.

Later still, as the fullness of large tankers increased, it was decided to run a series of models with block coefficient 0·80. The parent form was selected from a number with the required principal characteristics run as a design study.[3]

The new forms were given the same length, breadth, and draught; stern profile; and midship section as the earlier series, but the stem profiles of the forms with block coefficients 0·75 and 0·80 were altered to suit the more modern character of the lines.

Cross-plotting

In order to provide the cross-curves required for a continuous methodical series, the geometric offsets and parameters of four forms, one from each of the four independent series with block coefficients 0·65, 0·70, 0·75, and 0·80, have been cross-plotted on a base of block coefficient *at the design load draught.*

Relation between LCB and C_b

The cross-curves correspond to a unique longitudinal position of the centre of buoyancy at each block coefficient. The relation between *LCB* and C_b in the load condition is:—

LCB per cent *LBP* from amidships $= 20\ (C_b - 0\cdot675)$.
(*LCB* forward of amidships being considered positive.)

This line will be recognized as that chosen for the D.T.M.B. Series 57[4] and 60,[5] and also that used in an earlier presentation of some B.S.R.A. Series results.[2] The line is not dissimilar to various curvilinear relations between *LCB* and C_b, but has the advantage of greater geometric simplicity.

Basic Forms used

The models of each block coefficient actually used as basic forms in the cross-plotting are listed in Table I.

TABLE I

C_b	*LCB*	Model No.	Remarks
0·65	½ per cent A	N.P.L. 3747	—
0·70	½ per cent F	St. A. XY	Derived from N.P.L. 3066B by swinging the area curve.
0·75	1½ per cent F	N.P.L. 3155	—
0·80	2½ per cent F	N.P.L. 3861	Derived from St. A. ZT by swinging the area curve.

Body plans of these four forms are shown in Figs. 1–4.

Cross-Curves of Offsets

Figs. 8–29 show cross-curves of the waterline offsets on a base of block coefficient in the load condition from 0·625–0·825. The offsets are presented in terms of the ratio (waterline offset/full half breadth) for each of a series of waterlines at equal intervals. The heights of the waterlines above the base line are given in feet for the standard design load draught of 26 ft.

Stem Profiles

Fig. 30 shows cross-curves of the stem-profile offsets for each waterline, on a base of block coefficient. The offsets are presented in terms of per cent *LBP* forward of Station 9, which is 10 per cent *LBP* abaft the forward perpendicular.

Stern Profile

The stern profile is the same throughout and is shown in Fig. 31.

Midship Section

The midship section is the same throughout, with bilge radius 6 ft. and rise of floor 6in., and is shown in Fig. 32.

Parallel Middle Body

To assist in the drawing of new lines plans, curves are shown in Fig. 33 of the total percentage of parallel middle body and its extent forward and aft of amidships, on a base of block coefficient.

Sectional Area Curve

Figs. 34–37 show cross-curves of sectional area curve ordinates on a base of block coefficient in the load condition. The ordinates are presented in terms of the ratio (sectional area/midship area) for each of the sections for which offsets are given and for each of the standard draughts.

Hydrostatic Particulars

Figs. 38–46 show cross-curves of the following hydrostatic particulars:—

Fig. 38. Moulded displacement, tons salt water.
Fig. 39. Longitudinal position of centre of buoyancy, per cent *LBP* from amidships.
Fig. 39. Longitudinal position of centre of flotation, per cent *LBP* from amidships.
Fig. 40. Longitudinal position of centre of buoyancy of fore and after bodies, per cent *LBP* from amidships.
Fig. 41. Block coefficient, C_b, using *LBP*.
Fig. 42. Prismatic coefficient, C_p, using *LBP*.
Fig. 43. Prismatic coefficient of forward and after bodies using ½ *LBP*.
Fig. 44. Water plane area coefficient, C_w, using wetted length.
Fig. 44. Transverse inertia coefficient, C_{IT}, using wetted length.
Fig. 45. Wetted surface constant, Ⓢ $= S/\nabla^{2/3}$.
Fig. 45. Length-displacement constant, Ⓜ $= L/\nabla^{1/3}$.
Fig. 46. Wetted length.
Fig. 46. Height of centroid of sectional area curve, from ... of ordinate at Station 5, which is amidships ... *LBP*.

Curves are given for each of the standard draughts, on a base of block coefficient *in the load condition.*

The values of midship section coefficients, C_m, are:—

Draught	26 ft.	21 ft.	16 ft.
C_m	0·980	0·976	0·968

Change of LCB

As explained above, a unique *LCB* position is associated with each value of block coefficient on which the cross-curves are based. If the derived form is required to have an *LCB* position different from the standard, it is necessary to move the transverse sections by the standard method of swinging the sectional area curve, which has been fully described by Lackenby.[6]

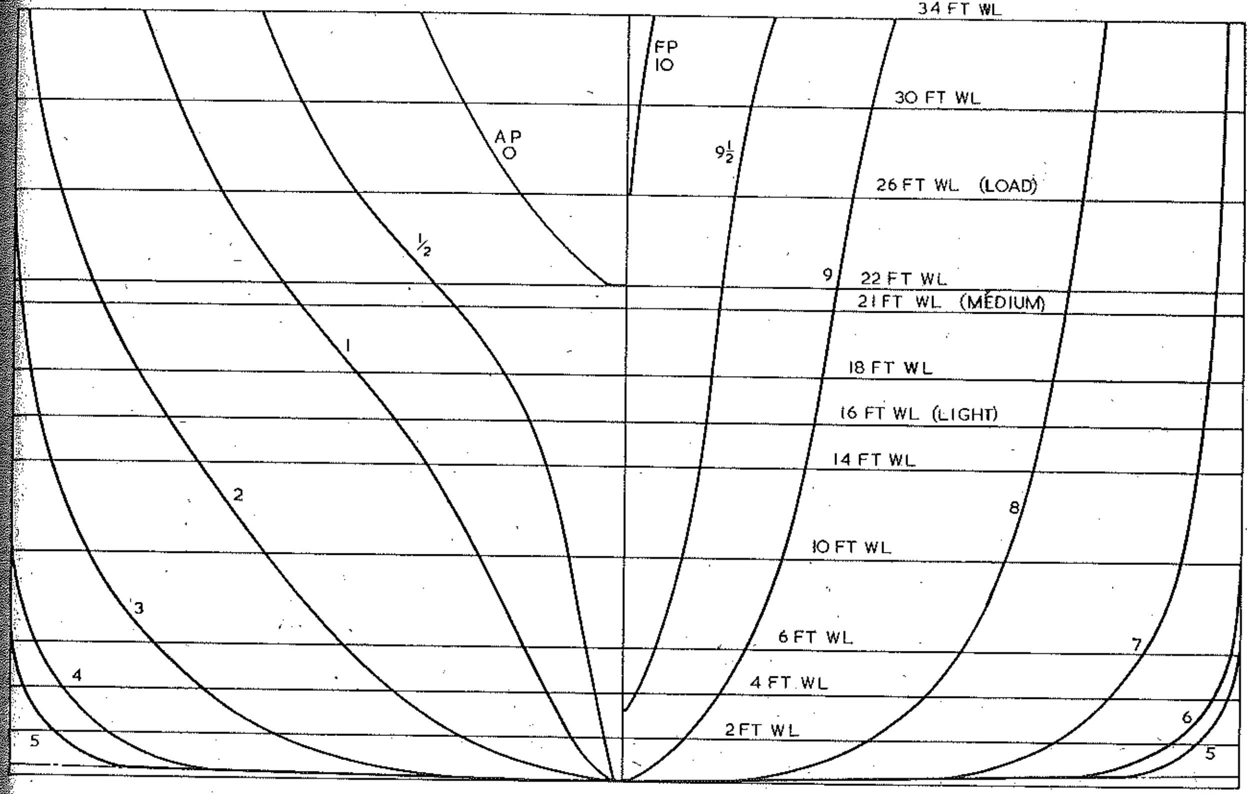


FIG. 1.—BODY PLAN FOR 0·65 BLOCK COEFFICIENT BASIC FORM. *LCB* ½ PER CENT AFT

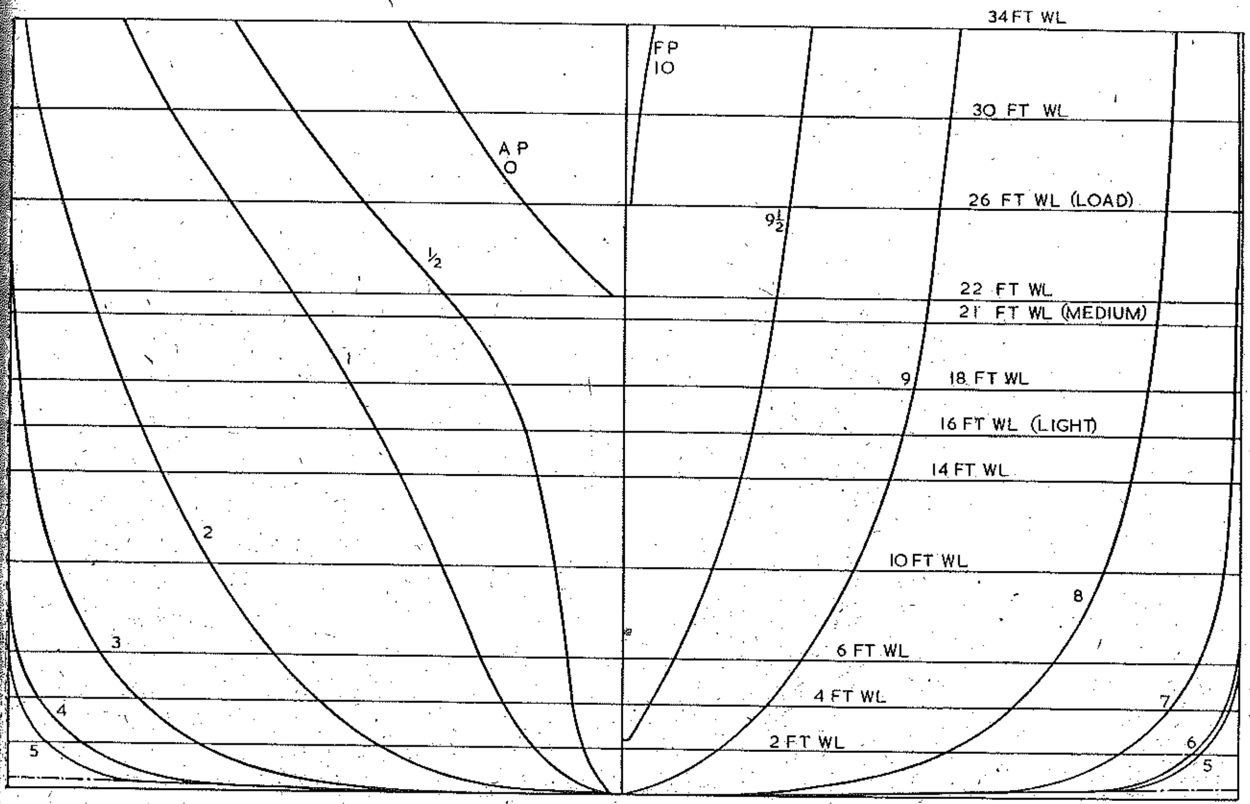


FIG. 2.—BODY PLAN FOR 0·70 BLOCK COEFFICIENT BASIC FORM. *LCB* ½ PER CENT FORWARD

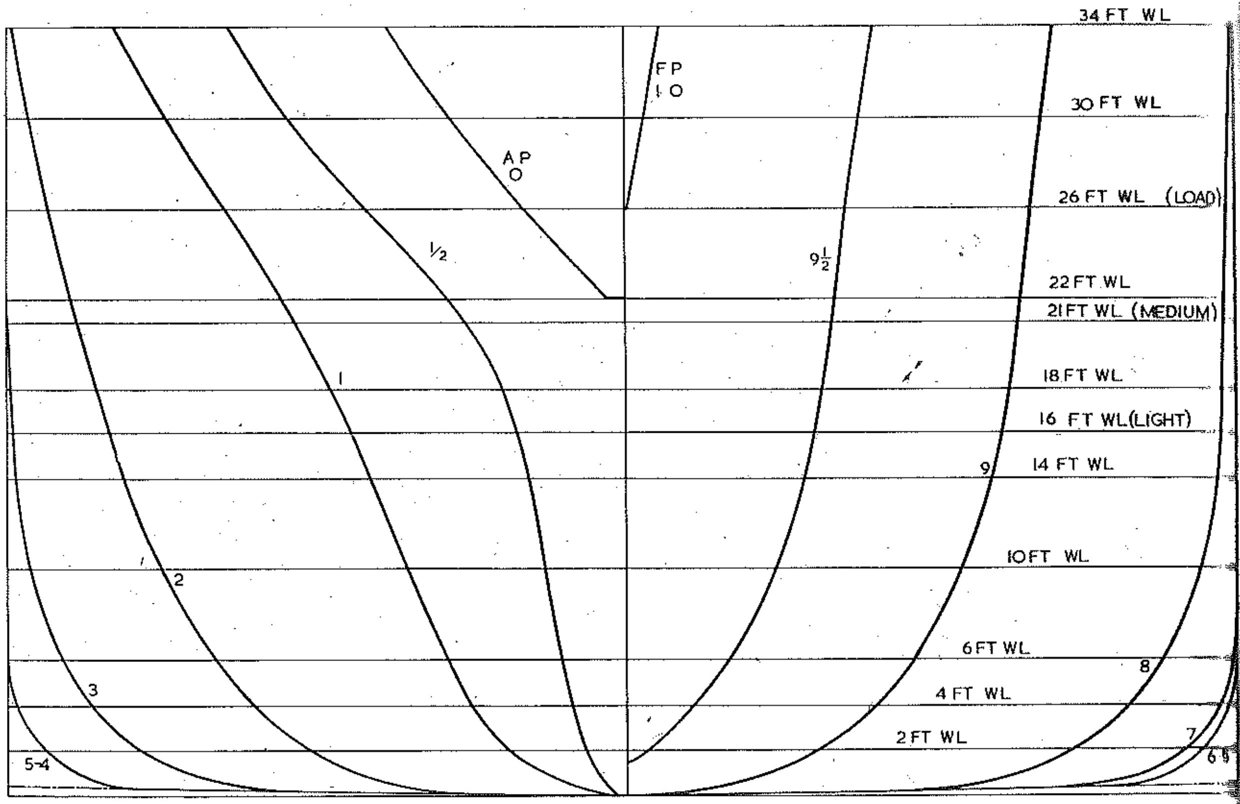


FIG. 3.—BODY PLAN FOR 0·75 BLOCK COEFFICIENT BASIC FORM. *LCB* 1½ PER CENT FORWARD

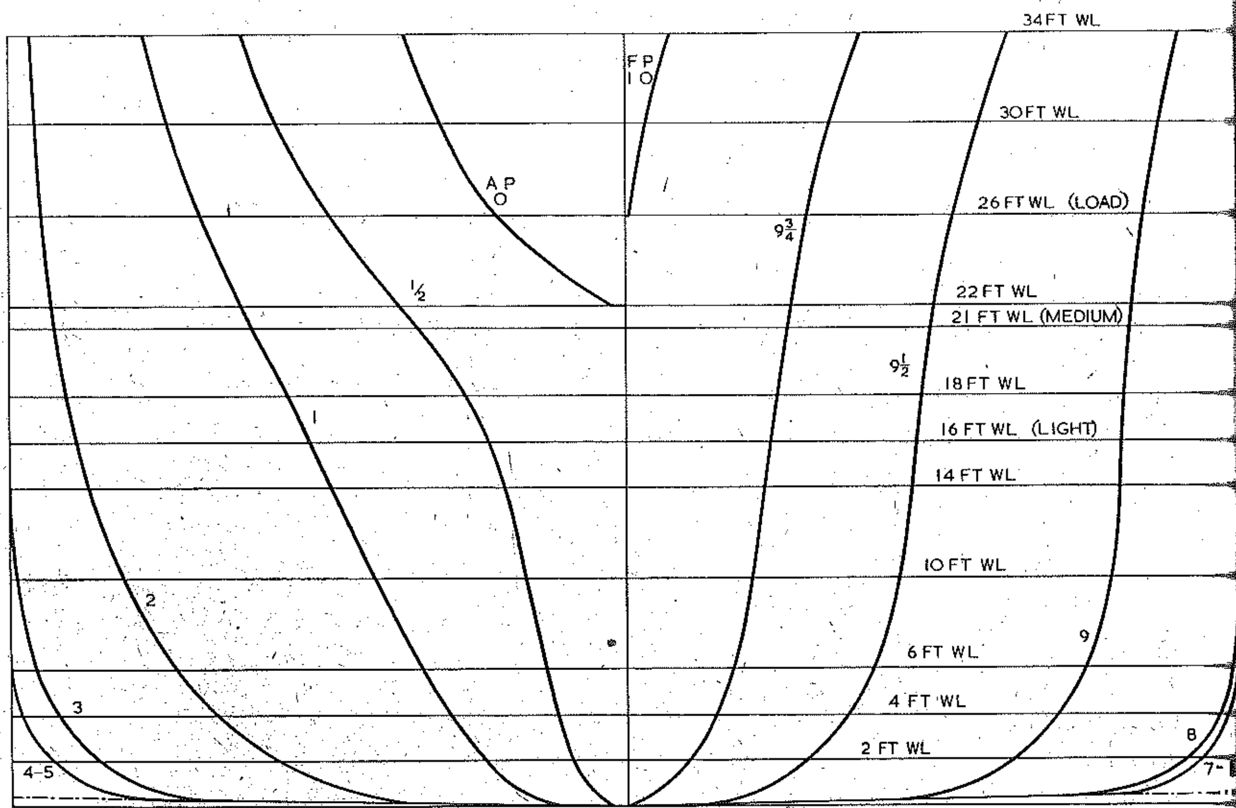
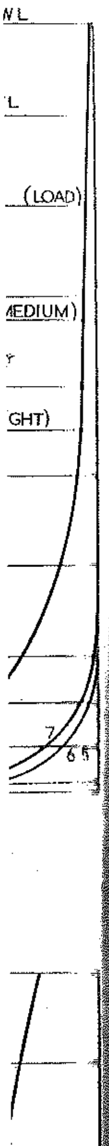


FIG. 4.—BODY PLAN FOR 0·80 BLOCK COEFFICIENT BASIC FORM. *LCB* 2½ PER CENT FORWARD



facilitate the carrying out of this process, Fig. 47 shows curves of the movement of each section required to produce nge in position of *LCB* equal to 1 per cent *LBP*. The ment is itself expressed as a percentage of *LBP*. The ment of each section required to produce a change in on of *LCB* other than 1 per cent is in direct proportion to hown in Fig. 47.

ile the principal hydrostatic particulars shown in Figs. will be practically unaltered by a change in position of it should be remembered that the limits of the parallel e body, shown in Fig. 33, will move by the same amount amidships section in the swinging process.

ed Example

practical use of the cross-curves to obtain a form with given dimensions, block coefficient, and longitudinal on of centre of buoyancy, is described in detail in a worked ple given in the Appendix.

Variation of Resistance with C_b and *LCB*

of C_b and LCB

each of the four block coefficients, 0·65, 0·70, 0·75, and the effect of change in longitudinal position of centre of ncy has been investigated by testing a series of models ive different positions of *LCB*, each model having been d from its parent form by swinging the sectional area The range of position of *LCB* at each block coefficient the practical range for that fullness, as shown in Fig. 5. figure, the positions of *LCB* for the 750 models used in a statistical analysis of the resistance of single-screw ocean-ships,(1) have been plotted against block coefficient. These s had all been tested in Great Britain during the last ten and may be considered to cover the whole range of require-in that period. The models of the B.S.R.A. Methodical are shown as circles on this plotting, and the standard n between *LCB* and C_b adopted for the geometric cross-has been drawn in. It will be seen that the range covered Methodical Series includes practically all of the models.

Employed

order to avoid any question of inter-tank differences, only nce data obtained with wax models 18·18 ft. *LBP* run in Tank of the Ship Division, National Physical Laboratory, ngton, have been used. All the models were fitted with ized turbulence stimulators, either tripwires or studs. tual models are listed in Table II.

original reports on these models included tabulations of the 400-ft. ships, on a base of speed–length ratio $V/\sqrt{L}$ ervals of 0·02. Since these intervals did not always de, and in order to decrease the total number of plottings, blished values were replotted on a base of $V/\sqrt{L}$, and off at intervals of 0·025, corresponding to half-knots for 0-ft. ships. The values so obtained are listed in Tables XXIII.

d of Cross-Plotting

each value of $V/\sqrt{L}$ an isometric plotting was made on the values of Ⓒ were plotted against block coefficient ngitudinal position of centre of buoyancy. Few of the had exactly their design C_b and *LCB*, but all the basic ng was done on these nominal values. Fairing lines with iso-*LCB*, and varying C_b and *LCB*, were drawn through-e plotting, resulting in a surface of Ⓒ on bases of C_b and *LCB*, for each speed and draught. The points on these surfaces at constant values of C_b and *LCB* were then cross-faired on a base of $V/\sqrt{L}$, and the fairing readjusted where necessary. To cover as wide a range of the variables as possible, all the curves were extended beyond the last experimental spot by one step in value for each variable, that is 0·025 in $V/\sqrt{L}$, 0·025 in C_b, and 0·5 in *LCB*.

This method of cross-plotting is one of several which might have been used and it is possible that other systems would have resulted in slightly different interpolated values.

TABLE II

MODELS USED FOR CROSS-PLOTTING Ⓒ

S.S. 400-ft. *BP* × 55-ft. B. mld × 26-ft. *d.* mld
(Forms used for geometric cross-fairing marked*)

C_b	0·65	0·70	0·75	0·80
LCB	Model numbers			
2A	3803	—	—	—
1½A	3801	—	—	—
1A	—	3378 (*c*)	—	—
½A	*3747 (*a*) 3797	—	—	—
⊕	—	3148 (*c*) 3255 3467 (*b*)	3822	—
½F	3800	*	—	3859
1F	—	3066B (*c*) 3256	3067 (*c, d*) 3204 (*d*) 3370A	—
1½F	3802	3247	*3155 (*d*)	3860
2F	—	3248	3223 (*d*)	3807B
2½F	—	—	—	*3861
3F	—	—	3820	—
3½F	—	—	—	3858

Draughts 26 ft., 21 ft., and 16 ft. level trim, and 16 ft. trimmed 8/400 by the stern, except where marked:—

(*a*) 26 ft. only. (*b*) 21 ft. only.
(*c*) not 16 ft. trimmed. (*d*) not 16 ft. level.

Presentation of Results

Figs. 48, 61, 73, and 85 show, for each of the four standard draughts, 26 ft., 21 ft., and 16 ft. level trim and 16 ft. trimmed 8 ft. by the stern, curves of Ⓒ for each of a number of speeds, on a base of block coefficient. In each diagram, the base scale is block coefficient at the designed load draught, 26 ft., and the Ⓒ for that block coefficient is that corresponding to the basic position of *LCB*, dependent on the fullness and defined by

$$LCB \text{ per cent } LBP \text{ from amidships} = 20\,(C_b - 0{\cdot}675).$$
(*LCB* forward of amidships being considered positive.)

