

7617

7617
2192

Diag'd. on Diag. Ch. No. 8/C2-2

Form 504

U. S. COAST AND GEODETIC SURVEY
DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. PF-2547 Office No. 7617

LOCALITY

State Alaska

General locality Bristol Bay

Locality Kvichak Bay

194 7

CHIEF OF PARTY

R. F. A. Studds

LIBRARY & ARCHIVES

DATE JUNE 24, 1948

JUN 24 1948

Form 537
(Ed. June 1946)

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

REGISTER No. 7617

Field No. PF-2547

State Alaska ✓

General locality Bristol Bay ✓

Locality Kvichak Bay (~~Northeastern Part~~) ✓

Scale 1:20,000 Date of survey 17 July to 13 Sept. 1947 ✓

Instructions dated 20 June 1946

Vessel PATHFINDER Launches Nos. 2, 3, and 4.

Chief of party R.F.A. Studds ✓

Surveyed by F. Natella and V. R. Sobieralski ✓

Soundings taken by fathometer, graphic recorder, hand lead, wire Graphic Recorder.

Fathograms scaled by J.C. H.A.P.

Fathograms checked by WMM HAP FN JRP VRS

Protracted by Christine N. Hillman

Soundings penciled by Christine N. Hillman

Soundings in ~~xxxxxx~~ feet at ~~xxxx~~ MLLW ✓

REMARKS: Eastern half of survey completed in 1947.

H7617

DESCRIPTIVE REPORT
To Accompany
Hydrographic Sheet H-7617

(Field No. PF-2547)

A. This survey was conducted in accordance with instructions for Project CS-327, dated 20 June 1946.

B. Hydrography was begun on 17 July and discontinued on 13 September 1947. The area covered is in the north-eastern part of Kvichak Bay between triangulation stations Cope, lat. $58^{\circ}48'$, long. $157^{\circ}25'$ and King, lat. $58^{\circ}51'$, long. $157^{\circ}12'$. The eastern limit is the junction with Hydrographic Sheet H-7616⁽¹⁹⁴⁷⁻⁴⁸⁾ (Field No. PF-2347), 1:20,000, along the meridian $157^{\circ}12'$. The southern limit is the junction with Hydrographic Sheet H-7165⁽¹⁹⁴⁷⁻⁴⁸⁾ (1:20,000), from lat. $58^{\circ}47'$, long. $157^{\circ}12'$ west and southwest to lat. $58^{\circ}45'$, long. $157^{\circ}19'$. The present western limit is along a line between station Cope and the point at lat. $58^{\circ}45'$, long. $157^{\circ}19'$

C. The major portion of the survey was accomplished with PATHFINDER launch No. 2. Launch No's 3 and 4 were used three days