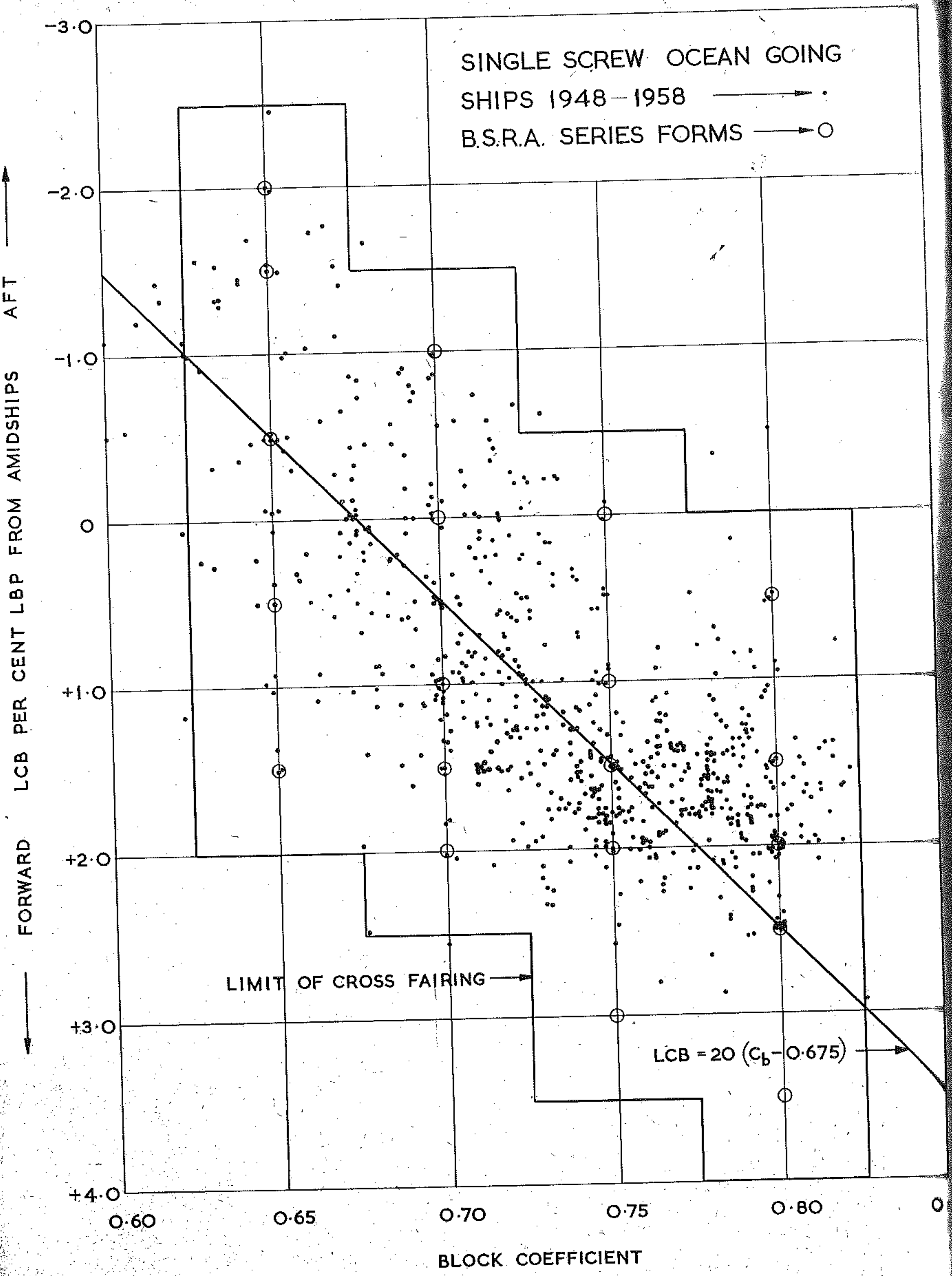
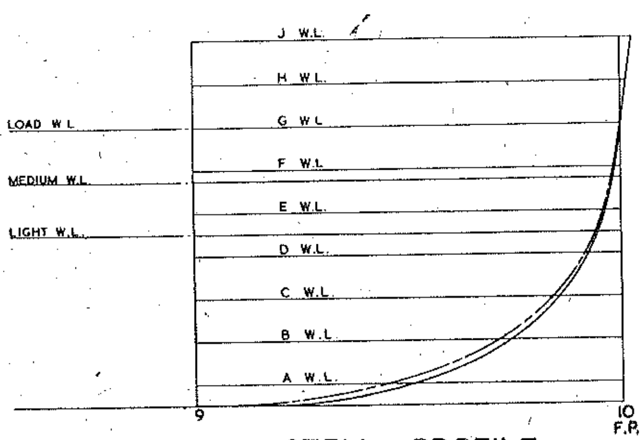
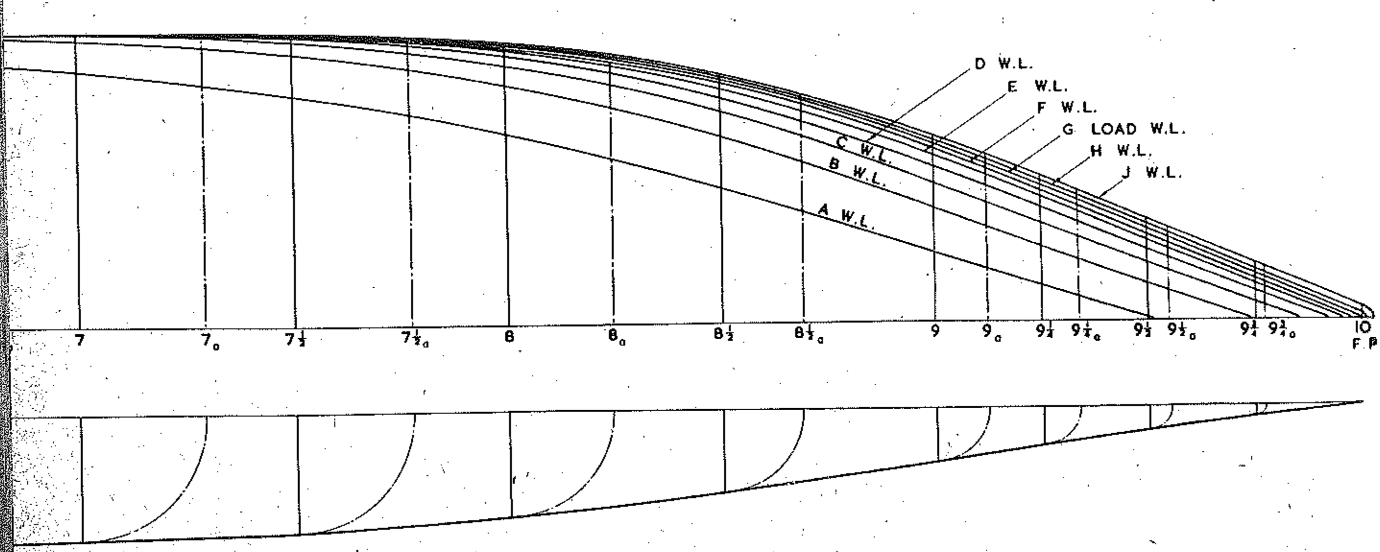


FIG. 5. RANGE OF *LCB* COVERED AT EACH BLOCK COEFFICIENT



STEM PROFILE



or each of the four conditions of draught and trim, correc- factors to be applied to the basic Ⓒ obtained from Figs. 61, 73, or 85, for deviations in the longitudinal position of centre of buoyancy from the unique basic position appro- te to the block coefficient, are given in Figs. 49 to 60, 62 72, 74 to 84, and 86 to 96, respectively. The corrections respond to the faired values of Ⓒ for the full range of *LCB* block coefficient covered by the cross-fairing.

n each diagram, which refers to a particular speed, the base scale of block coefficient at the load draught and the vertical le is one of deviation of *LCB* at the load draught from the ic position, expressed as a percentage of *LBP*, the deviation ng reckoned *positive* when the actual position is *forward* of basic position. Each diagram is divided up by a series of tours such that in any one of the areas so defined the correc- factor has the value indicated. The shaded area of each gram corresponds to a correction factor of unity, so that if rticular combination of block coefficient and *LCB* deviation s a point within the shaded area the Ⓒ value from the ic diagram may be used without correction.

he diagrams are primarily designed for rapid use in cal- ting the Ⓒ of a Series form with random values of *LCB* C_b, as described in detail in the worked example in the endix. They also provide a ready indication of the changing itivity of the resistance of a Series form to changes in longi- inal position of centre of buoyancy as block coefficient nges, but give no indication of the effect of change in block fficient, which must be taken from the basic diagrams, 48, 61, 73, and 85.

o that any practitioner who wishes may replot the values in own way, the full faired values of Ⓒ on which the graphical entation is based are listed in Tables XXIV to XXVIII.

-Friction Correction

he Ⓒ values presented for the 400-ft. ships have been ulated from those for the 18·18-ft. models using the R. E. ude friction coefficients and the associated temperature ection agreed by the International Conference of Tank erintendents in 1935. Values for similar ships of other ths may be obtained by adding the length correction

$$(O_L - O_{400})\ \text{Ⓢ}\ \text{Ⓛ}^{-0\cdot175}$$

re subscripts L and 400 refer to lengths L and 400 ft. respec- ly. A diagram for determining the value of this expression ranges of length, Ⓢ, and speed–length ratio is given in 97.

t its Madrid Conference in 1957, the International Towing k Conference adopted a new formulation as its 1957 Model- Correlation Line, viz.

$$C_f = \frac{0\cdot075}{(\log_{10} R_N - 2)^2}$$

nce most of the experiments were carried out before 1957, of the results of the B.S.R.A. Methodical Series has calculated using this new formulation. It is, however, eciated that many practitioners will wish to use the hodical Series data in conjunction with future results based he I.T.T.C. Line. Curves showing the difference between lts calculated using the Froude coefficients and using the T.C. coefficients are therefore shown in Fig. 98, for ranges ngth, Ⓢ, and speed–length ratio. The curves have been puted on the assumption that the model experiments were n in fresh water with a temperature of 59° F., that is, it been assumed that the temperature correction used with the Froude coefficients correctly evaluate the effect of temperature on the model resistance over the range of difference between the actual temperature of the water at the time of the tests and 59° F. It can be shown that this assumption will cause a maxi- mum error of about +1 per cent in Ⓒ for a 400-ft. ship at a speed–length ratio of 0·4, if the tests were run in water at 10° F. cooler than the standard: at the same speed, for 10° F. increase in temperature, the equivalent error is less than $-\frac{1}{2}$ per cent. As speed increases, both errors decrease to about one-half of the stated values at the maximum speeds of the Series.

Practical Applications of the Cross-fairing

When the lines of a new ship are being designed, the principal parameters which must be adhered to are the dimensions and displacement (and hence block coefficient) and longitudinal position of the centre of gravity (and hence longitudinal position of the centre of buoyancy). It is most unlikely that any form with exactly the required values of these parameters will be available to the designer, or that a form with exactly these values will be found among the models actually tested in the Methodical Series experiments. Since, however, the curves of geometric particulars and Ⓒ described above are continuous, the lines and resistance for any Series form intermediate between those of the actual models may be obtained from the cross-fairing, as described in the worked example in the Appendix. The resistance data presently given are restricted to applications where the pro- portions of the hull form do not differ from those corresponding to the standard dimensions of the Series parents, 400 ft. *LBP* × 55 ft. moulded breadth × 26 ft. moulded draught, but as has been noted, a further cross-fairing is to be published covering the effects of changes in these proportions.

In the absence of any other form, the Series form may be adopted. If other forms are available, the Series form may be considered as an alternative, or it may be used to provide a standard of performance with which the results for the other models may be compared. In either case it is reasonable to expect that the Series forms should represent good modern practice. Comparison with the results of a recent statistical analysis of the effective horsepower of single-screw ships[1] shows that the 0·65, 0·70, and 0·80 block coefficient forms are significantly better than average throughout the practical speed range, and that the 0·75 block coefficient forms have resistance characteristics conforming to the average at all practical speeds.

Acknowledgments

The cross-fairing described in this paper was carried out by the staff of the St. Albans Tank for the British Shipbuilding Research Association. The form of presentation of the geometric par- ticulars was devised at St. Albans, while that of the resistance data was based on a proposal by Mr. Lackenby. The opinions expressed in the paper are, however, those of the individual authors. The work is published by permission of the Council and Director of Research of the British Shipbuilding Research Association.

References

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(4) TODD, F. H., and FOREST, F. X.: "A Proposed New Basis for the Design of Single-Screw Merchant Ship Forms and Standard Series Lines," *Trans. S.N.A.M.E.*, 1951, p. 642.

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Nomenclature and Symbols

A_m = Maximum section area (sq. ft.).
A_w = Area of waterplane (sq. ft.).
B = Breadth of ship (ft.).
C_b = Block coefficient.
C_f = Frictional resistance coefficient.
C_{IT} = Transverse inertia coefficient of waterplane (on wetted length) $= \frac{12\,I_T}{L\,B^3}$.
C_m = Midship section coefficient.
C_p = Prismatic coefficient $= \frac{\nabla}{A_m\,L}$.
C_{pa} = Prismatic coefficient of afterbody.
C_{pf} = Prismatic coefficient of forebody.
C_w = Waterplane area coefficient (on wetted length) $= \frac{A_w}{L\,B}$.
d = Draught.
ehp = Effective horsepower.
I_T = Transverse moment of inertia of waterplane.
L = Length.
LBP = Length between perpendiculars.
LCB = Longitudinal centre of buoyancy.
LCF = Longitudinal centre of flotation.
PMB = Parallel middle body (length given as percentage of *LBP*).
R_n = Reynolds number.
R_t = Total resistance.
S = Area of wetted surface.
V = Speed.
w = Weight density.
Δ = Displacement weight.
∇ = Volume of displacement.
$\frac{1}{2}\alpha_e$ = Half angle of entrance.
Ⓛ = Speed–length constant $= V\sqrt{\frac{4\pi}{g\,L}}$ in consistent units $= 1{\cdot}055\,\frac{V}{\sqrt{L}}$ where V is in knots and L in ft.
Ⓜ = Length–displacement constant $= \frac{L}{\nabla^{1/3}}$.
Ⓢ = Wetted-surface constant $= \frac{S}{\nabla^{2/3}}$.
Ⓒ = Resistance constant $= \frac{1{,}000\,R}{4\pi\frac{w}{g}\nabla^{2/3}V^2}$ in consistent units $= 427{\cdot}1\,\frac{\text{ehp}}{\Delta^{2/3}V^3}$ where Δ is in tons salt water and V in knots.

NOTE: Coefficients are worked on length between perpendiculars unless otherwise stated.

APPENDIX

Worked Example

To determine the Methodical Series Lines and Ⓒ Curve for a Ship 445 ft. *LBP*, with 16,000 tons Displacement, and *LCB* 9 ft. forward of amidships.

1. Lines

Beam and Draught

The beam and draught will normally have been decided at an earlier stage in the design. For the purpose of the present example, however, it is assumed that the vessel is to have the standard proportions of the parent forms of the B.S.R.A. Methodical Series. For these basic proportions the 400 ft. ship dimensions are: 400 ft. *LBP* × 55 ft. moulded breadth × 26 ft. moulded load draught.

The breadth and draught in this particular ship will therefore be:—

$$\text{Breadth} \quad B = 55 \times \frac{445}{400} = 61{\cdot}18 \text{ ft.}$$

$$\text{Draught} \quad d = 26 \times \frac{445}{400} = 28{\cdot}93 \text{ ft.}$$

These dimensions have been chosen solely because the original fairing of the resistance data given in the paper is applicable to forms of these particular proportions.

The subsequent procedure would have been carried out in exactly the same way had any other dimensions been chosen.

Required Block Coefficient

$$C_b = \frac{35\,\Delta}{L\,B\,d} = \frac{35 \times 16{,}000}{445 \times 61{\cdot}18 \times 28{\cdot}93}$$
$$= 0{\cdot}711.$$

Deviation of LCB from Basis

Required *LCB* as percentage of *LBP* forward of amidships

$$= \frac{9{\cdot}0}{445} \times 100 = 2{\cdot}02 \text{ per cent.}$$

The basis *LCB* is calculated from the formula:—

LCB = 20 (C_b − 0·675) per cent *LBP* forward of amidships.
Then for C_b = 0·711,
basis *LCB* = 20 (0·711 − 0·675),
= 0·72 per cent *LBP* forward of amidships.

Hence deviation from basis

= 2·02 − 0·72,
= 1·30 per cent *LBP* forward.

Adjustment of Basis Form to give required LCB

This is effected by a shift of the stations at which the waterline offsets are layed off. The shift of station (per cent *LBP*) to give 1 per cent *LBP* movement of *LCB* is given in Fig. 47. The required shifts of stations in feet are obtained by multiplying by the factor.

$$\text{(required movement)} \times \frac{LBP}{100},$$

$$\text{in this example} \quad 1{\cdot}30 \times \frac{445}{100} = 5{\cdot}785.$$

Fig. 47 is entered at $C_b = 0{\cdot}711$ and the shift of each station for 1 per cent movement lifted from the curves. These values are multiplied by the above factor as in Table III.

These shifts are plotted, and a curve of shifts run in as shown at the bottom of Fig. 6.

Extent of Parallel Middle Body

The lengths of parallel in the forebody and afterbody for

TABLE III

Station	Shift of station in per cent *LBP* for 1 per cent movement of *LCB* (from Fig. 47)	Shift of station in feet for 1·30 per cent *LBP* movement of *LCB*
AP 0	0·02	0·12
¼	0·16	0·93
½	0·38	2·20
¾	0·62	3·59
1	0·87	5·03
1½	1·29	7·46
2	1·66	9·60
2½	1·94	11·22
3	2·14	12·38
3½	2·24	12·96
4	2·28	13·19
5	2·32	13·42
6	2·31	13·36
6½	2·29	13·25
7	2·25	13·02
7½	2·12	12·26
8	1·88	10·88
8½	1·48	8·56
9	0·96	5·55
9¼	0·67	3·88
9½	0·39	2·26
9¾	0·16	0·93
FP 10	0	0

basis *LCB* position are obtained from Fig. 33. For $C_b = 0{\cdot}711$ these are:—

Forebody: 6·8 per cent *LBP* = 30·3 ft.
Afterbody: 3·4 per cent *LBP* = 15·1 ft.

Check Total 10·2 per cent *LBP* = 45·4 ft.

As a result of the shift of stations to give the required *LCB* position, the parallel middle body is moved bodily forward by an amount equal to the shift of Station 5 shown in Table III, i.e. 13·42 ft. in this instance. The required extent of parallel middle body will therefore be:—

Forebody: 43·7 ft.
Afterbody: 1·7 ft.

Check Total: 45·4 ft.

Laying Out the Grid

The equi-spaced displacement stations 0 to 10 are set out, and on the half-breadth plan, the auxiliary stations, shown as 0_a, 1_a, 2_a, etc., in Fig. 6, are added and the extent of parallel middle body marked off. The auxiliary stations are displaced from stations 0, 1, 2, etc., by the shifts determined above. The standard waterlines are drawn in on the profile. These correspond to the 2-ft., 6-ft., 10-ft., 14-ft.–34-ft. waterlines for the standard load draught of 26 ft. moulded, and their spacing is adjusted in the ratio of the actual design load draught to 26 ft., i.e. 28·93 ÷ 26 = 1·1125 in this example. The actual waterline positions are given in Table IV.

Stem Profile

The stem-profile offsets are given in Fig. 30, as percentages of *LBP* forward of Station 9. The offsets appropriate to the required block coefficient ($C_b = 0{\cdot}711$) are lifted from this diagram. This profile (shown as a chain line in Fig. 6) applies to the basis *LCB* position, and the fore-and-aft shifts of profile at any point to give the profile for the required *LCB* (the full line) are obtained from the curve of shifts already constructed.

Stern Profile

The effect of the *LCB* position on the stern profile is small and may be neglected. The offsets taken from Fig. 31 are therefore used directly.

Half-Breadth Plan

Figs. 8 to 29 are entered at the required block coefficient ($C_b = 0{\cdot}711$) and the offsets for the standard waterlines lifted. The standard waterlines, marked 2 ft., 6 ft., 10 ft., etc., on the diagrams are the levels corresponding to the standard load draught of 26 ft.

The offsets so obtained, the italic figures in Table V, are in terms of the maximum half-breadth and are multiplied by the full half-breadth (61·18 ÷ 2 = 30·59) to give the actual offsets, the upright figures in the table.

These offsets are then laid off at the auxiliary stations in order to give the required *LCB*, and the waterlines are run in.

Body Plan

The waterline offsets lifted at the equi-spaced displacement stations 0, 1, 2, etc., in the half-breadth plan are now transferred to the body plan and the body sections drawn in.

Table of Offsets

The offsets at the standard waterlines lifted from the body plan are given in Table VI. In practice it may be preferred to lift a set of offsets from the body plan at waterlines spaced in round feet.

Check on Overall Accuracy of the Method

A set of lines constructed by this method should give the required displacement and *LCB* with sufficient accuracy for all preliminary design purposes, but as an overall check on the working it is advisable that a displacement sheet calculation should be made from the offsets.

TABLE IV

Waterline	A	B	C	D	E	F	G *LWL*	H	J
Height above keel, in feet, for load draught = 26 ft.	2	6	10	14	18	22	26	30	34
Height above keel, in feet, for load draught = 28·93 ft.	2·23	6·68	11·13	15·58	20·03	24·48	28·93	33·38	37·83

TABLE V

Table of Waterline Offsets Corresponding to Auxiliary Stations

(Italic figures are offsets in terms of the full half-breadth, upright figures are actual offsets in feet)

Waterline	A	B	C	D	E	F	G LWL	H	J
Height above keel for load draught = 26 ft.	2 ft.	6 ft.	10 ft.	14 ft.	18 ft.	22 ft.	26 ft.	30 ft.	34 ft.
Height above keel for load draught = 28·93 ft.	2·23 ft.	6·68 ft.	11·13 ft.	15·58 ft.	20·03 ft.	24·48 ft.	28·93 ft.	33·38 ft.	37·83 ft.
AP 0	— —	— —	— —	— —	— —	*0·019* 0·58	*0·162* 4·96	*0·271* 8·29	*0·365* 11·17
¼	*0·021* 0·64	*0·025* 0·76	*0·029* 0·89	*0·032* 0·98	*0·049* 1·50	*0·154* 4·71	*0·297* 9·09	*0·419* 12·82	*0·516* 15·78
½	*0·062* 1·90	*0·092* 2·81	*0·116* 3·55	*0·142* 4·34	*0·189* 5·78	*0·290* 8·87	*0·421* 12·88	*0·542* 16·58	*0·641* 19·61
¾	*0·106* 3·24	*0·164* 5·02	*0·209* 6·39	*0·256* 7·83	*0·326* 9·97	*0·420* 12·85	*0·538* 16·46	*0·650* 19·88	*0·743* 22·73
1	*0·157* 4·80	*0·244* 7·46	*0·307* 9·39	*0·370* 11·32	*0·447* 13·67	*0·541* 16·55	*0·642* 19·64	*0·742* 22·70	*0·821* 25·11
1½	*0·281* 8·60	*0·415* 12·69	*0·502* 15·36	*0·582* 17·80	*0·659* 20·16	*0·734* 22·45	*0·809* 24·75	*0·874* 26·74	*0·928* 28·39
2	*0·423* 12·94	*0·588* 17·99	*0·688* 21·05	*0·763* 23·34	*0·823* 25·18	*0·874* 26·74	*0·919* 28·11	*0·956* 29·24	*0·985* 30·13
2½	*0·571* 17·47	*0·744* 22·76	*0·834* 25·51	*0·891* 27·26	*0·931* 28·48	*0·959* 29·34	*0·979* 29·95	*0·992* 30·35	*0·999* 30·56
3	*0·708* 21·66	*0·864* 26·43	*0·932* 28·51	*0·967* 29·58	*0·985* 30·13	*0·996* 30·47	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59
3½	*0·819* 25·05	*0·944* 28·88	*0·985* 30·13	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59
4	*0·889* 27·19	*0·984* 30·10	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59
5	*0·932* 28·51	*0·999* 30·56	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59
6	*0·928* 28·39	*0·999* 30·56	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59
6½	*0·897* 27·44	*0·988* 30·22	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59	*1·000* 30·59
7	*0·834* 25·51	*0·952* 29·12	*0·985* 30·13	*0·993* 30·38	*0·995* 30·44	*0·996* 30·47	*0·998* 30·53	*0·999* 30·56	*1·000* 30·59
7½	*0·722* 22·09	*0·874* 26·74	*0·929* 28·42	*0·955* 29·21	*0·967* 29·58	*0·972* 29·73	*0·977* 29·89	*0·981* 30·01	*0·982* 30·04
8	*0·567* 17·34	*0·739* 22·61	*0·819* 25·05	*0·858* 26·25	*0·881* 26·95	*0·894* 27·35	*0·906* 27·71	*0·913* 27·93	*0·920* 28·14
8½	*0·378* 11·56	*0·548* 16·76	*0·637* 19·49	*0·688* 21·05	*0·722* 22·09	*0·746* 22·82	*0·760* 23·25	*0·770* 23·55	*0·779* 23·83
9	*0·178* 5·45	*0·319* 9·76	*0·404* 12·36	*0·461* 14·10	*0·500* 15·30	*0·522* 15·97	*0·539* 16·49	*0·554* 16·95	*0·568* 17·38
9¼	*0·081* 2·48	*0·205* 6·27	*0·283* 8·66	*0·336* 10·28	*0·373* 11·41	*0·395* 12·08	*0·411* 12·57	*0·429* 13·12	*0·445* 13·61
9½	— —	*0·097* 2·97	*0·162* 4·96	*0·209* 6·39	*0·241* 7·37	*0·263* 8·05	*0·281* 8·60	*0·299* 9·15	*0·316* 9·67
9¾	— —	— —	*0·048* 1·47	*0·085* 2·60	*0·111* 3·40	*0·128* 3·92	*0·144* 4·40	*0·162* 4·96	*0·182* 5·57
FP 10	— —	— —	— —	— —	— —	— —	*0·008* 0·24	*0·022* 0·67	*0·004* 1·35

TABLE VI

Table of Offsets at Displacement Stations

Waterline	A	B	C	D	E	F	G	H	J
Height above keel	2·23 ft.	6·68 ft.	11·13 ft.	15·58 ft.	20·03 ft.	24·48 ft.	28·93 ft.	33·38 ft.	37·83 ft.
AP 0	—	—	—	—	—	—	4·86	8·35	11·20
¼	0·55	0·62	0·67	0·73	1·13	4·28	8·63	12·42	15·33
½	1·65	2·36	3·00	3·76	5·02	8·05	12·17	15·97	18·94
¾	2·84	4·28	5·51	6·82	8·75	11·75	15·42	18·90	21·90
1	4·10	6·33	8·14	9·91	12·17	15·02	18·42	21·60	24·26
1½	7·19	10·98	13·43	15·78	18·23	20·83	23·37	25·73	27·59
2	11·01	15·82	18·84	21·23	23·37	25·24	26·95	28·48	29·64
2½	15·05	20·62	23·58	25·63	27·16	28·27	29·21	29·98	30·47
3	19·39	24·47	27·04	28·54	29·49	30·07	30·47	30·59	30·59
4	26·06	29·61	30·38	30·59	30·59	30·59	30·59	30·59	30·59
5	28·51	30·59	30·59	30·59	30·59	30·59	30·59	30·59	30·59
6	28·51	30·59	30·59	30·59	30·59	30·59	30·59	30·59	30·59
7	26·67	29·79	30·59	30·59	30·59	30·59	30·59	30·59	30·59
7½	24·14	28·27	29·61	30·07	30·28	30·35	30·50	30·59	30·59
8	19·91	24·90	26·95	27·96	28·57	28·82	29·03	29·24	29·46
8½	14·07	19·36	21·96	23·37	24·29	24·90	25·33	25·63	25·88
9	7·19	11·78	14·35	16·12	17·31	18·05	18·57	18·94	19·30
9¼	3·64	7·71	10·16	11·81	12·94	13·95	14·19	14·62	15·08
9½	0·40	3·73	5·93	7·37	8·29	8·93	9·45	10·03	10·52
9¾	—	—	1·71	2·97	3·79	4·31	4·77	5·32	6·00
FP 10	—	—	—	—	—	—	0·24	0·70	1·41

2. Resistance

00-ft. Ⓒ *Values for Basis Form*

The basis chart for the load condition, Fig. 48, is entered at the required block coefficient, $C_b = 0 \cdot 711$, and the Ⓒ values lifted at half-knot intervals. The values so obtained are listed in Col. 3 of Table VII and are plotted as a broken line in Fig. 7.

Corrections for Deviation of LCB from Basis

The correction factors for deviation from the basis *LCB* are taken from the charts in Figs. 49 to 60. Each chart is entered in turn at the appropriate block coefficient and *LCB* deviation to obtain a series of correction factors covering the whole speed range at intervals of one knot. In the present instance $C_b = 0 \cdot 711$ and *LCB* deviation $= +1 \cdot 30$, the deviation being reckoned positive since the actual *LCB* is forward of the basis position.

The appropriate correction factors are listed in Col. 4 of Table VII, the factors for the half-knot intervals being interpolated. The basis Ⓒ values in Col. 3 are multiplied by these factors to give the 400-ft. ship Ⓒ values listed in Col. 5. The latter are also plotted in Fig. 7 (the chain dotted line).

Correction for Deviation from Basis Proportions

In this particular case no correction for deviation from the basis proportions is required since the example was chosen to have the proportions of the parent forms of the B.S.R.A. Methodical Series.

Charts covering cases where the 400-ft. ship breadth and

TABLE VII

1	2	3	4	5	6	7	8
Speed in knots for 400-ft. ship	$V/\sqrt{L}$	Ⓒ 400 for $C_b = 0{\cdot}711$ and $LCB = 0{\cdot}72$ per cent forward	Correction factor for LCB deviation $= +1{\cdot}30$ at $C_b = 0{\cdot}711$	Ⓒ 400 for $C_b = 0{\cdot}711$ and $LCB = 2{\cdot}02$ per cent forward	R. E. Froude skin-friction correction from L = 400 ft. to L = 445 ft.	Ⓒ 445 for $C_b = 0{\cdot}711$ and $LCB = 2{\cdot}02$ per cent forward	Speed in knots for 445-ft. ship
10	0·500	0·640	1·00	0·640	−0·007	0·633	10·55
10½	0·525	0·645	0·99*	0·639	−0·007	0·632	11·08
11	0·550	0·651	0·99	0·644	−0·007	0·637	11·60
11½	0·575	0·658	0·98*	0·645	−0·007	0·638	12·13
12	0·600	0·665	0·98	0·652	−0·007	0·645	12·66
12½	0·625	0·671	0·98*	0·658	−0·007	0·651	13·19
13	0·650	0·684	0·99	0·677	−0·007	0·670	13·71
13½	0·675	0·692	1·01*	0·699	−0·007	0·692	14·24
14	0·700	0·704	1·03	0·725	−0·006	0·719	14·77
14½	0·725	0·730	1·05*	0·767	−0·006	0·761	15·30
15	0·750	0·769	1·07	0·823	−0·006	0·817	15·82
15½	0·775	0·817	1·09*	0·899	−0·006	0·893	16·35
16	0·800	0·877	1·12	0·982	−0·006	0·976	16·88
16½	0·825	0·940	1·15*	1·081	−0·006	1·075	17·41
17	0·850	1·006	1·18	1·187	−0·006	1·181	17·93

* Interpolated.

draught differ from 55 ft. and 26 ft. are in the course of preparation and it is hoped to publish them shortly.

Correction to Actual Length

The 400-ft. Ⓒ values are now corrected to the actual length of 445 ft., as shown in Cols. 6 and 7, and the corresponding speeds, Col. 8, calculated. The R. E. Froude skin-friction corrections may be obtained from Fig. 97 at Ⓢ = 6·05 read from Fig. 45. The final corrected curve is shown by the full line in Fig. 7.

Other Draughts

The Ⓒ curves for the other standard draughts are obtained in the same way, using Figs. 61 to 72 for the medium draught (21-ft. level trim), Figs. 73 to 84 for the ballast draught (16-ft. level trim), and Figs. 85 to 96 for the trimmed ballast condition (16-ft. trimmed 8/400 by the stern).

It should be noted that all the charts are based on the load draught C_b and LCB. This obviates the need to determine the parameters for other conditions of draught and trim. The curves for intermediate conditions may be obtained by interpolation.

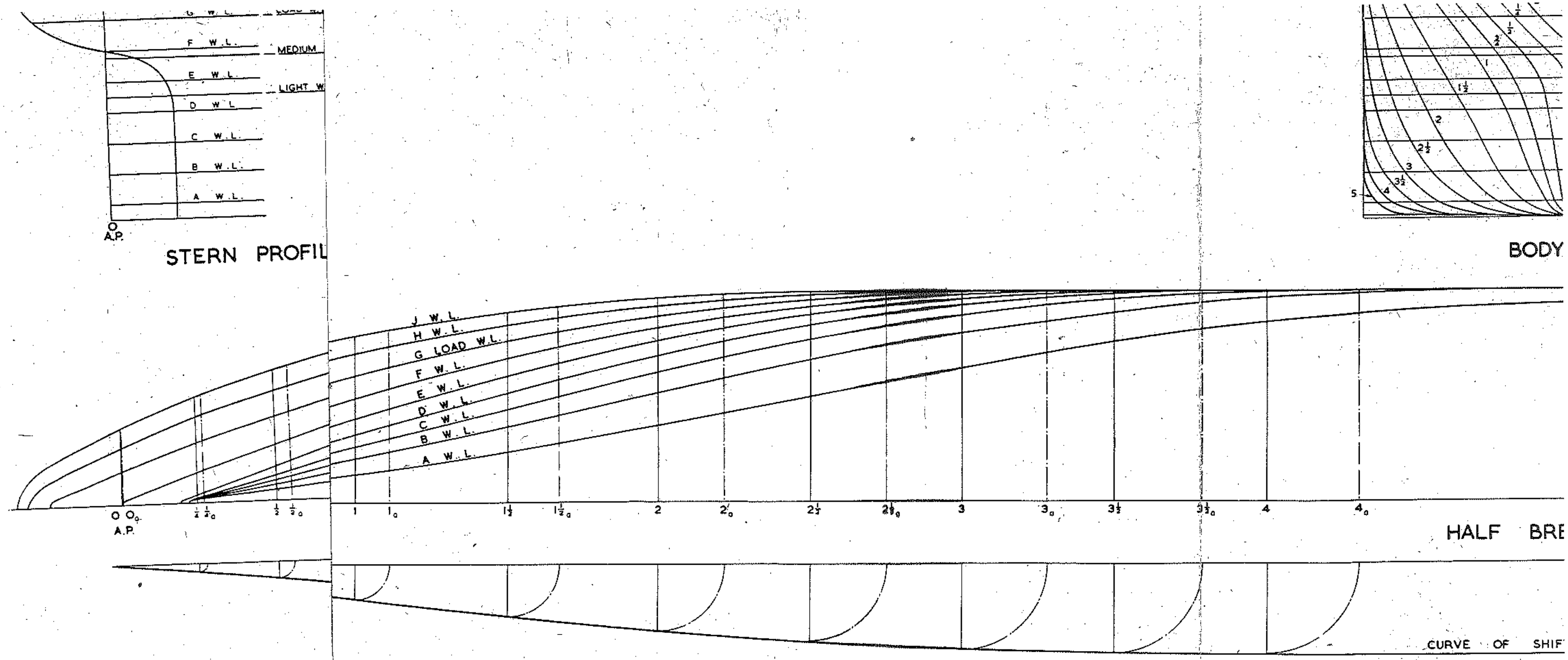

Fig. 6

Moor, Parker and Pattullo

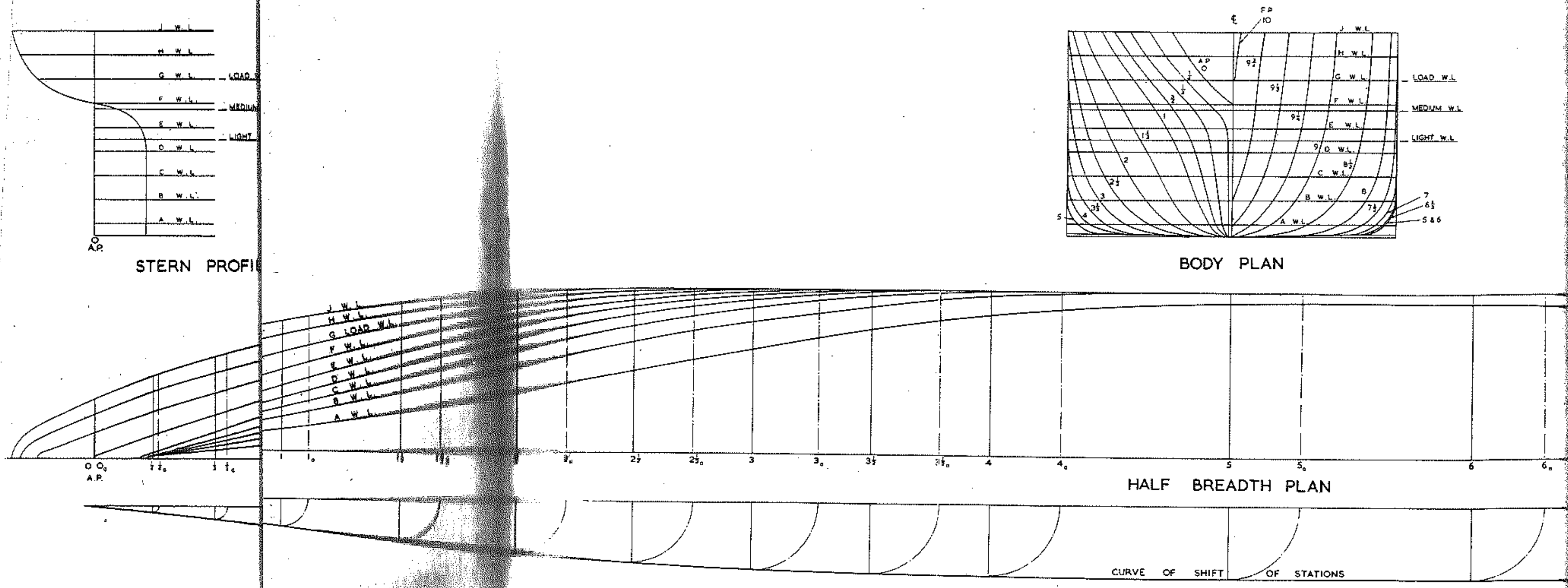
STERN PROFI
J W.L.
H W.L.
G W.L.
F W.L.
E W.L.
D W.L.
C W.L.
B W.L.
A W.L.
LOAD
MEDIUM
LIGHT
A.P.
BODY PLAN
F.P.
10
LOAD W.L.
MEDIUM W.L.
LIGHT W.L.
5 & 6
HALF BREADTH PLAN
G LOAD W.L.
CURVE OF SHIFT OF STATIONS

Fig. 6

TABLE VIII

VALUES OF Ⓒ USED FOR CROSS-PLOTTING

S.S. 400-ft. *BP* × 55-ft. B. mld. × 26-ft. *d*. mld.

C_b	0·650					
LCB per cent	2A	1½A	½A		½F	1½F
Model No.	3803	3801	3747	3797	3800	3802
V/√L	Ⓒ					
0·500	0·638	0·631	—	0·630	0·635	0·636
0·525	0·638	0·631	—	0·631	0·636	0·638
0·550	0·639	0·633	0·628	0·635	0·639	0·638
0·575	0·639	0·636	0·631	0·641	0·644	0·638
0·600	0·640	0·641	0·635	0·652	0·648	0·638
0·625	0·643	0·647	0·642	0·660	0·653	0·640
0·650	0·649	0·655	0·651	0·668	0·655	0·642
0·675	0·656	0·662	0·660	0·676	0·655	0·645
0·700	0·663	0·668	0·668	0·681	0·657	0·650
0·725	0·674	0·673	0·673	0·684	0·664	0·664
0·750	0·680	0·675	0·676	0·685	0·677	0·694
0·775	0·685	0·676	0·682	0·690	0·704	0·744
0·800	0·688	0·679	0·690	0·699	0·740	0·803
0·825	0·693	0·684	0·708	0·719	0·779	0·868
0·850	0·703	0·703	0·735	0·753	0·815	0·932
0·875	0·741	0·755	0·784	0·806	0·873	1·004
0·900	0·839	0·848	0·872	0·896	0·973	1·099
0·925	0·968	0·977	1·012	1·046	1·108	1·243
0·950	1·127	1·143	—	1·200	1·265	—

TABLE X

VALUES OF Ⓒ USED FOR CROSS-PLOTTING

S.S. 400-ft. *BP* × 55-ft. B. mld. × 26-ft. *d*. mld.

C_b	0·750						
LCB per cent	⊠	1F			1½F	2F	3F
Model No.	3822	3067	3204	3370A	3155	3223	3820
V/√L	Ⓒ						
0·400	—	—	—	—	—	—	—
0·425	—	—	—	—	—	—	—
0·450	0·682	0·670	0·670	0·670	0·647	0·639	0·630
0·475	0·686	0·674	0·674	0·674	0·655	0·641	0·634
0·500	0·689	0·679	0·678	0·678	0·662	0·645	0·637
0·525	0·693	0·684	0·683	0·683	0·669	0·649	0·640
0·550	0·699	0·688	0·687	0·687	0·674	0·653	0·645
0·575	0·710	0·692	0·692	0·692	0·680	0·659	0·654
0·600	0·721	0·697	0·697	0·697	0·687	0·670	0·670
0·625	0·733	0·703	0·703	0·703	0·697	0·687	0·697
0·650	0·742	0·710	0·708	0·708	0·716	0·715	0·744
0·675	0·751	0·723	0·721	0·721	0·742	0·751	0·806
0·700	0·760	0·750	0·751	0·751	0·784	0·809	0·884
0·725	0·777	0·803	0·804	0·804	0·846	0·878	0·974
0·750	0·851	0·890	0·889	0·889	0·932	0·970	1·075
0·775	0·956	1·000	0·998	0·998	1·059	1·085	1·197
0·800	1·045	1·105	1·006	1·006	1·172	1·199	1·328

TABLE IX

VALUES OF Ⓒ USED FOR CROSS-PLOTTING

S.S. 400-ft. *BP* × 55-ft. B. mld. × 26-ft. *d*. mld.

C_b	0·700							
LCB per cent	1A	⊠			1F		1½F	2F
Model No.	3378	3148	3255	3467	3066B	3256	3247	3248
V/√L	Ⓒ							
0·500	0·653	0·641	0·641	Model not tested in this condition	0·633	0·632	0·638	0·633
0·525	0·656	0·640	0·640		0·639	0·639	0·643	0·635
0·550	0·662	0·641	0·641		0·646	0·646	0·650	0·639
0·575	0·669	0·646	0·646		0·652	0·652	0·655	0·641
0·600	0·679	0·657	0·657		0·656	0·657	0·662	0·646
0·625	0·689	0·671	0·671		0·664	0·663	0·669	0·652
0·650	0·699	0·681	0·681		0·672	0·672	0·675	0·663
0·675	0·710	0·688	0·688		0·680	0·681	0·686	0·679
0·700	0·721	0·698	0·698		0·694	0·694	0·702	0·703
0·725	0·735	0·715	0·715		0·715	0·716	0·727	0·738
0·750	0·750	0·738	0·738		0·749	0·750	0·769	0·790
0·775	0·774	0·768	0·768		0·797	0·798	0·827	0·856
0·800	0·802	0·804	0·804		0·862	0·861	0·896	0·933
0·825	0·825	0·847	0·847		—	—	0·972	1·016
0·850	0·852	0·893	0·893		—	—	1·055	1·117
0·875	0·886	—	—		—	—	—	—
0·900	0·945	—	—		—	—	—	—
0·925	—	—	—		—	—	—	—
0·950	—	—	—		—	—	—	—

TABLE XI

VALUES OF Ⓒ USED FOR CROSS-PLOTTING

S.S. 400-ft. *BP* × 55-ft. B. mld. × 26-ft. *d*. mld.

C_b	0·800				
LCB per cent	½F	1½F	2F	2½F	3½F
Model No.	3859	3860	3807B	3861	3858
V/√L	Ⓒ				
0·400	0·738	0·726	0·697	0·687	0·678
0·425	0·738	0·718	0·698	0·680	0·674
0·450	0·738	0·715	0·700	0·674	0·672
0·475	0·740	0·716	0·701	0·671	0·675
0·500	0·744	0·719	0·702	0·672	0·679
0·525	0·749	0·721	0·705	0·675	0·685
0·550	0·754	0·724	0·708	0·682	0·710
0·575	0·762	0·731	0·720	0·700	0·749
0·600	0·772	0·742	0·739	0·741	0·821
0·625	0·789	0·764	0·775	0·794	0·905
0·650	0·811	0·816	0·826	0·855	0·981
0·675	0·844	0·857	0·888	0·924	1·058
0·700	0·873	0·895	0·969	1·006	1·167
0·725	0·917	0·967	1·077	1·101	—
0·750	1·024	1·088	1·198	1·217	—
0·775	—	—	—	—	—
0·800	—	—	—	—	—

TABLE XII

VALUES OF Ⓒ USED FOR CROSS-PLOTTING

S.S. 400-ft. *BP* × 55-ft. B. mld. × 21-ft. *d.* mld.

C_b	0·650					
LCB per cent	2A	½A		1½A	½F	1½F
Model No.	3803	3801	3747	3797	3800	3802
$V/\sqrt{L}$	Ⓒ					
0·500	0·649	0·658	Model not tested in this condition	0·646	0·650	0·645
0·525	0·649	0·656		0·650	0·653	0·646
0·550	0·650	0·656		0·652	0·654	0·649
0·575	0·651	0·657		0·654	0·656	0·654
0·600	0·654	0·658		0·657	0·659	0·657
0·625	0·660	0·664		0·664	0·669	0·659
0·650	0·670	0·675		0·674	0·679	0·661
0·675	0·683	0·687		0·686	0·686	0·663
0·700	0·696	0·699		0·698	0·690	0·668
0·725	0·705	0·705		0·706	0·692	0·683
0·750	0·712	0·708		0·712	0·699	0·714
0·775	0·719	0·709		0·717	0·723	0·760
0·800	0·725	0·710		0·722	0·757	0·813
0·825	0·735	0·717		0·736	0·794	0·873
0·850	0·752	0·741		0·764	0·834	0·936
0·875	0·787	0·799		0·822	0·897	1·017
0·900	0·855	0·880		0·906	0·982	1·115
0·925	0·964	0·992		1·026	1·103	1·249

TABLE XIV

VALUES OF Ⓒ USED FOR CROSS-PLOTTING

S.S. 400-ft. *BP* × 55-ft. B. mld. × 21-ft. *d.* mld.

C_b	0·750						
LCB per cent	⊠	1F			1½F	2F	[illegible]
Model No.	3822	3067	3204	3370A	3155	3223	[illegible]
$V/\sqrt{L}$	Ⓒ						
0·400	—	—	—	—	—	—	
0·425	—	—	—	—	—	—	
0·450	0·720	0·679	0·678	0·690	0·655	0·649	0·65[illegible]
0·475	0·723	0·684	0·683	0·694	0·658	0·655	0·65[illegible]
0·500	0·726	0·690	0·689	0·702	0·664	0·665	0·66[illegible]
0·525	0·730	0·697	0·697	0·709	0·670	0·673	0·66[illegible]
0·550	0·741	0·707	0·708	0·717	0·677	0·681	0·67[illegible]
0·575	0·759	0·720	0·720	0·727	0·685	0·690	0·68[illegible]
0·600	0·776	0·733	0·733	0·736	0·695	0·701	0·70[illegible]
0·625	0·790	0·745	0·745	0·745	0·711	0·715	0·72[illegible]
0·650	0·800	0·760	0·760	0·760	0·731	0·739	0·77[illegible]
0·675	0·810	0·779	0·779	0·779	0·763	0·778	0·83[illegible]
0·700	0·823	0·808	0·809	0·809	0·801	0·830	0·91[illegible]
0·725	0·856	0·854	0·856	0·856	0·866	0·900	0·99[illegible]
0·750	0·913	0·922	0·923	0·923	0·940	0·964	1·09[illegible]
0·775	1·003	1·012	1·011	1·011	1·051	1·079	1·20[illegible]
0·800	1·085	1·100	1·100	1·100	1·161	1·218	1·32[illegible]

TABLE XIII

VALUES OF Ⓒ USED FOR CROSS-PLOTTING

S.S. 400-ft. *BP* × 55-ft. B. mld. × 21-ft. *d.* mld.

C_b	0·700							
LCB per cent	1A	⊠			1F		1½F	2F
Model No.	3378	3148	3255	3467	3066B	3256	3247	3248
$V/\sqrt{L}$	Ⓒ							
0·500	0·678	0·658	Model not tested in this condition	0·680	0·656	0·656	0·669	0·660
0·525	0·683	0·663		0·687	0·661	0·661	0·673	0·666
0·550	0·690	0·678		0·693	0·666	0·666	0·679	0·673
0·575	0·698	0·679		0·699	0·673	0·673	0·683	0·680
0·600	0·708	0·688		0·706	0·680	0·680	0·689	0·687
0·625	0·719	0·697		0·712	0·690	0·690	0·697	0·696
0·650	0·734	0·705		0·721	0·701	0·701	0·706	0·710
0·675	0·754	0·716		0·731	0·714	0·714	0·720	0·726
0·700	0·770	0·731		0·744	0·728	0·728	0·740	0·750
0·725	0·784	0·745		0·761	0·745	0·745	0·766	0·786
0·750	0·797	0·764		0·787	0·774	0·774	0·806	0·834
0·775	0·813	0·788		0·817	0·819	0·819	0·859	0·898
0·800	0·832	0·819		0·851	0·886	0·886	0·921	0·974
0·825	0·855	0·857		0·887	—	—	0·990	1·057
0·850	0·884	—		—	—	—	1·068	—
0·875	0·930	—		—	—	—	—	—
0·900	1·000	—		—	—	—	—	—
0·925	—	—		—	—	—	—	—

TABLE XV

VALUES OF Ⓒ USED FOR CROSS-PLOTTING

S.S. 400-ft. *BP* × 55-ft. B. mld. × 21-ft. *d.* mld.

C_b	0·800				
LCB per cent	½F	1½F	2F	2½F	3½F
Model No.	3859	3860	3807B	3861	3858
$V/\sqrt{L}$	Ⓒ				
0·400	0·761	0·741	0·726	0·715	0·703
0·425	0·761	0·735	0·726	0·710	0·696
0·450	0·762	0·734	0·726	0·705	0·691
0·475	0·763	0·738	0·726	0·704	0·688
0·500	0·766	0·740	0·726	0·704	0·691
0·525	0·770	0·741	0·728	0·708	0·701
0·550	0·778	0·746	0·734	0·719	0·725
0·575	0·789	0·760	0·743	0·737	0·769
0·600	0·802	0·773	0·769	0·776	0·835
0·625	0·818	0·791	0·807	0·824	0·921
0·650	0·850	0·838	0·866	0·876	1·000
0·675	0·885	0·893	0·933	0·946	1·083
0·700	0·916	0·931	1·013	1·039	1·218
0·725	0·966	1·006	1·106	1·144	—
0·750	1·088	1·134	1·224	—	—
0·775	—	—	—	—	—
0·800	—	—	—	—	—

TABLE XVI

VALUES OF (C) USED FOR CROSS-PLOTTING

S.S. 400-ft. *BP* × 55-ft. B. mld. × 16-ft. *d.* mld.

C_b	0·650					
LCB per cent	2A	1½A	½A		½F	1½F
Model No.	3803	3801	3747	3797	3800	3802
V/√L	(C)					
0·500	0·671	0·685	Model not tested in this condition	0·679	0·680	0·679
0·525	0·671	0·685		0·683	0·682	0·683
0·550	0·671	0·685		0·687	0·686	0·687
0·575	0·670	0·684		0·690	0·687	0·690
0·600	0·670	0·687		0·690	0·689	0·691
0·625	0·675	0·692		0·695	0·695	0·695
0·650	0·687	0·706		0·701	0·706	0·698
0·675	0·705	0·721		0·716	0·717	0·702
0·700	0·720	0·732		0·729	0·724	0·710
0·725	0·731	0·740		0·736	0·728	0·728
0·750	0·737	0·743		0·740	0·736	0·755
0·775	0·740	0·744		0·746	0·755	0·793
0·800	0·745	0·747		0·759	0·780	0·841
0·825	0·754	0·756		0·781	0·810	0·889
0·850	0·773	0·777		0·807	0·850	0·944
0·875	0·811	0·820		0·847	0·899	1·007
0·900	0·862	0·885		0·907	0·964	1·088
0·925	0·930	0·960		0·977	1·046	1·175

TABLE XVIII

VALUES OF (C) USED FOR CROSS-PLOTTING

S.S. 400-ft. *BP* × 55-ft. B. mld. × 16-ft. *d.* mld.

C_b	0·750						
LCB per cent	⊕	1F			1½F	2F	3F
Model No.	3822	3067	3204	3370A	3155	3223	3820
V/√L	(C)						
0·400	—	Models not tested in this condition					—
0·425	—						—
0·450	0·737						0·695
0·475	0·741						0·699
0·500	0·748						0·705
0·525	0·756						0·711
0·550	0·770						0·719
0·575	0·790						0·730
0·600	0·811						0·748
0·625	0·831						0·777
0·650	0·846						0·817
0·675	0·858						0·875
0·700	0·874						0·945
0·725	0·902						1·023
0·750	0·949						1·114
0·775	1·010						1·217
0·800	1·064						1·337

TABLE XVII

VALUES OF (C) USED FOR CROSS-PLOTTING

S.S. 400-ft. *BP* × 55-ft. B. mld. × 16-ft. *d.* mld.

C_b	0·700							
LCB per cent	1A	⊕			1F		1½F	2F
Model No.	3378	3148	3255	3467	3066B	3256	3247	3248
V/√L	(C)							
0·500	0·723	0·678	Model not tested in this condition	Model not tested in this condition	0·698	0·698	0·702	0·697
0·525	0·727	0·683			0·705	0·705	0·706	0·699
0·550	0·734	0·691			0·712	0·712	0·713	0·705
0·575	0·742	0·701			0·717	0·717	0·720	0·713
0·600	0·750	0·711			0·725	0·725	0·727	0·723
0·625	0·761	0·718			0·735	0·735	0·735	0·738
0·650	0·774	0·729			0·747	0·747	0·745	0·755
0·675	0·789	0·742			0·763	0·763	0·759	0·770
0·700	0·805	0·758			0·780	0·780	0·777	0·787
0·725	0·822	0·774			0·800	0·800	0·802	0·810
0·750	0·837	0·791			0·827	0·827	0·837	0·850
0·775	0·849	0·811			0·859	0·859	0·879	0·904
0·800	0·859	0·837			0·900	0·900	0·931	0·976
0·825	0·875	0·864			—	—	0·991	1·064
0·850	0·900	—			—	—	1·056	—
0·875	0·947	—			—	—	—	—
0·900	1·020	—			—	—	—	—
0·925	—	—			—	—	—	—

TABLE XIX

VALUES OF (C) USED FOR CROSS-PLOTTING

S.S. 400-ft. *BP* × 55-ft. B. mld. × 16-ft. *d.* mld.

C_b	0·800				
LCB per cent	½F	1½F	2F	2½F	3½F
Model No.	3859	3860	3807B	3861	3858
V/√L	(C)				
0·400	0·767	0·754	0·744	0·737	0·727
0·425	0·770	0·752	0·744	0·733	0·711
0·450	0·773	0·754	0·747	0·732	0·707
0·475	0·780	0·762	0·750	0·734	0·709
0·500	0·798	0·771	0·756	0·740	0·718
0·525	0·804	0·783	0·761	0·746	0·731
0·550	0·818	0·796	0·766	0·758	0·759
0·575	0·836	0·814	0·782	0·779	0·810
0·600	0·855	0·830	0·812	0·817	0·875
0·625	0·876	0·853	0·852	0·866	0·957
0·650	0·898	0·888	0·898	0·919	1·039
0·675	0·924	0·940	0·956	0·996	1·137
0·700	0·961	1·003	1·027	1·097	1·269
0·725	1·021	1·074	1·130	1·208	—
0·750	1·127	1·179	1·260	1·327	—
0·775	—	—	—	—	—
0·800	—	—	—	—	—

TABLE XX

VALUES OF Ⓒ USED FOR CROSS-PLOTTING

S.S. 400-ft. *BP* × 55-ft. B. mld. × 16-ft equivalent level-trim draught, 8/400 trim by stern

C_b	0·650					
LCB per cent	2A	1½A	½A		½F	1½F
Model No.	3803	3801	3747	3797	3800	3802
V/√L	Ⓒ					
0·500	0·679	0·685	Model not tested in this condition	0·691	0·692	0·682
0·525	0·677	0·685		0·690	0·692	0·684
0·550	0·678	0·686		0·690	0·694	0·688
0·575	0·679	0·685		0·691	0·698	0·694
0·600	0·683	0·687		0·693	0·703	0·698
0·625	0·692	0·691		0·699	0·712	0·703
0·650	0·703	0·703		0·709	0·718	0·708
0·675	0·716	0·718		0·722	0·723	0·717
0·700	0·726	0·732		0·734	0·730	0·729
0·725	0·733	0·740		0·741	0·733	0·744
0·750	0·738	0·742		0·746	0·744	0·767
0·775	0·741	0·743		0·750	0·763	0·798
0·800	0·745	0·746		0·755	0·790	0·833
0·825	0·754	0·754		0·768	0·811	0·864
0·850	0·774	0·774		0·790	0·836	0·900
0·875	0·812	0·812		0·828	0·871	0·940
0·900	0·862	0·866		0·884	0·921	0·994
0·925	0·929	0·936		0·954	0·993	1·070

TABLE XXI

VALUES OF Ⓒ USED FOR CROSS-PLOTTING

S.S. 400-ft. *BP* × 55-ft. B. mld. × 16-ft. equivalent level-trim draught, 8/400 trim by stern

C_b	0·700							
LCB per cent	1A	⊠			1F		1½F	2F
Model No.	3378	3148	3255	3467	3066B	3256	3247	3248
V/√L	Ⓒ							
0·500	Models not tested in this condition		0·685	Models not tested in this condition		0·709	0·722	0·697
0·525			0·687			0·713	0·725	0·699
0·550			0·689			0·717	0·729	0·705
0·575			0·692			0·720	0·733	0·713
0·600			0·699			0·725	0·738	0·723
0·625			0·705			0·732	0·745	0·739
0·650			0·717			0·741	0·754	0·754
0·675			0·736			0·752	0·765	0·771
0·700			0·754			0·766	0·778	0·787
0·725			0·765			0·787	0·800	0·810
0·750			0·773			0·813	0·828	0·849
0·775			0·786			0·841	0·864	0·905
0·800			0·806			0·869	0·913	0·976
0·825			—			—	—	—
0·850			—			—	—	—
0·875			—			—	—	—
0·900			—			—	—	—
0·925			—			—	—	—

TABLE XXII

VALUES OF Ⓒ USED FOR CROSS-PLOTTING

S.S. 400-ft. *BP* × 55-ft. B. mld. × 16-ft. equivalent level-[illegible] draught, 8/400 trim by stern

C_b	0·750						
LCB per cent	⊠	1F			1½F	2F	[illegible]
Model No.	3822	3067	3204	3370A	3155	3223	[illegible]
V/√L	Ⓒ						
0·400	—	Model not tested in this condition	—	—	—	—	
0·425	—		—	—	—	—	
0·450	0·791		0·756	0·766	0·761	0·749	[illegible]
0·475	0·793		0·759	0·770	0·763	0·754	[illegible]
0·500	0·796		0·763	0·773	0·767	0·760	[illegible]
0·525	0·798		0·771	0·780	0·773	0·767	[illegible]
0·550	0·805		0·778	0·790	0·785	0·775	[illegible]
0·575	0·816		0·792	0·801	0·798	0·788	[illegible]
0·600	0·830		0·805	0·813	0·813	0·804	[illegible]
0·625	0·845		0·821	0·828	0·829	0·826	[illegible]
0·650	0·854		0·833	0·842	0·846	0·851	[illegible]
0·675	0·863		0·848	0·854	0·869	0·884	[illegible]
0·700	0·875		0·866	0·868	0·898	0·923	[illegible]
0·725	0·896		0·893	0·896	0·939	0·974	[illegible]
0·750	0·932		0·948	0·947	0·999	1·045	[illegible]
0·775	0·972		1·017	1·013	1·072	1·123	[illegible]
0·800	1·005		1·071	—	1·142	1·202	[illegible]

TABLE XXIII

VALUES OF Ⓒ USED FOR CROSS-PLOTTING

S.S. 400-ft. *BP* × 55-ft. B. mld. × 16-ft. equivalent level-[illegible] draught, 8/400 trim by stern

C_b	0·800				
LCB per cent	½F	1½F	2F	2½F	[illegible]
Model No.	3859	3860	3807B	3861	[illegible]
V/√L	Ⓒ				
0·400	0·833	0·800	0·777	0·774	[illegible]
0·425	0·830	0·797	0·780	0·773	[illegible]
0·450	0·830	0·801	0·783	0·774	[illegible]
0·475	0·836	0·809	0·788	0·776	[illegible]
0·500	0·845	0·816	0·793	0·783	[illegible]
0·525	0·857	0·826	0·801	0·789	[illegible]
0·550	0·871	0·838	0·811	0·800	[illegible]
0·575	0·887	0·851	0·828	0·817	[illegible]
0·600	0·907	0·867	0·851	0·846	[illegible]
0·625	0·925	0·890	0·882	0·886	[illegible]
0·650	0·946	0·924	0·921	0·932	[illegible]
0·675	0·979	0·969	0·972	0·992	[illegible]
0·700	1·020	1·018	1·039	1·070	[illegible]
0·725	1·061	1·071	1·110	1·144	[illegible]
0·750	1·139	1·148	1·193	1·239	
0·775	—	—	—	—	
0·800	—	—	—	—	

TABLE XXIV

Faired values of Ⓒ

C_B	0·775	0·800	0·825	0·725	0·750	0·775	0·800	0·825	0·625	0·650	0·675	0·700	0·725	0·750	0·775	0·800	0·825
LCB	8 KNOTS			9 KNOTS					10 KNOTS								
26-ft. Draught. Level Keel																	
2·5 A	—	—	—	—	—	—	—	—	0·645	0·644	0·654	—	—	—	—	—	—
2·0 A	—	—	—	—	—	—	—	—	0·641	0·638	0·648	—	—	—	—	—	—
1·5 A	—	—	—	—	—	—	—	—	0·637	0·632	0·642	0·662	0·694	—	—	—	—
1·0 A	—	—	—	—	—	—	—	—	0·633	0·632	0·637	0·654	0·680	—	—	—	—
0·5 A	—	—	—	0·676	0·695	0·721	—	—	0·632	0·632	0·635	0·646	0·667	0·700	0·740	—	—
⊠	0·718	0·757	0·840	0·662	0·681	0·709	0·752	0·825	0·632	0·632	0·633	0·640	0·659	0·690	0·723	0·760	0·818
0·5 F	0·694	0·738	0·819	0·653	0·669	0·697	0·738	0·805	0·632	0·632	0·631	0·636	0·651	0·680	0·709	0·742	0·793
1·0 F	0·676	0·722	0·802	0·643	0·658	0·685	0·724	0·785	0·634	0·633	0·629	0·633	0·645	0·670	0·697	0·727	0·774
1·5 F	0·662	0·706	0·789	0·635	0·648	0·673	0·710	0·768	0·637	0·637	0·633	0·634	0·641	0·660	0·685	0·713	0·755
2·0 F	0·653	0·696	0·777	0·629	0·640	0·663	0·698	0·754	0·641	0·641	0·638	0·638	0·639	0·652	0·674	0·699	0·740
2·5 F	0·645	0·688	0·767	0·627	0·633	0·653	0·687	0·741	—	—	0·648	0·642	0·638	0·644	0·665	0·688	0·726
3·0 F	0·641	0·683	0·760	0·626	0·628	0·645	0·678	0·732	—	—	—	—	0·633	0·638	0·659	0·680	0·714
3·5 F	0·638	0·679	0·755	0·626	0·626	0·638	0·671	0·725	—	—	—	—	0·633	0·635	0·655	0·680	0·706
4·0 F	0·636	0·677	0·753	—	—	0·634	0·665	0·719	—	—	—	—	—	—	0·658	0·680	0·700
21-ft. Draught. Level Keel																	
2·5 A	—	—	—	—	—	—	—	—	0·645	0·649	0·656	—	—	—	—	—	—
2·0 A	—	—	—	—	—	—	—	—	0·647	0·649	0·659	—	—	—	—	—	—
1·5 A	—	—	—	—	—	—	—	—	0·647	0·650	0·660	0·681	0·712	—	—	—	—
1·0 A	—	—	—	—	—	—	—	—	0·648	0·650	0·660	0·678	0·712	—	—	—	—
0·5 A	—	—	—	0·729	0·749	0·771	—	—	0·646	0·650	0·660	0·674	0·705	0·747	0·783	—	—
⊠	0·731	0·762	0·816	0·704	0·720	0·744	0·780	0·821	0·646	0·650	0·662	0·670	0·692	0·724	0·757	0·795	0·834
0·5 F	0·720	0·759	0·812	0·682	0·694	0·719	0·764	0·812	0·646	0·650	0·658	0·666	0·680	0·704	0·736	0·773	0·813
1·0 F	0·708	0·751	0·807	0·663	0·672	0·700	0·750	0·801	0·646	0·647	0·652	0·660	0·668	0·687	0·713	0·754	0·796
1·5 F	0·698	0·741	0·797	0·650	0·657	0·683	0·735	0·789	0·646	0·645	0·647	0·650	0·658	0·674	0·700	0·739	0·782
2·0 F	0·688	0·729	0·786	0·641	0·648	0·672	0·720	0·775	0·646	0·640	0·639	0·642	0·650	0·665	0·689	0·724	0·770
2·5 F	0·681	0·715	0·773	0·643	0·648	0·668	0·708	0·762	—	—	0·630	0·636	0·646	0·660	0·681	0·712	0·761
3·0 F	0·674	0·706	0·758	0·650	0·652	0·668	0·699	0·750	—	—	—	—	0·645	0·658	0·675	0·700	0·751
3·5 F	0·671	0·702	0·740	0·665	0·664	0·670	0·690	0·734	—	—	—	—	0·646	0·654	0·667	0·690	0·743
4·0 F	0·676	0·700	0·726	—	—	0·680	0·687	0·720	—	—	—	—	—	—	0·660	0·680	0·734
16-ft. Draught. Level Keel																	
2·5 A	—	—	—	—	—	—	—	—	0·650	0·674	0·696	—	—	—	—	—	—
2·0 A	—	—	—	—	—	—	—	—	0·653	0·674	0·696	—	—	—	—	—	—
1·5 A	—	—	—	—	—	—	—	—	0·657	0·676	0·696	0·729	0·756	—	—	—	—
1·0 A	—	—	—	—	—	—	—	—	0·660	0·679	0·695	0·723	0·746	—	—	—	—
0·5 A	—	—	—	0·749	0·742	0·757	—	—	0·664	0·679	0·695	0·717	0·738	0·757	0·775	—	—
⊠	0·754	0·777	0·810	0·738	0·739	0·754	0·777	0·806	0·668	0·680	0·694	0·711	0·730	0·749	0·770	0·796	0·824
0·5 F	0·748	0·766	0·800	0·728	0·733	0·749	0·771	0·802	0·670	0·680	0·694	0·708	0·723	0·741	0·764	0·791	0·820
1·0 F	0·740	0·759	0·791	0·720	0·727	0·740	0·764	0·796	0·674	0·680	0·693	0·705	0·719	0·734	0·756	0·783	0·813
1·5 F	0·732	0·752	0·782	0·711	0·719	0·732	0·755	0·787	0·677	0·680	0·693	0·703	0·714	0·727	0·747	0·772	0·802
2·0 F	0·723	0·744	0·774	0·705	0·710	0·723	0·743	0·775	0·680	0·684	0·693	0·699	0·708	0·719	0·738	0·760	0·789
2·5 F	0·713	0·738	0·768	0·699	0·702	0·712	0·732	0·764	—	—	0·692	0·697	0·704	0·712	0·727	0·747	0·773
3·0 F	0·706	0·731	0·763	0·691	0·693	0·700	0·719	0·752	—	—	—	—	0·700	0·705	0·717	0·733	0·755
3·5 F	0·697	0·727	0·760	0·684	0·684	0·691	0·708	0·740	—	—	—	—	0·696	0·699	0·706	0·719	0·736
4·0 F	0·686	0·722	0·760	—	—	0·680	0·696	0·729	—	—	—	—	—	—	0·695	0·704	0·715
16-ft. E.L.T. Draught. 8/400 Trim by Stern																	
2·5 A	—	—	—	—	—	—	—	—	0·670	0·674	0·695	—	—	—	—	—	—
2·0 A	—	—	—	—	—	—	—	—	0·678	0·680	0·700	—	—	—	—	—	—
1·5 A	—	—	—	—	—	—	—	—	0·685	0·685	0·702	—	—	—	—	—	—
1·0 A	—	—	—	—	—	—	—	—	0·690	0·690	0·705	—	—	—	—	—	—
0·5 A	—	—	—	0·761	0·801	0·836	—	—	0·694	0·691	0·704	0·731	0·771	0·810	0·847	—	—
⊠	0·818	0·850	0·860	0·755	0·791	0·821	0·847	0·867	0·694	0·692	0·702	0·725	0·760	0·798	0·831	0·865	0·890
0·5 F	0·805	0·833	0·838	0·746	0·781	0·810	0·830	0·846	0·693	0·691	0·699	0·715	0·749	0·786	0·819	0·848	0·867
1·0 F	0·793	0·817	0·817	0·740	0·772	0·799	0·816	0·828	0·690	0·687	0·692	0·710	0·740	0·776	0·807	0·830	0·844
1·5 F	0·781	0·801	0·800	0·733	0·762	0·787	0·800	0·809	0·685	0·681	0·685	0·702	0·732	0·768	0·797	0·813	0·820
2·0 F	0·770	0·786	0·785	0·726	0·753	0·774	0·786	0·791	0·679	0·673	0·676	0·697	0·727	0·760	0·786	0·798	0·799
2·5 F	0·762	0·772	0·775	0·720	0·746	0·763	0·772	0·773	—	—	0·664	0·691	0·727	0·756	0·777	0·780	0·779
3·0 F	0·755	0·759	0·766	0·715	0·738	0·753	0·758	0·755	—	—	—	—	0·728	0·752	0·768	0·769	0·759
3·5 F	0·750	0·748	0·760	0·711	0·732	0·745	0·745	0·739	—	—	—	—	0·735	0·751	0·760	0·757	0·743
4·0 F	0·750	0·740	0·753	—	—	0·738	0·731	0·722	—	—	—	—	—	—	0·750	0·747	0·729

TABLE XXV

Faired values of Ⓒ

26-ft. Draught. Level Keel

LCB \ C_b (11 knots)	0·625	0·650	0·675	0·700	0·725	0·750	0·775	0·800	0·825
2·5 A	0·630	0·645	0·660	—	—	—	—	—	—
2·0 A	0·630	0·639	0·659	—	—	—	—	—	—
1·5 A	0·630	0·637	0·647	0·670	0·696	—	—	—	—
1·0 A	0·632	0·635	0·643	0·662	0·688	—	—	—	—
0·5 A	0·635	0·635	0·640	0·654	0·680	0·711	0·753	—	—
⊠	0·637	0·637	0·638	0·650	0·672	0·699	0·733	0·773	0·820
0·5 F	0·639	0·639	0·638	0·646	0·664	0·688	0·718	0·753	0·794
1·0 F	0·641	0·639	0·638	0·644	0·658	0·678	0·704	0·735	0·772
1·5 F	0·643	0·640	0·638	0·642	0·652	0·669	0·690	0·719	0·755
2·0 F	0·640	0·640	0·640	0·640	0·647	0·661	0·680	0·709	0·742
2·5 F	—	—	0·642	0·640	0·645	0·653	0·671	0·699	0·735
3·0 F	—	—	—	—	0·639	0·645	0·665	0·698	0·737
3·5 F	—	—	—	—	0·635	0·638	0·663	0·709	0·750
4·0 F	—	—	—	—	—	—	0·663	0·725	0·778

LCB \ C_b (12 knots)	0·625	0·650	0·675	0·700	0·725	0·750	0·775	0·800	0·8[illegible]
2·5 A	0·630	0·643	0·665	—	—	—	—	—	
2·0 A	0·632	0·641	0·665	—	—	—	—	—	
1·5 A	0·634	0·643	0·669	0·680	0·705	—	—	—	
1·0 A	0·636	0·645	0·663	0·677	0·701	—	—	—	
0·5 A	0·640	0·644	0·657	0·672	0·695	0·736	0·782	—	
⊠	0·642	0·644	0·652	0·666	0·689	0·721	0·756	0·789	[illegible]
0·5 F	0·642	0·644	0·648	0·660	0·681	0·706	0·740	0·769	[illegible]
1·0 F	0·642	0·640	0·648	0·654	0·672	0·695	0·726	0·754	[illegible]
1·5 F	0·640	0·640	0·644	0·650	0·664	0·685	0·714	0·742	[illegible]
2·0 F	0·638	0·638	0·640	0·646	0·657	0·677	0·707	0·738	[illegible]
2·5 F	—	—	0·638	0·644	0·651	0·670	0·708	0·745	[illegible]
3·0 F	—	—	—	—	0·640	0·670	0·722	0·768	[illegible]
3·5 F	—	—	—	—	0·640	0·690	0·756	0·821	[illegible]
4·0 F	—	—	—	—	—	—	0·816	0·904	[illegible]

21-ft. Draught. Level Keel

LCB \ C_b (11 knots)	0·625	0·650	0·675	0·700	0·725	0·750	0·775	0·800	0·825
2·5 A	0·647	0·641	0·636	—	—	—	—	—	—
2·0 A	0·651	0·646	0·649	—	—	—	—	—	—
1·5 A	0·655	0·654	0·660	0·684	0·750	—	—	—	—
1·0 A	0·655	0·656	0·664	0·686	0·735	—	—	—	—
0·5 A	0·656	0·656	0·667	0·685	0·723	0·766	0·803	—	—
⊠	0·654	0·656	0·665	0·682	0·708	0·740	0·773	0·799	0·832
0·5 F	0·651	0·653	0·662	0·676	0·696	0·718	0·747	0·779	0·815
1·0 F	0·650	0·651	0·660	0·670	0·683	0·702	0·727	0·760	0·799
1·5 F	0·650	0·651	0·656	0·663	0·674	0·690	0·711	0·745	0·787
2·0 F	0·648	0·646	0·649	0·654	0·664	0·680	0·701	0·733	0·779
2·5 F	—	—	0·639	0·645	0·659	0·673	0·696	0·726	0·777
3·0 F	—	—	—	—	0·655	0·670	0·694	0·725	0·779
3·5 F	—	—	—	—	0·668	0·673	0·696	0·725	0·785
4·0 F	—	—	—	—	—	—	0·701	0·731	0·799

LCB \ C_b (12 knots)	0·625	0·650	0·675	0·700	0·725	0·750	0·775	0·800	0·8[illegible]
2·5 A	0·656	0·650	0·690	—	—	—	—	—	
2·0 A	0·658	0·654	0·686	—	—	—	—	—	
1·5 A	0·660	0·658	0·680	0·721	0·779	—	—	—	
1·0 A	0·660	0·660	0·674	0·708	0·760	—	—	—	
0·5 A	0·660	0·660	0·670	0·699	0·744	0·798	0·837	—	
⊠	0·658	0·660	0·670	0·691	0·728	0·770	0·803	0·833	[illegible]
0·5 F	0·656	0·659	0·669	0·686	0·711	0·746	0·773	0·802	[illegible]
1·0 F	0·654	0·657	0·666	0·680	0·700	0·725	0·750	0·780	[illegible]
1·5 F	0·652	0·657	0·666	0·676	0·691	0·710	0·735	0·768	[illegible]
2·0 F	0·651	0·655	0·664	0·672	0·683	0·700	0·728	0·768	[illegible]
2·5 F	—	—	0·662	0·669	0·680	0·699	0·728	0·779	[illegible]
3·0 F	—	—	—	—	0·680	0·701	0·738	0·799	[illegible]
3·5 F	—	—	—	—	0·693	0·710	0·760	0·834	[illegible]
4·0 F	—	—	—	—	—	—	0·793	0·885	[illegible]

16-ft. Draught. Level Keel

LCB \ C_b (11 knots)	0·625	0·650	0·675	0·700	0·725	0·750	0·775	0·800	0·825
2·5 A	0·673	0·690	0·721	—	—	—	—	—	—
2·0 A	0·674	0·689	0·717	—	—	—	—	—	—
1·5 A	0·674	0·688	0·712	0·744	0·788	—	—	—	—
1·0 A	0·675	0·687	0·709	0·735	0·770	—	—	—	—
0·5 A	0·676	0·686	0·705	0·727	0·756	0·786	0·819	—	—
⊠	0·676	0·686	0·701	0·721	0·745	0·770	0·802	0·840	0·889
0·5 F	0·676	0·685	0·700	0·717	0·735	0·758	0·787	0·817	0·858
1·0 F	0·677	0·686	0·699	0·714	0·727	0·748	0·772	0·797	0·831
1·5 F	0·679	0·689	0·699	0·711	0·720	0·739	0·759	0·781	0·808
2·0 F	0·682	0·691	0·701	0·710	0·716	0·731	0·748	0·767	0·794
2·5 F	—	—	0·705	0·709	0·711	0·723	0·740	0·758	0·787
3·0 F	—	—	—	—	0·707	0·720	0·737	0·755	0·786
3·5 F	—	—	—	—	0·703	0·715	0·740	0·759	0·787
4·0 F	—	—	—	—	—	—	0·754	0·770	0·791

LCB \ C_b (12 knots)	0·625	0·650	0·675	0·700	0·725	0·750	0·775	0·800	0·8[illegible]
2·5 A	0·673	0·682	0·730	—	—	—	—	—	
2·0 A	0·677	0·686	0·722	—	—	—	—	—	
1·5 A	0·679	0·688	0·717	0·760	0·806	—	—	—	
1·0 A	0·681	0·689	0·713	0·750	0·793	—	—	—	
0·5 A	0·682	0·689	0·710	0·743	0·782	0·830	0·878	—	
⊠	0·682	0·690	0·709	0·737	0·771	0·810	0·850	0·883	[illegible]
0·5 F	0·682	0·690	0·707	0·732	0·761	0·794	0·826	0·856	[illegible]
1·0 F	0·682	0·690	0·707	0·728	0·751	0·780	0·807	0·834	[illegible]
1·5 F	0·681	0·690	0·707	0·724	0·743	0·768	0·792	0·819	[illegible]
2·0 F	0·680	0·690	0·706	0·721	0·736	0·758	0·785	0·812	[illegible]
2·5 F	—	—	0·707	0·719	0·730	0·751	0·783	0·819	[illegible]
3·0 F	—	—	—	—	0·726	0·752	0·790	0·839	[illegible]
3·5 F	—	—	—	—	0·727	0·760	0·809	0·876	[illegible]
4·0 F	—	—	—	—	—	—	0·846	0·930	[illegible]

16-ft. Equivalent Level Keel Draught. 8/400 Trim by Stern

LCB \ C_b (11 knots)	0·625	0·650	0·675	0·700	0·725	0·750	0·775	0·800	0·825
2·5 A	0·670	0·670	0·673	—	—	—	—	—	—
2·0 A	0·679	0·679	0·683	—	—	—	—	—	—
1·5 A	0·686	0·687	0·690	—	—	—	—	—	—
1·0 A	0·690	0·691	0·695	—	—	—	—	—	—
0·5 A	0·696	0·694	0·700	0·722	0·762	0·814	0·875	—	—
⊠	0·697	0·695	0·700	0·721	0·760	0·805	0·854	0·898	0·934
0·5 F	0·696	0·693	0·699	0·719	0·756	0·798	0·839	0·873	0·898
1·0 F	0·692	0·690	0·697	0·716	0·751	0·790	0·824	0·849	0·864
1·5 F	0·697	0·685	0·692	0·711	0·746	0·785	0·813	0·830	0·838
2·0 F	0·680	0·680	0·683	0·704	0·743	0·780	0·804	0·813	0·815
2·5 F	—	—	0·670	0·695	0·740	0·775	0·798	0·802	0·802
3·0 F	—	—	—	—	0·742	0·775	0·790	0·795	0·794
3·5 F	—	—	—	—	0·755	0·775	0·787	0·794	0·796
4·0 F	—	—	—	—	—	—	0·781	0·796	0·801

LCB \ C_b (12 knots)	0·625	0·650	0·675	0·700	0·725	0·750	0·775	0·800	0·8[illegible]
2·5 A	0·680	0·676	0·683	—	—	—	—	—	
2·0 A	0·688	0·683	0·691	—	—	—	—	—	
1·5 A	0·693	0·690	0·697	—	—	—	—	—	
1·0 A	0·696	0·694	0·700	—	—	—	—	—	
0·5 A	0·699	0·696	0·701	0·726	0·775	0·835	0·905	—	
⊠	0·698	0·698	0·702	0·726	0·773	0·829	0·887	0·940	[illegible]
0·5 F	0·698	0·697	0·702	0·725	0·771	0·824	0·870	0·907	[illegible]
1·0 F	0·698	0·697	0·702	0·725	0·770	0·819	0·857	0·880	[illegible]
1·5 F	0·698	0·695	0·700	0·725	0·768	0·814	0·845	0·860	[illegible]
2·0 F	0·698	0·693	0·698	0·722	0·766	0·810	0·837	0·849	[illegible]
2·5 F	—	—	0·695	0·720	0·764	0·808	0·835	0·849	[illegible]
3·0 F	—	—	—	—	0·762	0·807	0·838	0·862	[illegible]
3·5 F	—	—	—	—	0·761	0·808	0·849	0·887	[illegible]
4·0 F	—	—	—	—	—	—	0·869	0·931	[illegible]

TABLE XXVI

FAIRED VALUES OF Ⓒ

	0·625	0·650	0·675	0·700	0·725	0·750	0·775	0·800	0·825	0·625	0·650	0·675	0·700	0·725	0·750	0·775	0·800	0·825
	13 KNOTS									14 KNOTS								
	26-FT. DRAUGHT. LEVEL KEEL																	
5 A	0·642	0·643	0·683	—	—	—	—	—	—	0·619	0·659	0·700	—	—	—	—	—	—
0 A	0·650	0·650	0·680	—	—	—	—	—	—	0·643	0·663	0·697	—	—	—	—	—	—
5 A	0·655	0·656	0·678	0·711	0·737	—	—	—	—	0·656	0·668	0·693	0·736	0·768	—	—	—	—
0 A	0·660	0·659	0·675	0·699	0·727	—	—	—	—	0·662	0·673	0·690	0·721	0·752	—	—	—	—
5 A	0·661	0·663	0·671	0·690	0·717	0·756	0·802	—	—	0·666	0·672	0·687	0·739	0·738	0·768	0·800	—	—
⊠	0·660	0·662	0·668	0·682	0·708	0·742	0·780	0·820	0·865	0·665	0·670	0·683	0·700	0·728	0·760	0·800	0·857	0·940
5 F	0·655	0·657	0·663	0·678	0·700	0·728	0·767	0·812	0·863	0·659	0·666	0·680	0·694	0·723	0·759	0·812	0·871	0·950
0 F	0·648	0·651	0·660	0·674	0·694	0·721	0·759	0·810	0·869	0·649	0·658	0·676	0·695	0·723	0·767	0·825	0·890	0·968
5 F	0·640	0·644	0·655	0·670	0·688	0·716	0·758	0·814	0·884	0·638	0·650	0·672	0·698	0·732	0·783	0·844	0·917	0·996
0 F	0·630	0·636	0·650	0·667	0·687	0·718	0·762	0·829	0·909	0·624	0·640	0·668	0·703	0·748	0·807	0·874	0·953	1·041
5 F	—	—	0·646	0·665	0·690	0·724	0·777	0·855	0·950	—	—	0·665	0·711	0·769	0·840	0·917	1·005	1·105
0 F	—	—	—	—	0·697	0·741	0·802	0·901	1·011	—	—	—	—	0·800	0·884	0·971	1·076	1·191
5 F	—	—	—	—	0·725	0·769	0·845	0·978	1·100	—	—	—	—	0·860	0·939	1·050	1·169	1·298
0 F	—	—	—	—	—	—	0·940	1·096	1·229	—	—	—	—	—	—	—	—	—
	21-FT. DRAUGHT. LEVEL KEEL																	
5 A	0·663	0·667	0·698	—	—	—	—	—	—	0·687	0·696	0·759	—	—	—	—	—	—
0 A	0·668	0·672	0·699	—	—	—	—	—	—	0·690	0·698	0·747	—	—	—	—	—	—
5 A	0·670	0·676	0·699	0·750	0·809	—	—	—	—	0·690	0·699	0·736	0·797	0·843	—	—	—	—
0 A	0·671	0·679	0·697	0·735	0·789	—	—	—	—	0·690	0·700	0·724	0·770	0·816	—	—	—	—
5 A	0·672	0·678	0·694	0·721	0·770	0·835	0·873	—	—	0·691	0·700	0·714	0·747	0·794	0·848	0·898	—	—
⊠	0·670	0·676	0·690	0·712	0·752	0·801	0·837	0·880	0·909	0·686	0·695	0·708	0·732	0·775	0·824	0·872	0·922	0·969
5 F	0·666	0·673	0·686	0·706	0·736	0·773	0·808	0·852	0·904	0·680	0·691	0·702	0·725	0·762	0·808	0·857	0·916	0·980
0 F	0·660	0·668	0·682	0·700	0·723	0·752	0·790	0·839	0·908	0·672	0·688	0·701	0·726	0·760	0·801	0·852	0·920	1·005
5 F	0·652	0·662	0·677	0·696	0·714	0·740	0·780	0·840	0·921	0·664	0·683	0·700	0·731	0·765	0·808	0·864	0·939	1·049
0 F	0·643	0·656	0·671	0·691	0·710	0·738	0·785	0·854	0·949	0·652	0·677	0·705	0·739	0·779	0·829	0·890	0·979	1·105
5 F	—	—	0·665	0·689	0·713	0·749	0·803	0·889	0·996	—	—	0·696	0·750	0·801	0·861	0·931	1·040	1·176
0 F	—	—	—	—	0·724	0·770	0·832	0·937	1·060	—	—	—	—	0·843	0·908	0·987	1·119	1·258
5 F	—	—	—	—	0·748	0·801	0·877	1·000	1·140	—	—	—	—	0·901	0·971	1·069	12·19	1·352
0 F	—	—	—	—	—	—	0·936	1·080	1·229	—	—	—	—	—	—	—	—	—
	16-FT. DRAUGHT. LEVEL KEEL																	
5 A	0·688	0·701	0·765	—	—	—	—	—	—	0·705	0·729	0·789	—	—	—	—	—	—
0 A	0·690	0·704	0·755	—	—	—	—	—	—	0·708	0·730	0·781	—	—	—	—	—	—
5 A	0·694	0·707	0·746	0·795	0·838	—	—	—	—	0·710	0·730	0·772	0·818	0·865	—	—	—	—
0 A	0·696	0·709	0·737	0·775	0·816	—	—	—	—	0·711	0·730	0·765	0·804	0·846	—	—	—	—
5 A	0·697	0·709	0·730	0·761	0·801	0·847	0·888	—	—	0·711	0·730	0·758	0·793	0·832	0·875	0·915	—	—
⊠	0·697	0·708	0·724	0·750	0·790	0·835	0·876	0·917	0·950	0·707	0·727	0·752	0·786	0·825	0·868	0·913	0·961	1·010
5 F	0·693	0·705	0·721	0·745	0·783	0·825	0·863	0·900	0·934	0·703	0·722	0·749	0·782	0·822	0·864	0·913	0·962	1·020
0 F	0·690	0·702	0·720	0·744	0·780	0·817	0·853	0·889	0·930	0·693	0·718	0·747	0·781	0·821	0·864	0·919	0·975	1·046
5 F	0·686	0·698	0·720	0·746	0·778	0·812	0·849	0·888	0·941	0·683	0·710	0·745	0·783	0·823	0·869	0·931	1·002	1·086
0 F	0·681	0·694	0·720	0·748	0·778	0·810	0·848	0·899	0·972	0·673	0·700	0·743	0·786	0·830	0·882	0·954	1·043	1·145
5 F	—	—	0·722	0·751	0·780	0·810	0·856	0·924	1·025	—	—	0·742	0·792	0·846	0·908	0·991	1·102	1·231
0 F	—	—	—	—	0·781	0·818	0·880	0·970	1·091	—	—	—	—	0·871	0·946	1·042	1·176	1·346
5 F	—	—	—	—	0·785	0·833	0·924	1·038	1·169	—	—	—	—	0·903	0·994	1·110	1·270	1·474
0 F	—	—	—	—	—	—	0·992	1·120	1·257	—	—	—	—	—	—	—	—	—
	16-FT. EQUIVALENT LEVEL KEEL DRAUGHT. 8/400 TRIM BY STERN																	
5 A	0·705	0·702	0·722	—	—	—	—	—	—	0·720	0·724	0·732	—	—	—	—	—	—
0 A	0·706	0·704	0·723	—	—	—	—	—	—	0·727	0·728	0·736	—	—	—	—	—	—
5 A	0·707	0·707	0·725	—	—	—	—	—	—	0·731	0·730	0·740	—	—	—	—	—	—
0 A	0·708	0·709	0·725	—	—	—	—	—	—	0·734	0·735	0·741	—	—	—	—	—	—
5 A	0·709	0·709	0·724	0·750	0·795	0·860	0·936	—	—	0·735	0·736	0·743	0·765	0·811	0·879	0·948	—	—
⊠	0·710	0·710	0·724	0·750	0·795	0·853	0·918	0·969	1·010	0·734	0·736	0·745	0·770	0·815	0·881	0·950	1·031	1·101
5 F	0·710	0·710	0·723	0·750	0·797	0·848	0·904	0·947	0·980	0·731	0·733	0·745	0·775	0·819	0·884	0·951	1·020	1·081
0 F	0·710	0·710	0·722	0·751	0·797	0·842	0·813	0·929	0·958	0·729	0·730	0·745	0·778	0·824	0·890	0·954	1·014	1·070
5 F	0·712	0·708	0·720	0·751	0·798	0·843	0·889	0·920	0·942	0·727	0·728	0·745	0·779	0·829	0·896	0·961	1·018	1·070
0 F	0·713	0·705	0·718	0·751	0·799	0·847	0·890	0·922	0·941	0·724	0·725	0·745	0·780	0·836	0·902	0·972	1·031	1·090
5 F	—	—	0·716	0·752	0·802	0·852	0·898	0·936	0·960	—	—	0·744	0·780	0·846	0·914	0·991	1·062	1·137
0 F	—	—	—	—	0·805	0·860	0·915	0·965	1·002	—	—	—	—	0·859	0·936	1·020	1·112	1·219
5 F	—	—	—	—	0·810	0·870	0·946	1·013	1·070	—	—	—	—	0·881	0·977	1·065	1·196	1·345
0 F	—	—	—	—	—	—	0·995	1·088	1·163	—	—	—	—	—	—	—	—	—

TABLE XXVII

Faired values of Ⓒ

C_b	0·625	0·650	0·675	0·700	0·725	0·750	0·775	0·800	0·825	0·625	0·650	0·675	0·700	0·725	0·750	0·775
LCB	15 KNOTS									16 KNOTS						
26-ft Draught. Level Keel																
2·5 A	0·640	0·683	0·727	—	—	—	—	—	—	0·659	0·700	0·750	—	—	—	—
2·0 A	0·646	0·679	0·719	—	—	—	—	—	—	0·656	0·687	0·739	—	—	—	—
1·5 A	0·652	0·675	0·711	0·759	0·819	—	—	—	—	0·657	0·680	0·730	0·814	0·898	—	—
1·0 A	0·668	0·672	0·705	0·750	0·802	—	—	—	—	0·665	0·681	0·728	0·801	0·892	—	—
0·5 A	0·664	0·671	0·700	0·742	0·792	0·849	—	—	—	0·683	0·693	0·730	0·798	0·894	1·021	1·160
⊗	0·670	0·673	0·699	0·740	0·790	0·850	0·926	1·007	1·104	0·707	0·712	0·741	0·804	0·905	1·042	1·185
0·5 F	0·676	0·676	0·700	0·741	0·798	0·868	0·946	1·026	1·099	0·736	0·738	0·763	0·825	0·924	1·070	1·220
1·0 F	0·682	0·684	0·707	0·750	0·815	0·897	0·979	1·051	1·105	0·766	0·768	0·792	0·856	0·956	1·103	1·260
1·5 F	0·688	0·695	0·722	0·768	0·840	0·929	1·021	1·090	1·128	0·799	0·805	0·830	0·894	0·996	1·146	1·305
2·0 F	0·694	0·711	0·744	0·792	0·876	0·969	1·069	1·141	1·183	0·832	0·840	0·880	0·931	1·043	1·199	1·359
2·5 F	—	—	0·771	0·823	0·919	1·018	1·122	1·216	1·266	—	—	—	0·972	1·100	1·260	1·419
3·0 F	—	—	—	—	0·971	1·073	1·193	1·307	1·385	—	—	—	—	1·162	1·326	1·480
3·5 F	—	—	—	—	1·032	1·139	1·280	1·411	1·504	—	—	—	—	1·228	1·394	1·540
4·0 F	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
21-ft. Draught. Level Keel																
2·5 A	0·702	0·718	0·798	—	—	—	—	—	—	0·722	0·739	0·794	—	—	—	—
2·0 A	0·701	0·712	0·776	—	—	—	—	—	—	0·710	0·726	0·776	—	—	—	—
1·5 A	0·700	0·710	0·756	0·823	0·897	—	—	—	—	0·702	0·718	0·764	0·845	—	—	—
1·0 A	0·699	0·710	0·741	0·798	0·863	—	—	—	—	0·700	0·717	0·758	0·834	—	—	—
0·5 A	0·700	0·708	0·730	0·778	0·839	0·910	0·993	—	—	0·707	0·721	0·760	0·830	—	—	—
⊗	0·700	0·708	0·727	0·765	0·825	0·901	0·990	1·085	1·181	0·721	0·735	0·771	0·833	0·939	1·087	—
0·5 F	0·698	0·708	0·728	0·765	0·825	0·902	0·993	1·090	1·189	0·739	0·757	0·792	0·848	0·953	1·100	—
1·0 F	0·695	0·712	0·738	0·779	0·837	0·913	1·005	1·105	1·212	0·763	0·781	0·820	0·878	0·982	1·126	—
1·5 F	0·697	0·721	0·753	0·800	0·859	0·938	1·032	1·140	1·257	0·789	0·814	0·856	0·918	1·025	1·165	—
2·0 F	0·702	0·739	0·780	0·831	0·890	0·972	1·072	1·200	1·338	0·818	0·850	0·900	0·972	1·080	1·212	1·362
2·5 F	—	—	0·835	0·878	0·931	1·027	1·136	1·289	1·438	—	—	0·956	1·034	1·141	1·269	1·403
3·0 F	—	—	—	—	0·989	1·092	1·240	1·400	1·565	—	—	—	—	1·213	1·328	1·453
3·5 F	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4·0 F	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
16-ft. Draught. Level Keel																
2·5 A	0·735	0·756	0·809	—	—	—	—	—	—	0·735	0·750	0·811	—	—	—	—
2·0 A	0·725	0·749	0·801	—	—	—	—	—	—	0·723	0·749	0·804	—	—	—	—
1·5 A	0·716	0·744	0·794	0·846	0·900	—	—	—	—	0·718	0·749	0·799	0·864	0·937	—	—
1·0 A	0·711	0·742	0·788	0·837	0·888	—	—	—	—	0·719	0·751	0·795	0·858	0·937	—	—
0·5 A	0·709	0·740	0·783	0·830	0·880	0·934	1·000	—	—	0·730	0·756	0·795	0·857	0·942	1·045	1·160
⊗	0·710	0·740	0·780	0·826	0·876	0·934	1·007	1·092	1·200	0·744	0·767	0·801	0·861	0·956	1·062	1·178
0·5 F	0·712	0·742	0·780	0·824	0·877	0·943	1·020	1·115	1·222	0·769	0·783	0·813	0·879	0·978	1·089	1·204
1·0 F	0·719	0·747	0·784	0·829	0·887	0·956	1·041	1·145	1·256	0·799	0·808	0·836	0·899	1·006	1·125	1·238
1·5 F	0·730	0·755	0·791	0·838	0·900	0·980	1·072	1·186	1·301	0·834	0·841	0·868	0·930	1·046	1·169	1·278
2·0 F	0·742	0·765	0·799	0·851	0·921	1·010	1·118	1·242	1·373	0·874	0·888	0·912	0·974	1·097	1·218	1·327
2·5 F	—	—	0·809	0·869	0·955	1·056	1·184	1·324	1·467	—	—	0·976	1·030	1·154	1·274	1·380
3·0 F	—	—	—	—	1·000	1·116	1·265	1·430	1·570	—	—	—	—	1·214	1·335	1·439
3·5 F	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4·0 F	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
16-ft. Equivalent Level Keel Draught. 8/400 Trim by Stern																
2·5 A	0·724	0·734	0·740	—	—	—	—	—	—	0·748	0·744	0·740	—	—	—	—
2·0 A	0·736	0·737	0·740	—	—	—	—	—	—	0·751	0·743	0·740	—	—	—	—
1·5 A	0·745	0·740	0·742	—	—	—	—	—	—	0·756	0·744	0·743	—	—	—	—
1·0 A	0·750	0·745	0·745	—	—	—	—	—	—	0·764	0·750	0·748	—	—	—	—
0·5 A	0·754	0·747	0·749	0·764	0·816	0·903	1·037	—	—	0·773	0·758	0·758	0·786	0·846	0·939	1·073
⊗	0·758	0·751	0·754	0·781	0·841	0·931	1·044	1·149	1·232	0·784	0·771	0·772	0·802	0·883	1·002	1·150
0·5 F	0·759	0·756	0·761	0·797	0·865	0·959	1·054	1·138	1·201	0·797	0·786	0·794	0·831	0·920	1·058	1·209
1·0 F	0·760	0·759	0·770	0·813	0·886	0·980	1·066	1·137	1·192	0·811	0·808	0·822	0·869	0·962	1·104	1·249
1·5 F	0·760	0·764	0·782	0·830	0·906	0·999	1·082	1·149	1·206	0·829	0·831	0·859	0·914	1·003	1·138	1·276
2·0 F	0·760	0·769	0·796	0·847	0·923	1·015	1·103	1·180	1·251	0·855	0·871	0·909	0·971	1·046	1·164	1·293
2·5 F	—	—	0·813	0·863	0·936	1·030	1·136	1·240	1·330	—	—	—	1·056	1·091	1·182	1·316
3·0 F	—	—	—	—	0·944	1·041	1·181	1·322	1·450	—	—	—	—	1·129	1·200	1·351
3·5 F	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4·0 F	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

TABLE XXVIII

Faired values of Ⓒ

C_b	0·625	0·650	0·675	0·700	0·725	0·625	0·650	0·675	0·625	0·650	0·675
LCB	17 KNOTS					18 KNOTS			19 KNOTS		
26-ft. Draught. Level Keel											
2·5 A	0·692	0·706	0·733	—	—	0·814	0·833	0·861	1·024	1·110	1·211
2·0 A	0·690	0·702	0·740	—	—	0·813	0·838	0·868	1·037	1·126	1·228
1·5 A	0·692	0·705	0·759	0·847	0·964	0·820	0·848	0·879	1·054	1·146	1·250
1·0 A	0·702	0·716	0·762	0·853	0·975	0·833	0·865	0·898	1·074	1·170	1·279
0·5 A	0·726	0·736	0·782	0·867	0·995	0·858	0·889	0·923	1·100	1·197	1·310
⊗	0·760	0·769	0·809	0·892	1·022	0·895	0·923	0·960	1·130	1·229	1·345
0·5 F	0·805	0·813	0·849	0·932	1·065	0·940	0·970	1·005	1·164	1·266	1·384
1·0 F	0·861	0·869	0·903	0·988	1·119	1·000	1·026	1·061	1·199	1·303	1·422
1·5 F	0·924	0·932	0·964	1·052	1·189	1·075	1·099	1·130	—	—	—
2·0 F	0·994	0·998	1·029	1·119	1·268	1·156	1·183	1·214	—	—	—
21-ft. Draught. Level Keel											
2·5 A	0·736	0·765	0·796	—	—	0·840	0·861	0·906	—	—	—
2·0 A	0·728	0·752	0·791	—	—	0·837	0·863	0·916	—	—	—
1·5 A	0·723	0·749	0·792	0·875	0·991	0·840	0·870	0·930	—	—	—
1·0 A	0·726	0·752	0·802	0·887	0·999	0·849	0·884	0·948	—	—	—
0·5 A	0·741	0·768	0·820	0·904	1·017	0·867	0·906	0·970	—	—	—
⊗	0·771	0·797	0·850	0·932	1·048	0·899	0·939	1·002	—	—	—
0·5 F	0·812	0·834	0·886	0·970	1·090	0·943	0·981	1·045	—	—	—
1·0 F	0·863	0·881	0·930	1·016	1·140	1·004	1·040	1·101	—	—	—
1·5 F	0·917	0·935	0·984	1·070	1·195	1·078	1·112	1·175	—	—	—
2·0 F	0·975	0·995	1·046	1·129	1·257	1·167	1·200	1·259	—	—	—
16-ft. Draught. Level Keel											
2·5 A	0·760	0·777	0·815	—	—	0·802	0·830	0·869	—	—	—
2·0 A	0·751	0·772	0·817	—	—	0·828	0·861	0·906	—	—	—
1·5 A	0·750	0·777	0·820	0·890	0·987	0·846	0·884	0·930	—	—	—
1·0 A	0·757	0·786	0·828	0·898	0·995	0·859	0·897	0·946	—	—	—
0·5 A	0·775	0·801	0·839	0·911	1·016	0·873	0·906	0·965	—	—	—
⊗	0·799	0·822	0·861	0·935	1·043	0·887	0·929	0·997	—	—	—
0·5 F	0·831	0·852	0·892	0·967	1·076	0·914	0·965	1·041	—	—	—
1·0 F	0·876	0·891	0·932	1·005	1·122	0·958	1·014	1·101	—	—	—
1·5 F	0·938	0·944	0·984	1·056	1·190	1·029	1·089	1·179	—	—	—
2·0 F	1·030	1·026	1·050	1·131	1·300	1·139	1·180	1·288	—	—	—
16-ft. Equivalent Level Keel Draught. 8/400 Trim by Stern											
2·5 A	0·794	0·780	0·792	—	—	0·889	0·863	0·882	—	—	—
2·0 A	0·791	0·773	0·776	—	—	0·882	0·865	0·873	—	—	—
1·5 A	0·792	0·774	0·774	—	—	0·880	0·868	0·872	—	—	—
1·0 A	0·796	0·781	0·780	—	—	0·883	0·873	0·877	—	—	—
0·5 A	0·808	0·793	0·792	—	—	0·891	0·882	0·891	—	—	—
⊗	0·823	0·810	0·816	—	—	0·904	0·900	0·916	—	—	—
0·5 F	0·845	0·836	0·848	—	—	0·923	0·922	0·956	—	—	—
1·0 F	0·868	0·866	0·888	—	—	0·953	0·956	1·008	—	—	—
1·5 F	0·897	0·900	0·941	—	—	0·986	0·995	1·071	—	—	—
2·0 F	0·933	0·940	1·033	—	—	1·019	1·039	1·142	—	—	—

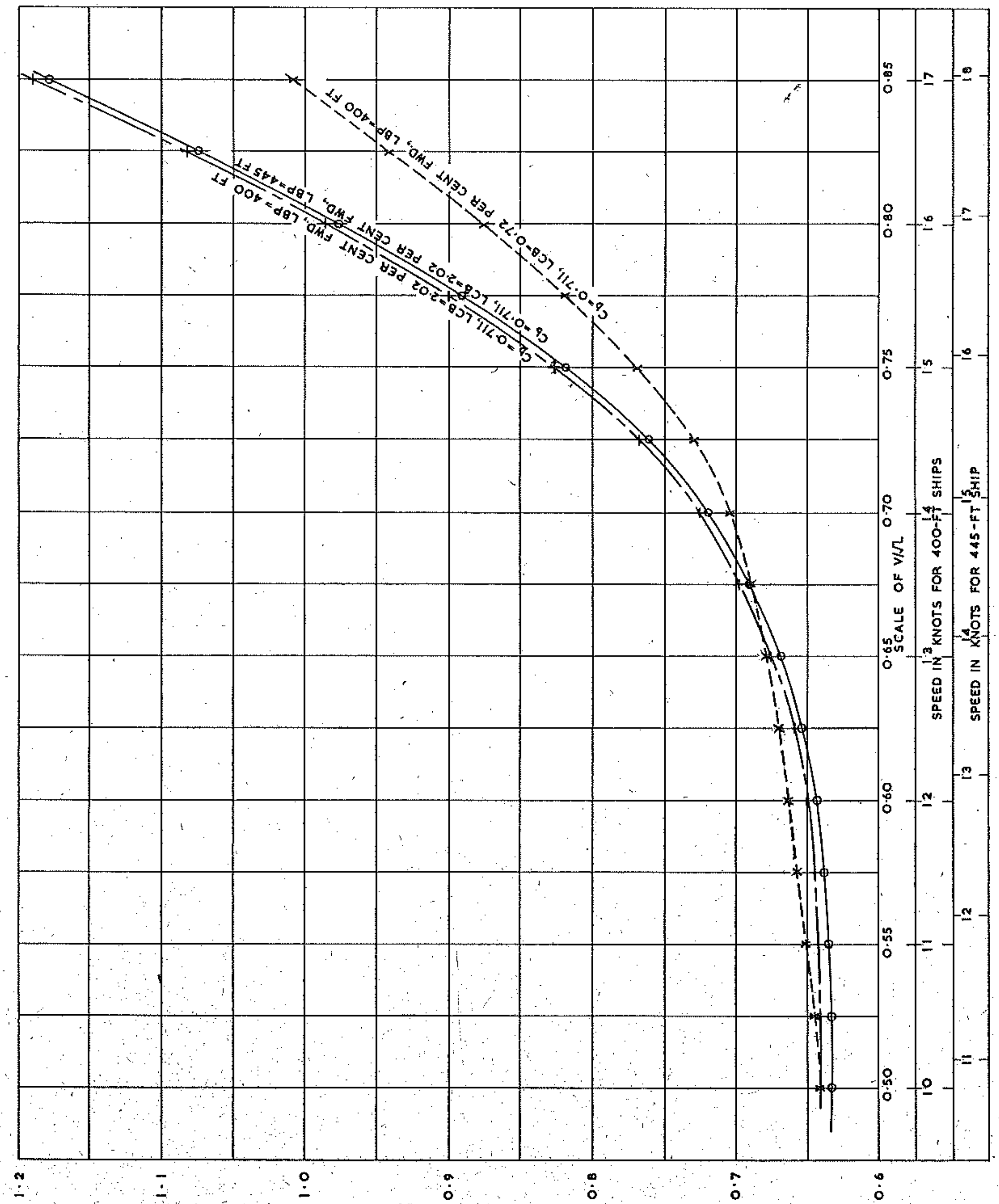

FIG. 7.—DIAGRAM TO ILLUSTRATE WORKED EXAMPLE

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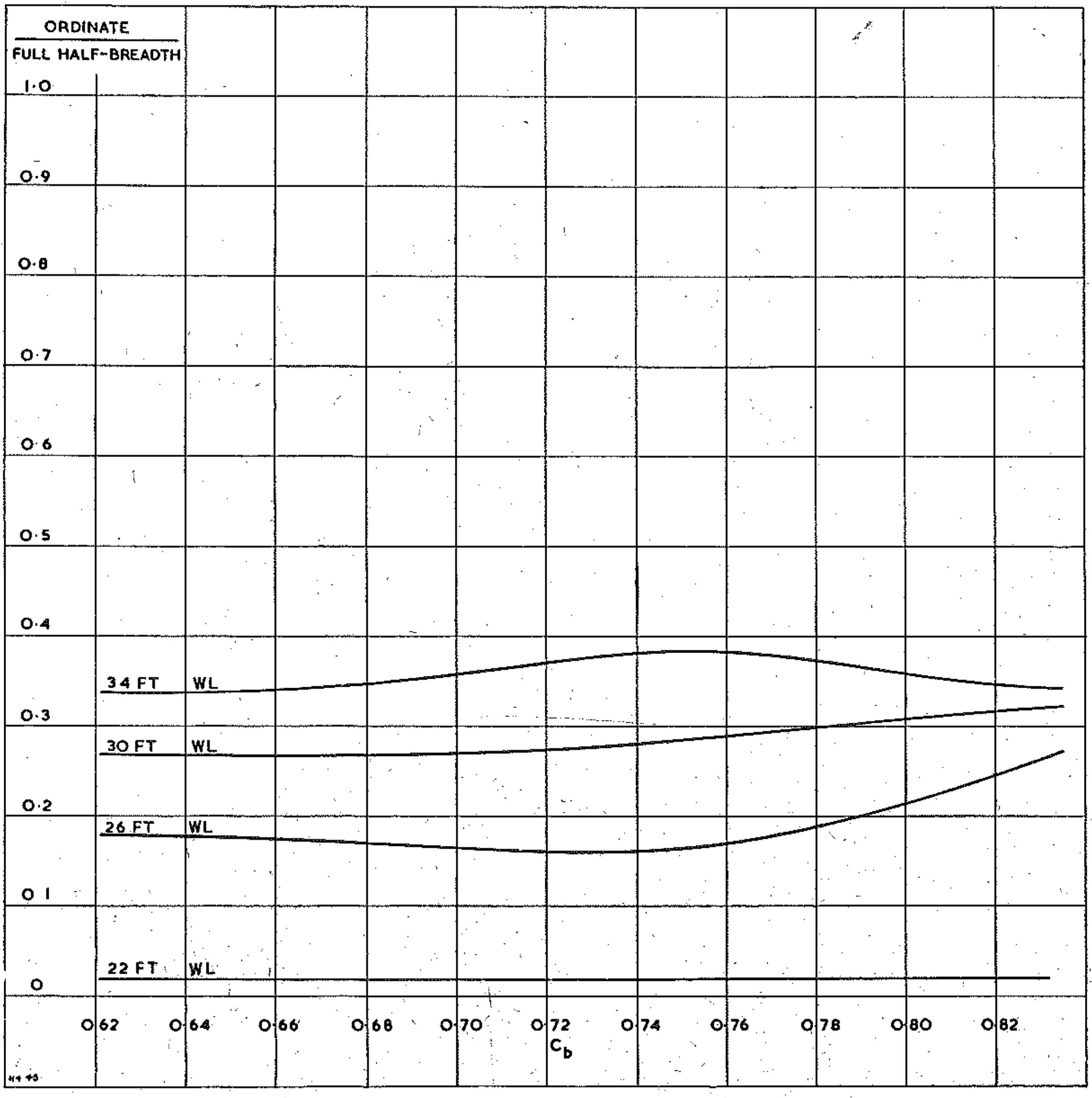

FIG. 8.—WATERLINE OFFSETS. STATION 0

Expressed as the ratio of waterline ordinate/full half-breadth.

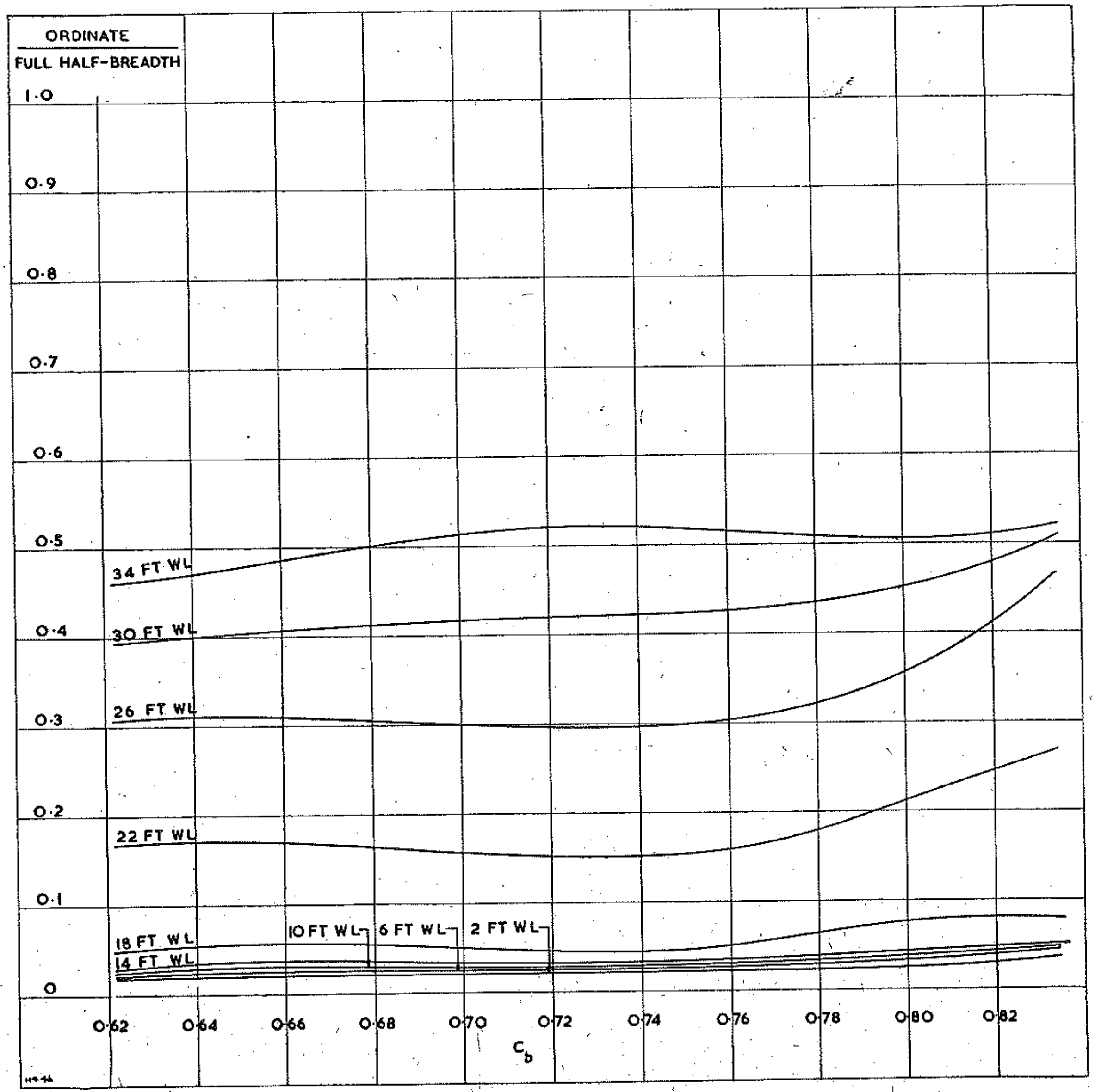

FIG. 9.—WATERLINE OFFSETS. STATION ¼

Expressed as the ratio of waterline ordinate/full half-breadth.

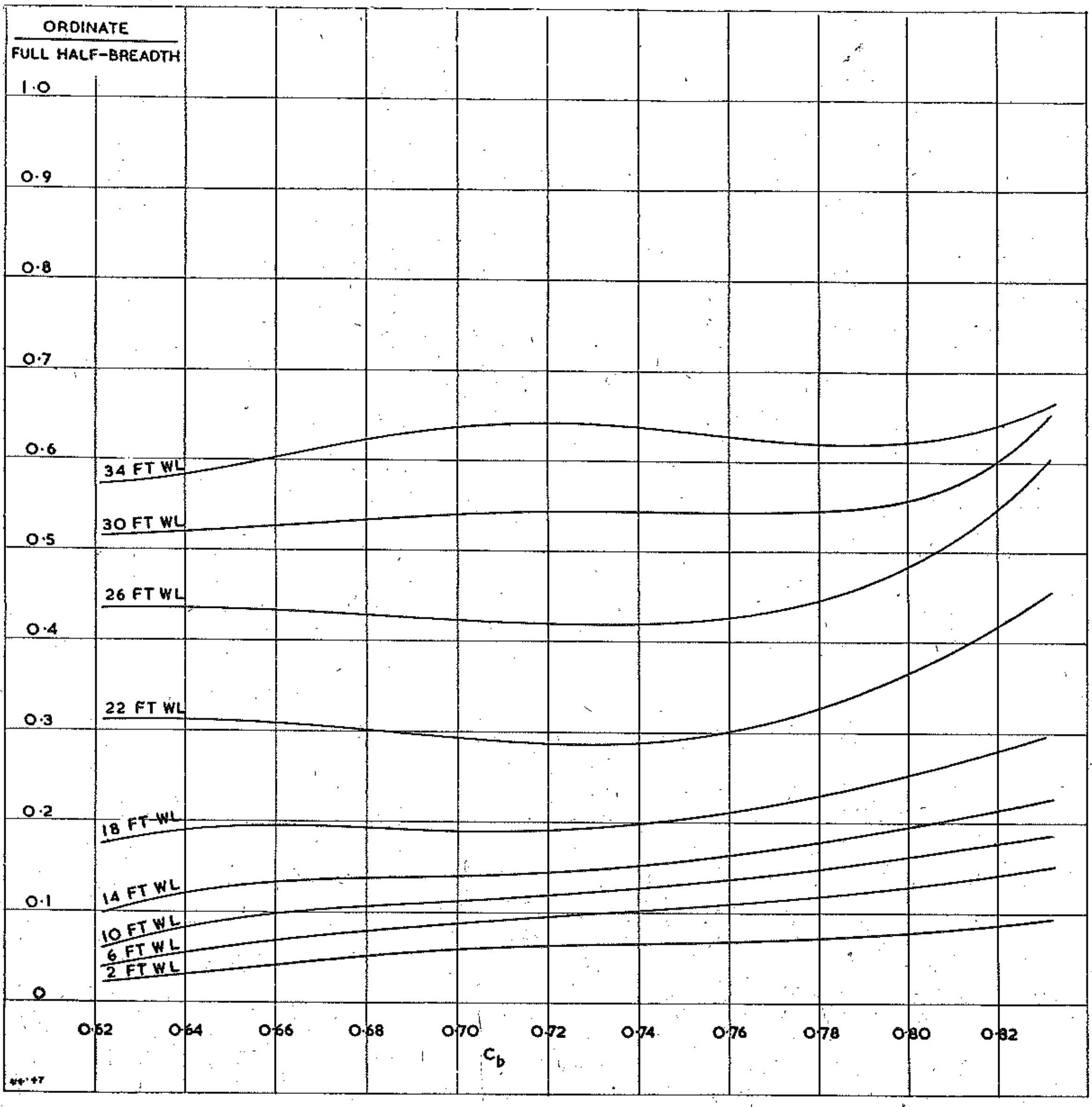

FIG. 10.—WATERLINE OFFSETS. STATION ½

Expressed as the ratio of waterline ordinate/full half-breadth.

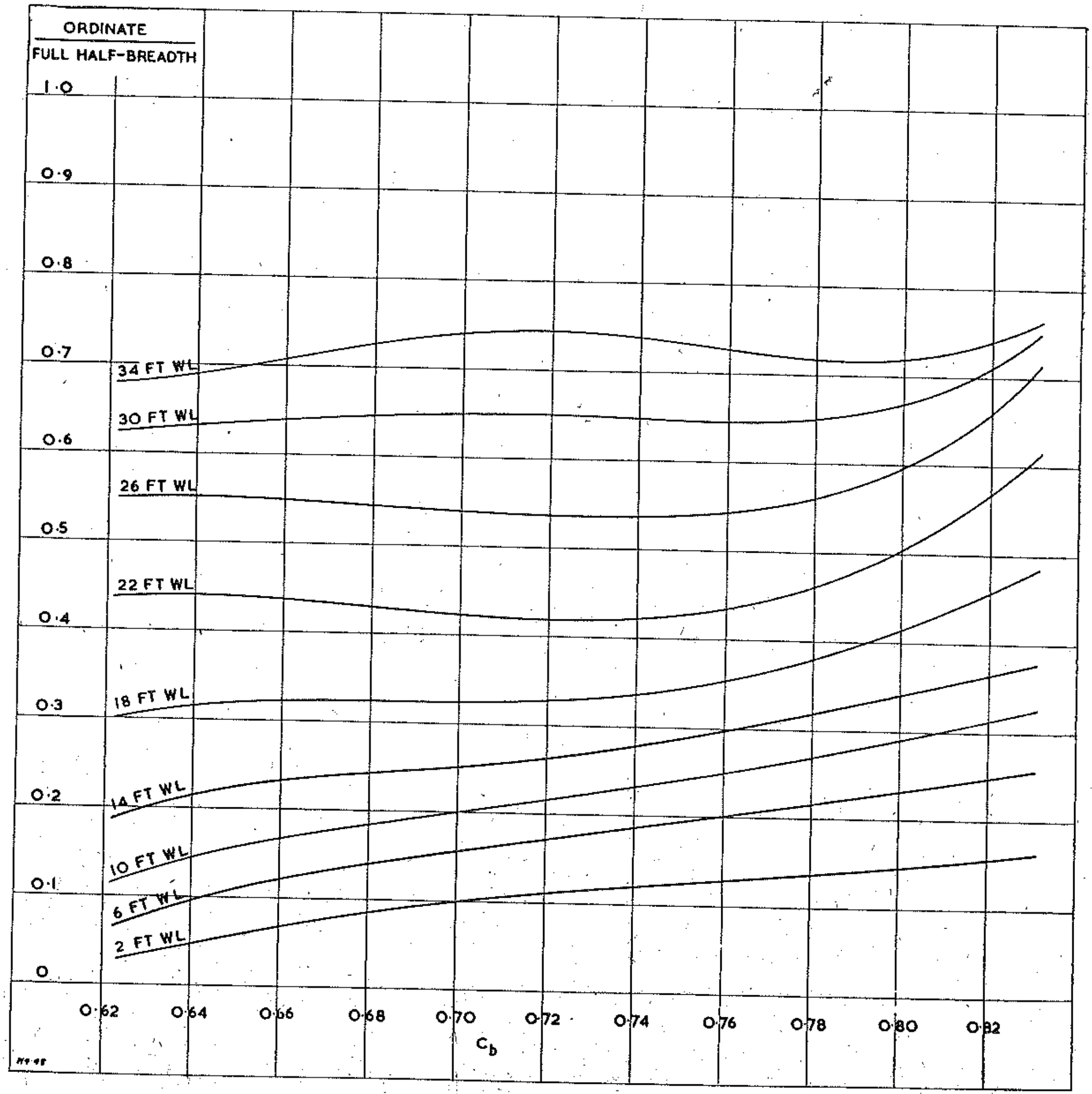

FIG. 11.—WATERLINE OFFSETS. STATION $\frac{3}{4}$

Expressed as the ratio of waterline ordinate/full half-breadth.

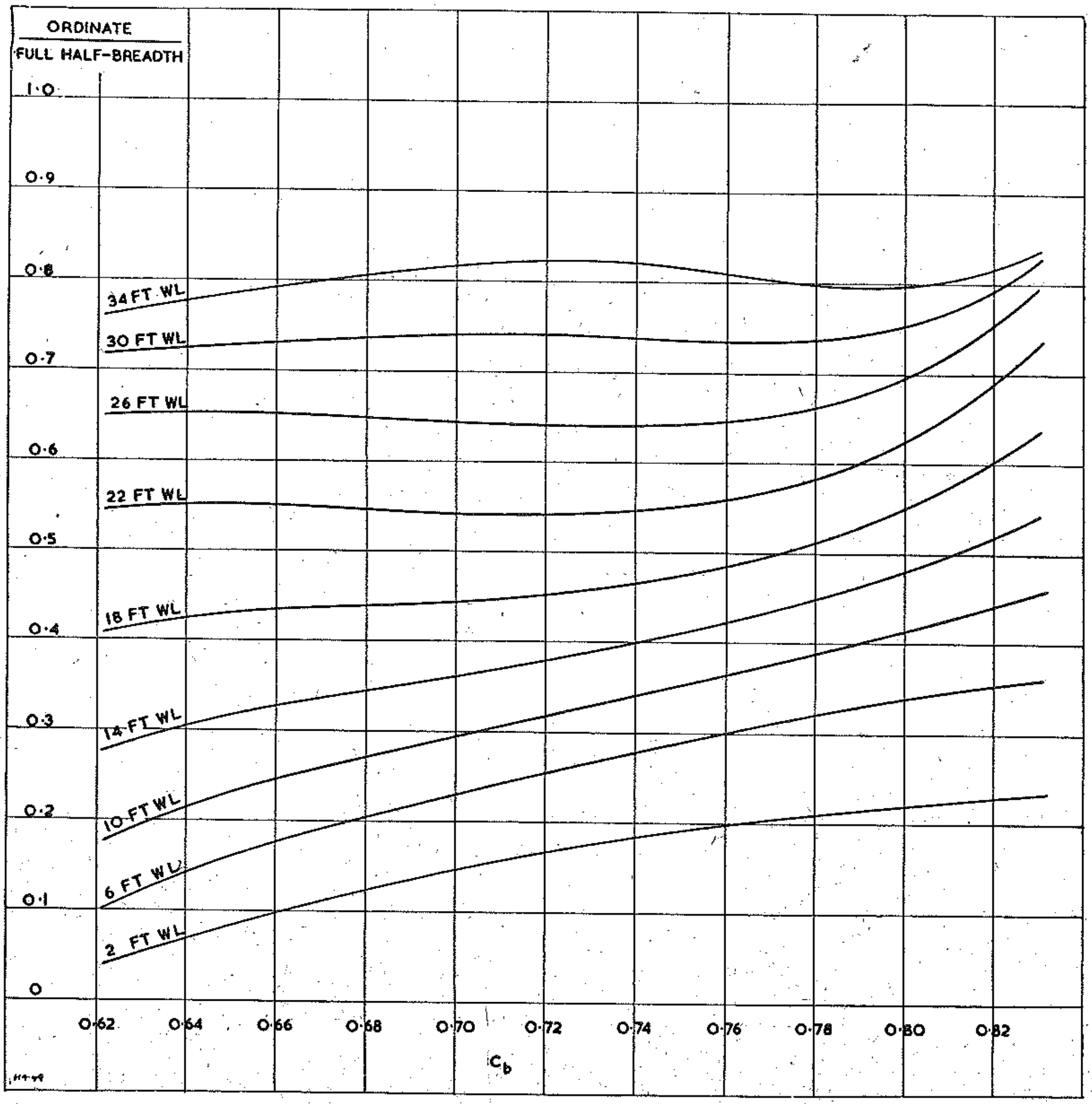

FIG. 12.—WATERLINE OFFSETS. STATION 1

Expressed as the ratio of waterline ordinate/full half-breadth.

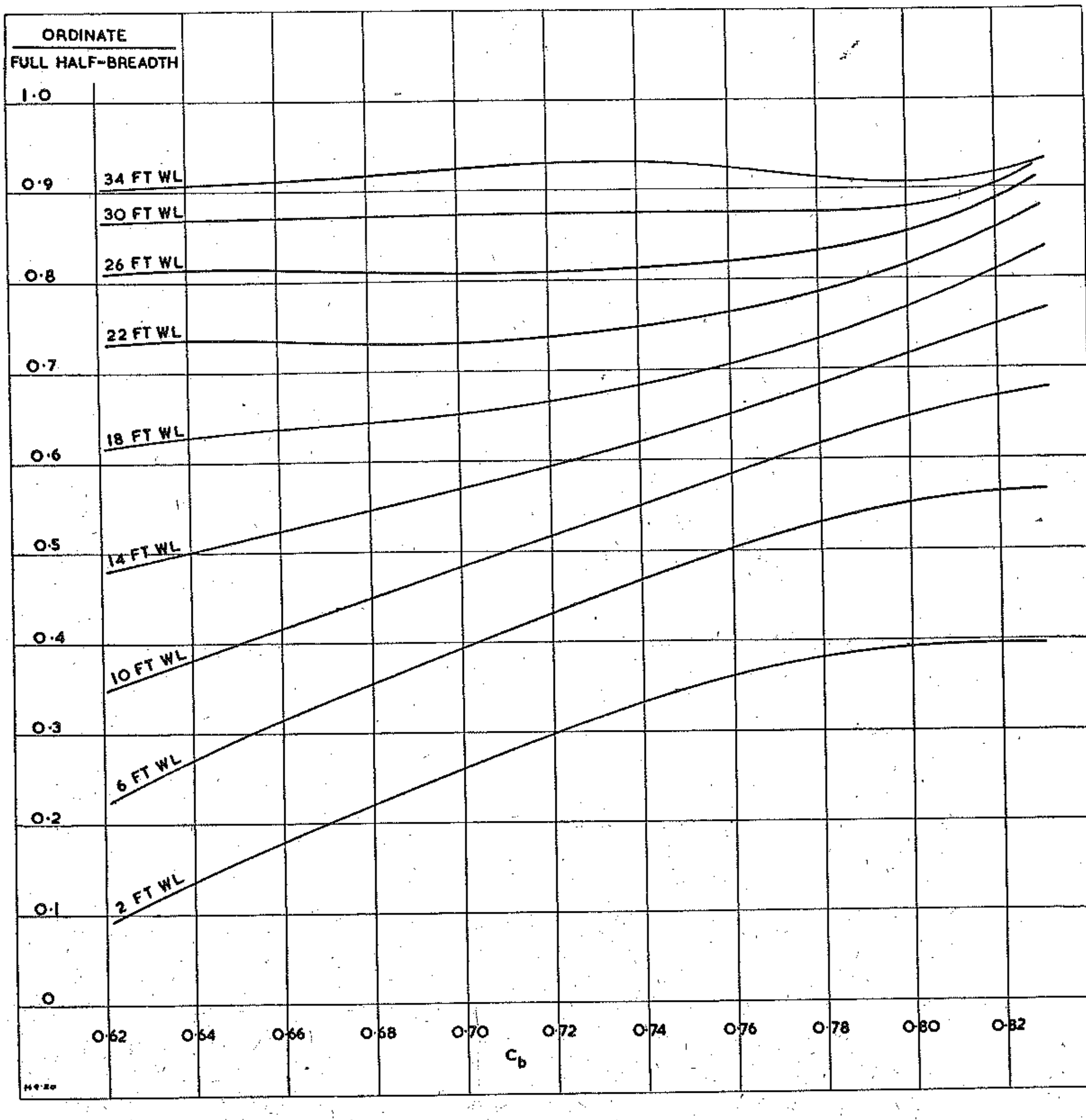

FIG. 13.—WATERLINE OFFSETS. STATION $1\frac{1}{2}$

Expressed as the ratio of waterline ordinate/full half-breadth.

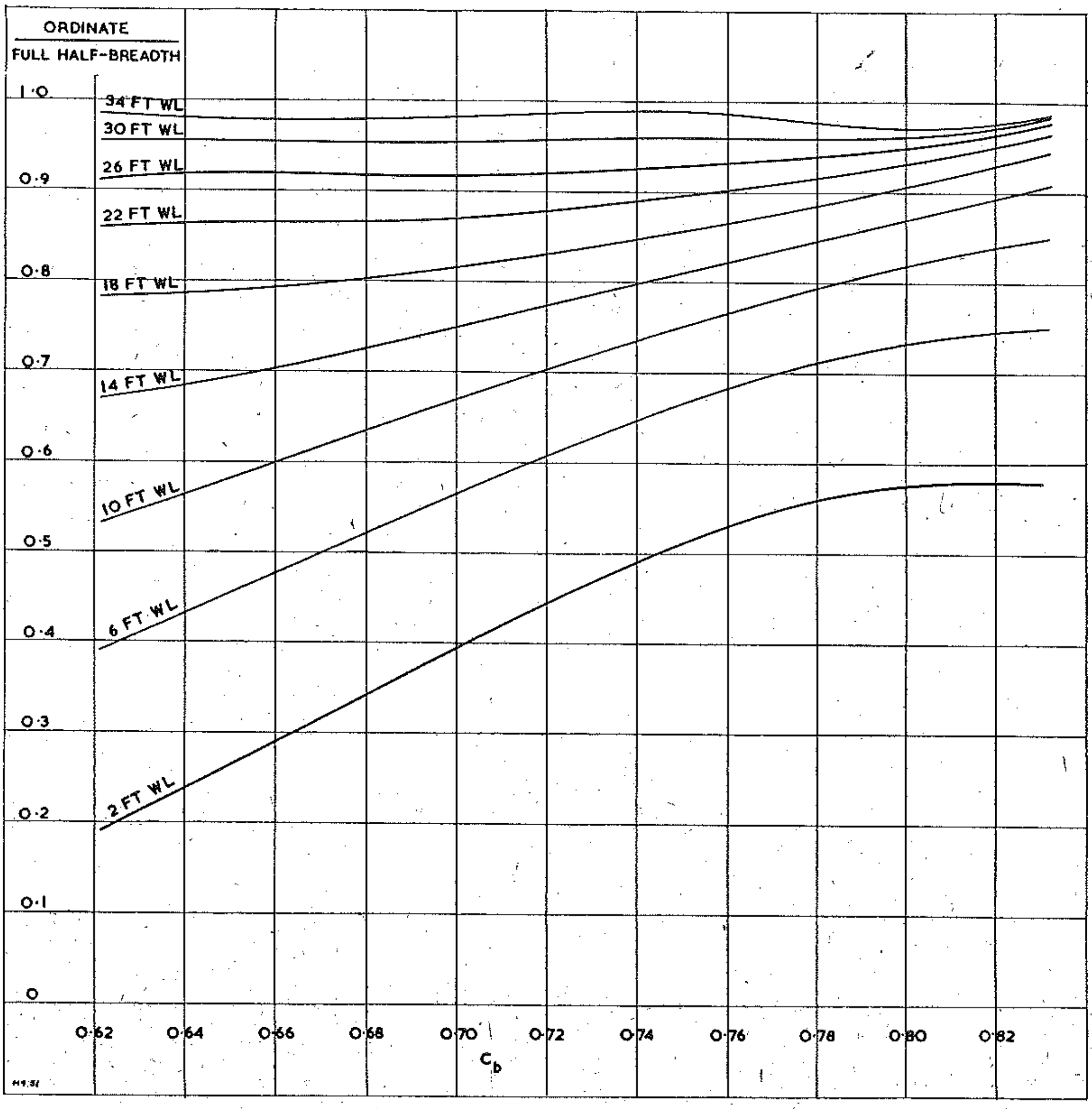

FIG. 14.—WATERLINE OFFSETS. STATION 2

Expressed as the ratio of waterline ordinate/full half-breadth.

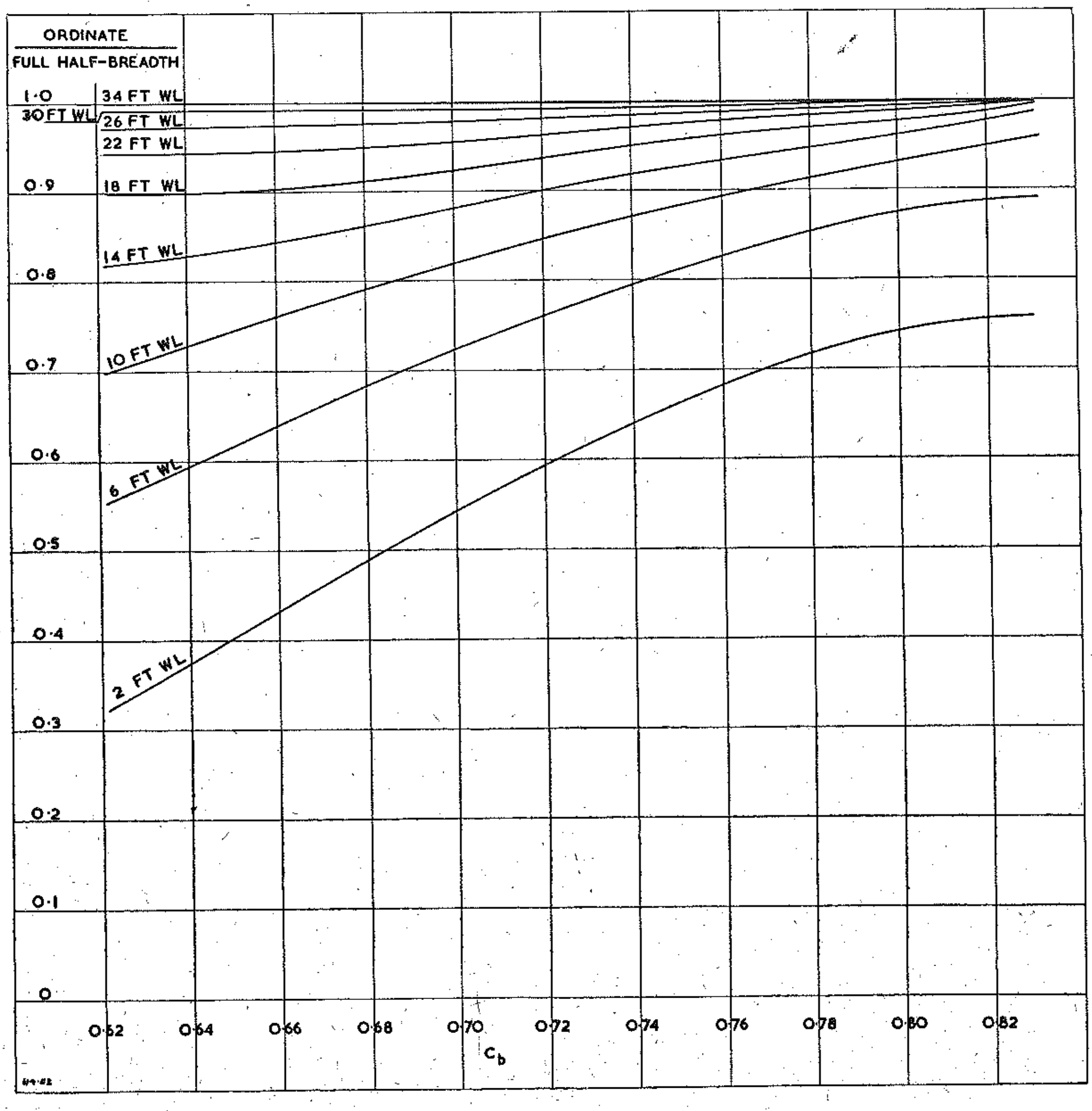

FIG. 15.—WATERLINE OFFSETS. STATION 2½

Expressed as the ratio of waterline ordinate/full half-breadth.

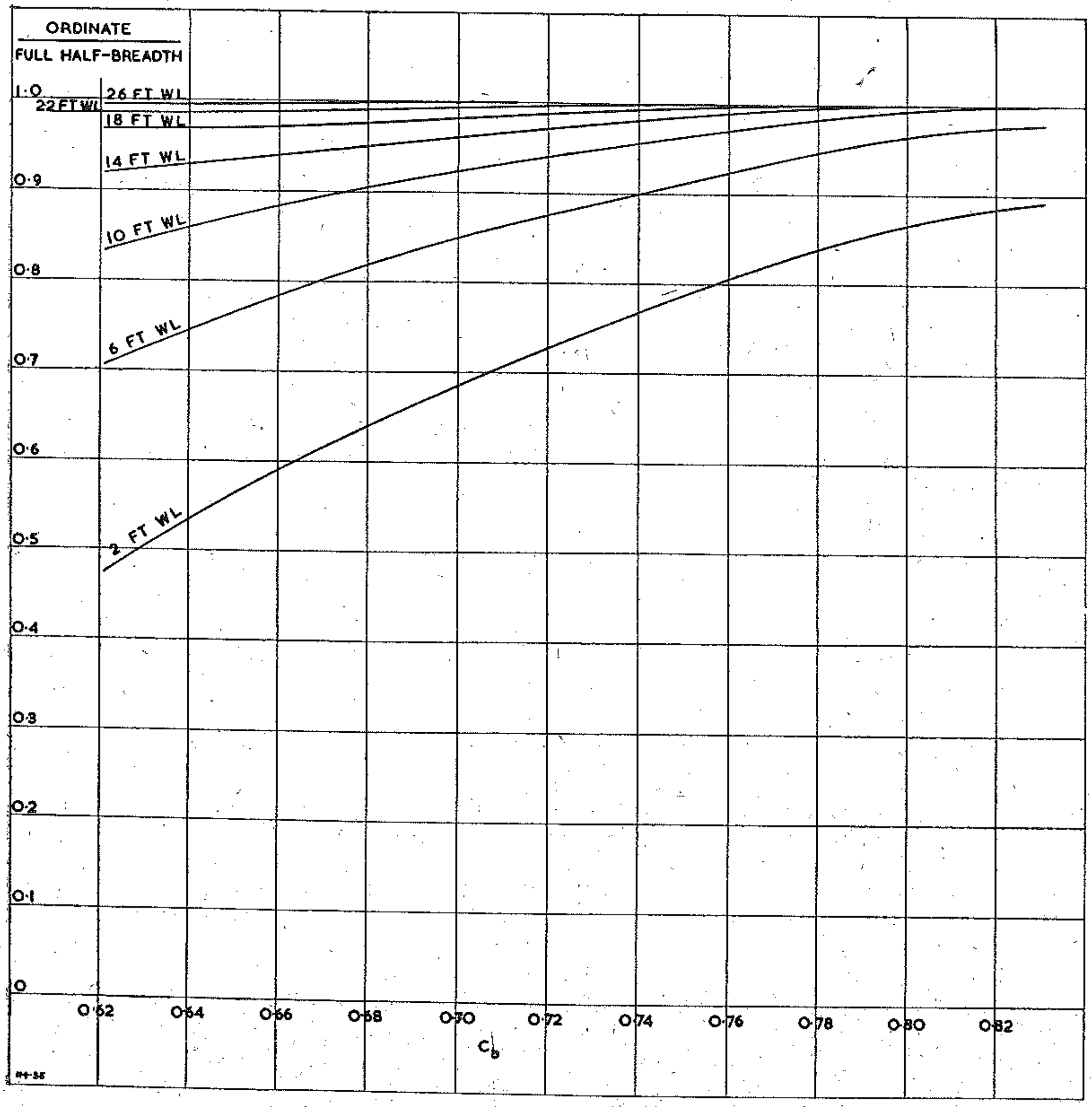

FIG. 16. WATERLINE OFFSETS. STATION 3

Expressed as the ratio of waterline ordinate/full half-breadth.

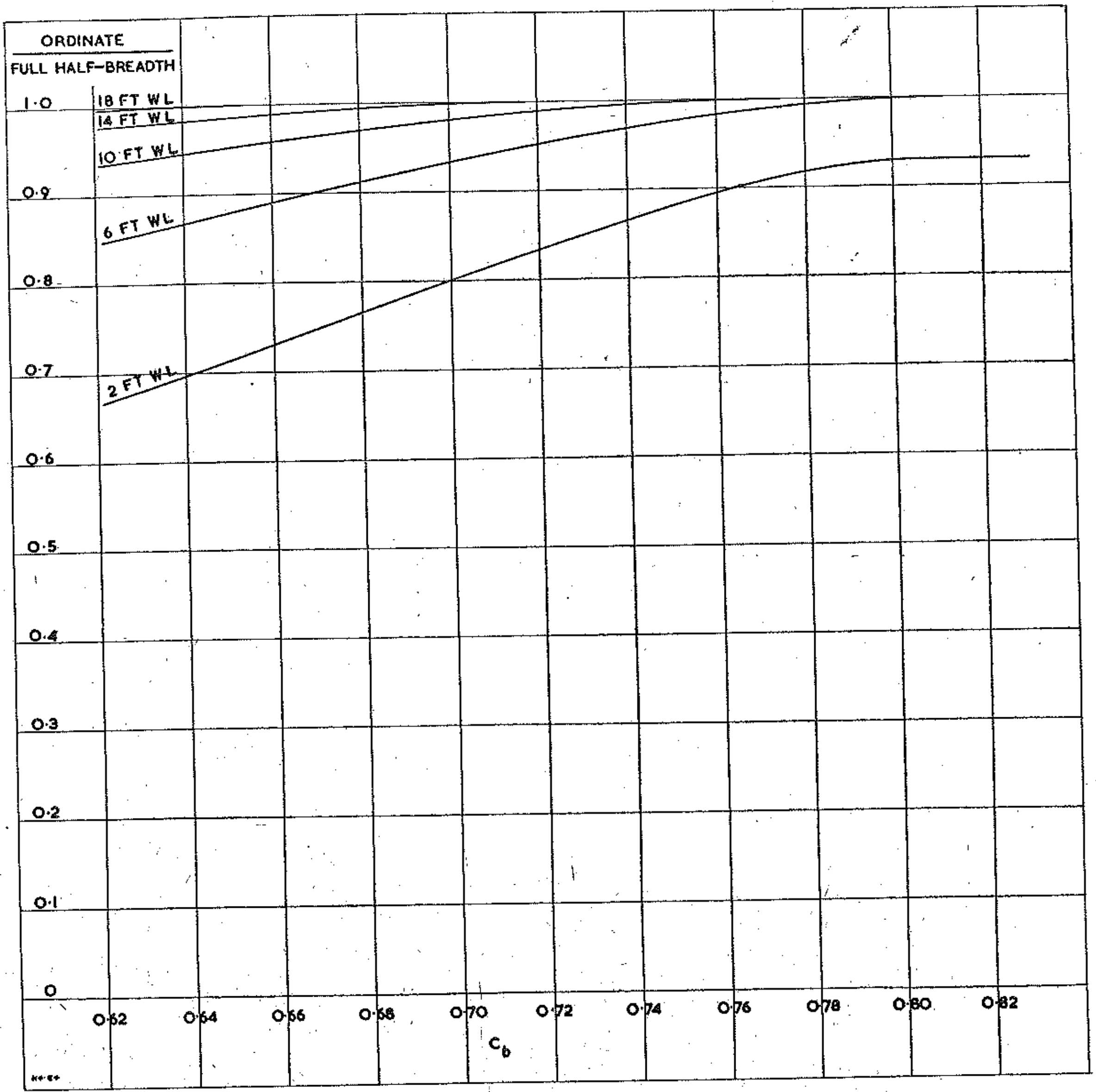

FIG. 17.—WATERLINE OFFSETS. STATION $3\frac{1}{2}$

Expressed as the ratio of waterline ordinate/full half-breadth.

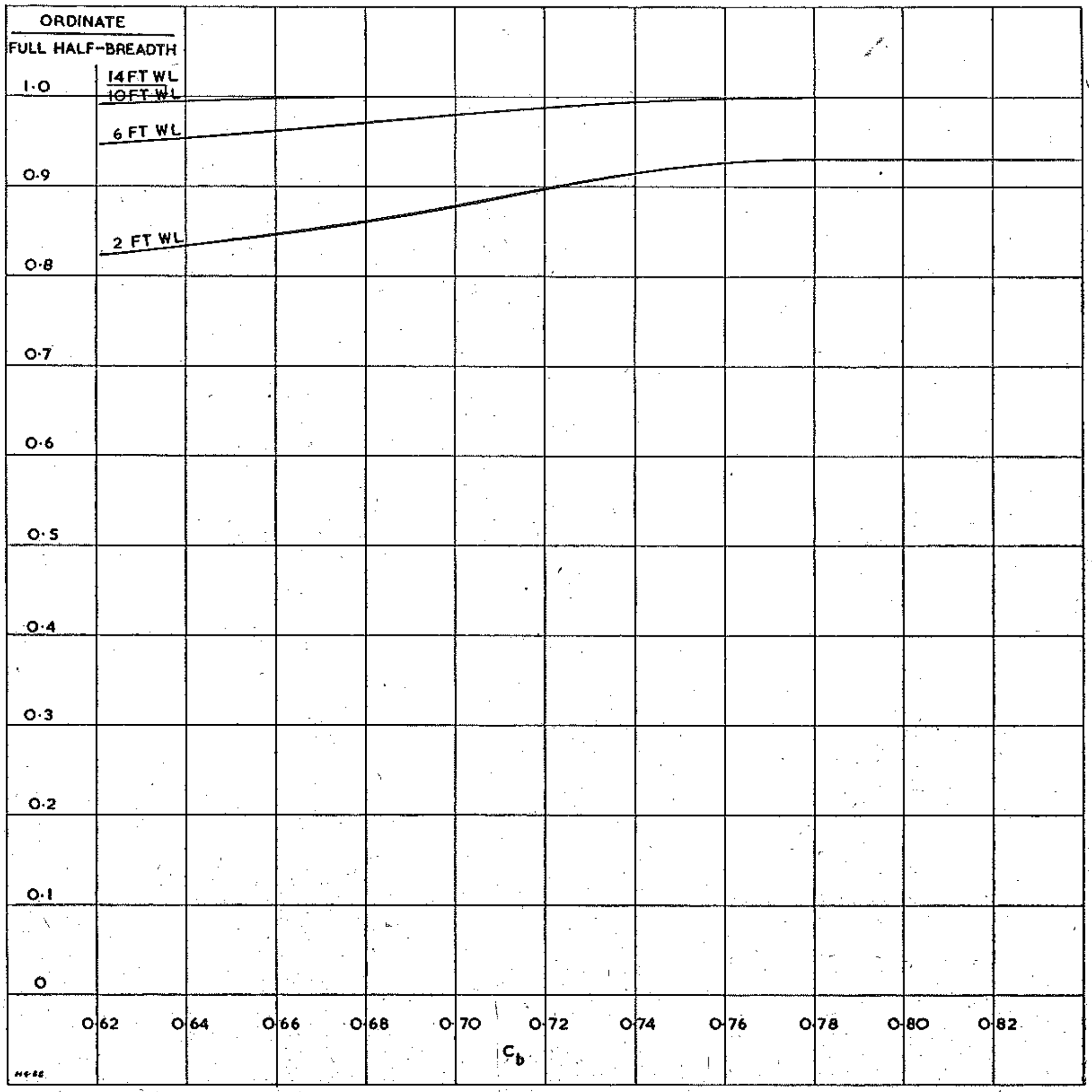

FIG. 18.—WATERLINE OFFSETS. STATION 4

Expressed as the ratio of waterline ordinate/full half-breadth.

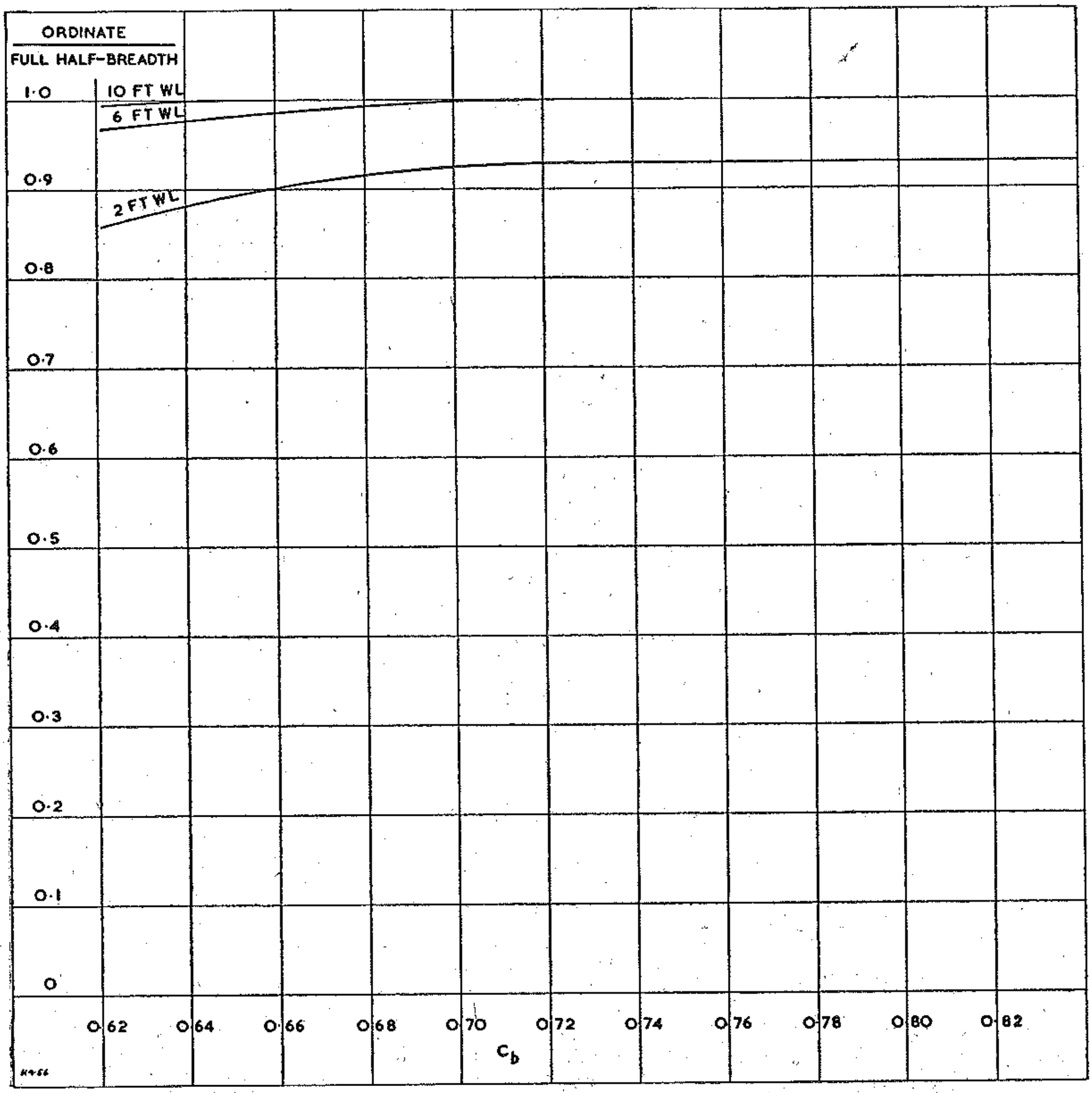

FIG. 19.—WATERLINE OFFSETS. STATION 6

Expressed as the ratio of waterline ordinate/full half-breadth.

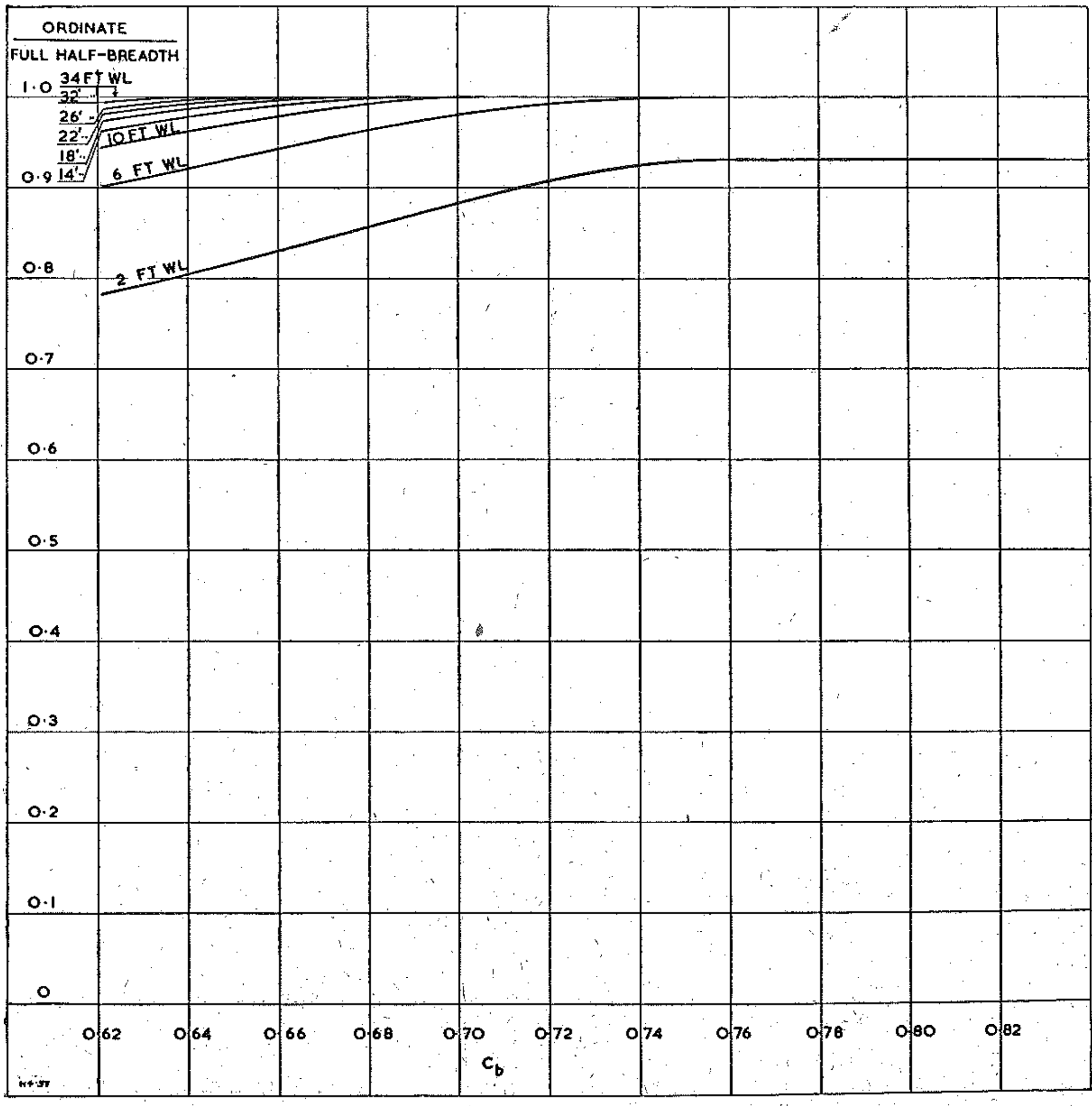

FIG. 20.—WATERLINE OFFSETS. STATION $6\frac{1}{2}$

Expressed as the ratio of waterline ordinate/full half-breadth.

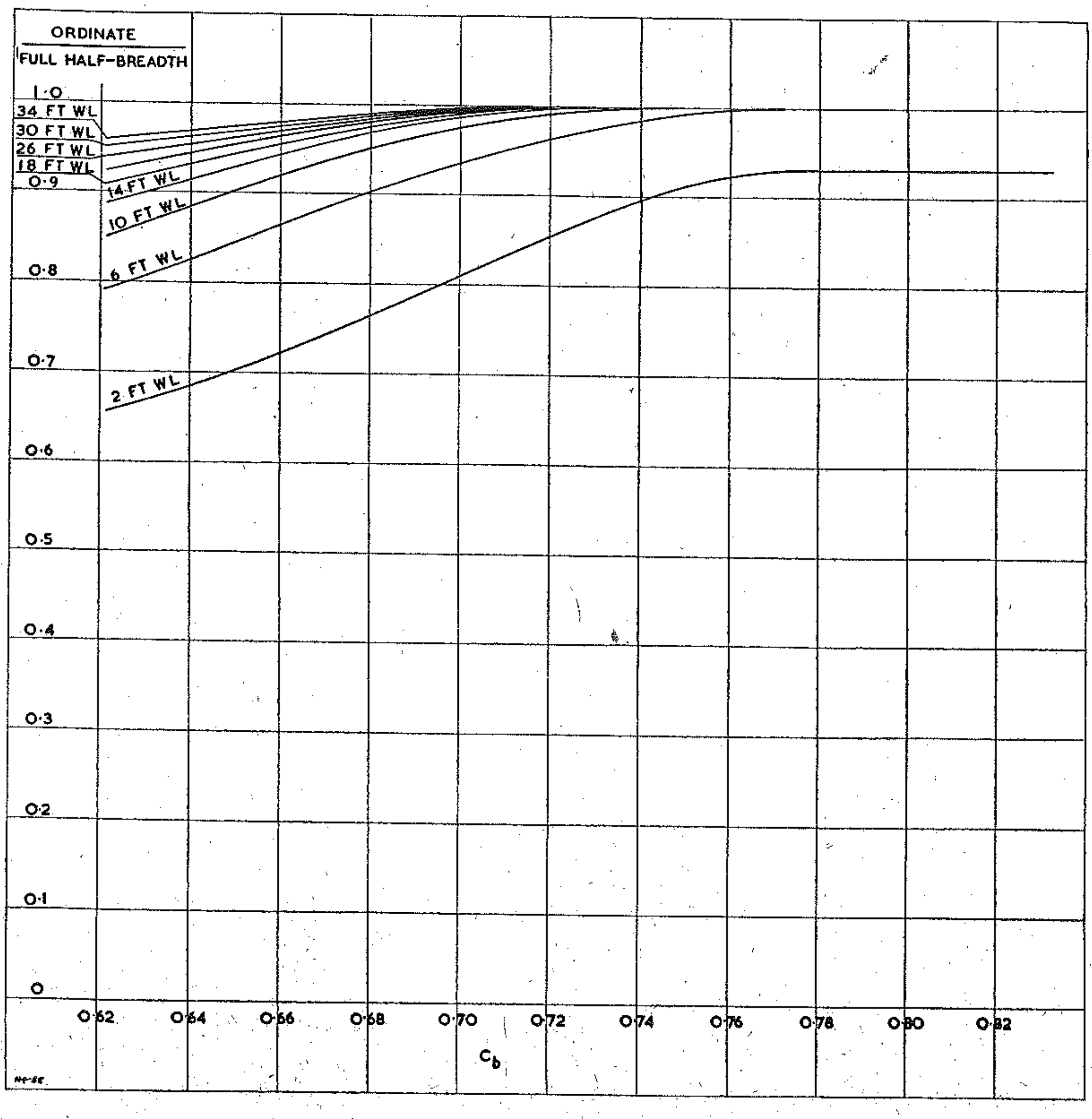

FIG. 21.—WATERLINE OFFSETS. STATION 7

Expressed as the ratio of waterline ordinate/full half-breadth.

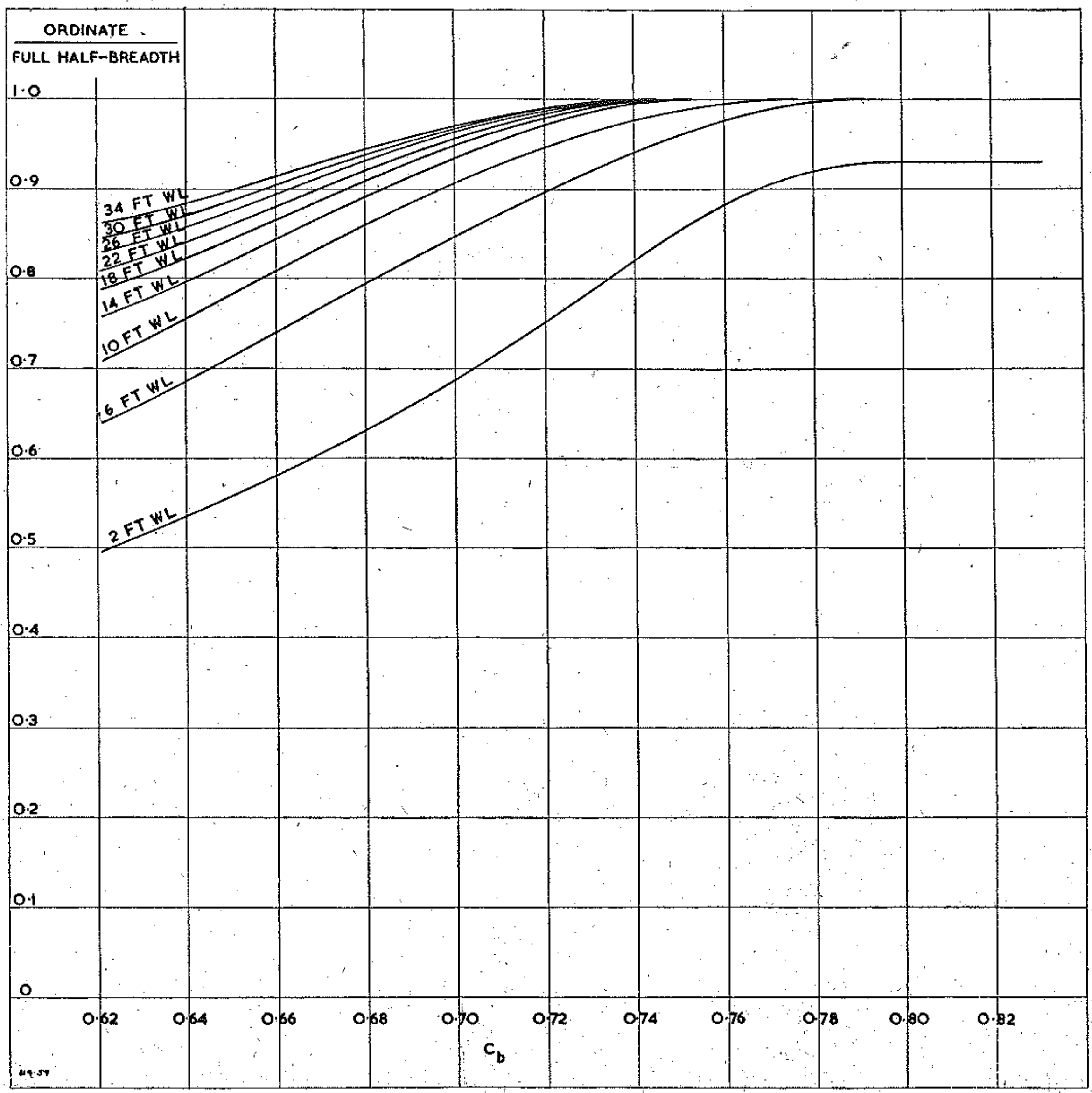

FIG. 22.—WATERLINE OFFSETS. STATION 7½

Expressed as the ratio of waterline ordinate/full half-breadth.

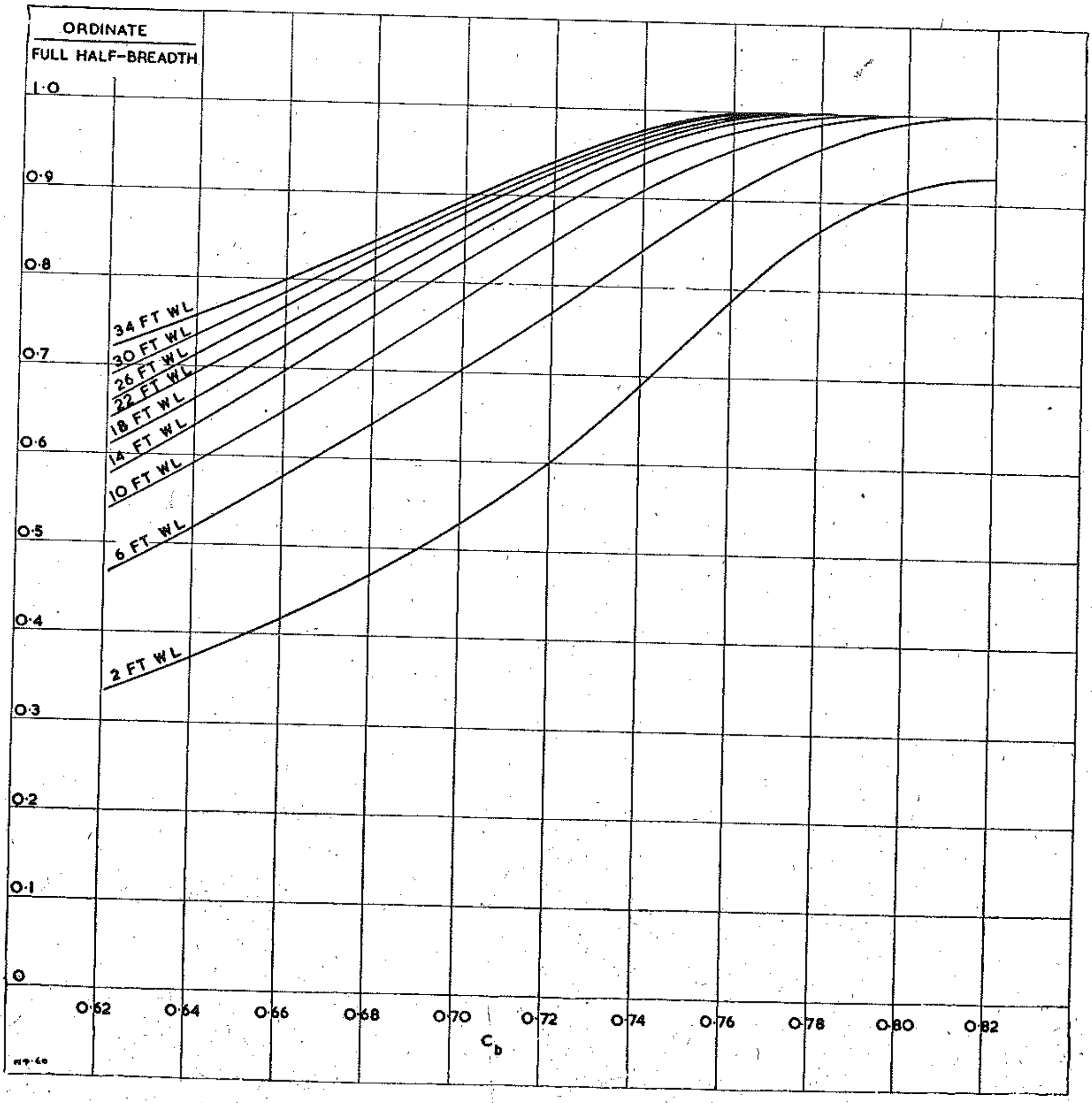

FIG. 23.—WATERLINE OFFSETS. STATION 8
Expressed as the ratio of waterline ordinate/full half-breadth.

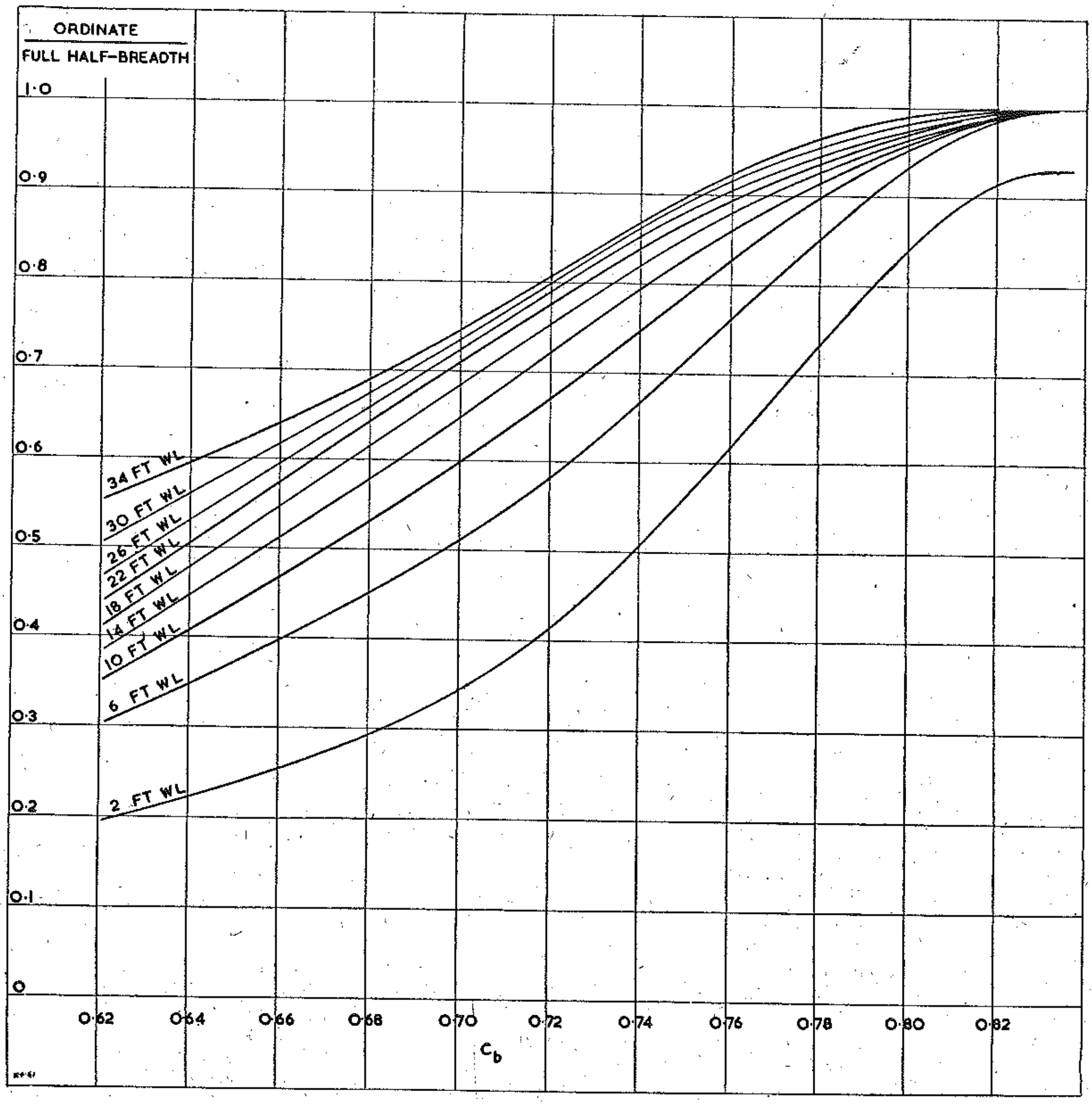

FIG. 24.—WATERLINE OFFSETS. STATION 8½

Expressed as the ratio of waterline ordinate/full half-breadth.

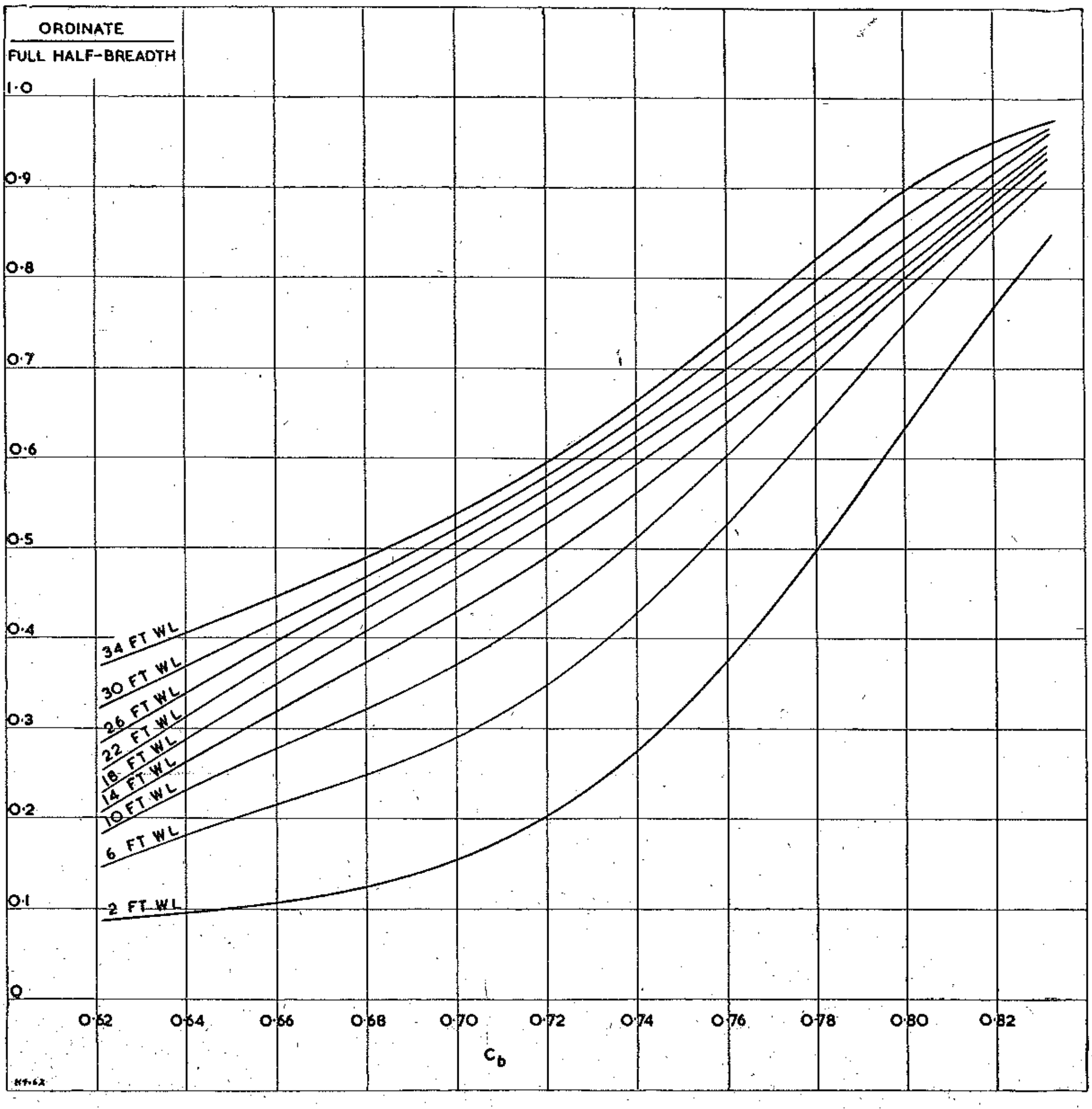

FIG. 25.—WATERLINE OFFSETS. STATION 9
Expressed as the ratio of waterline ordinate/full half-breadth.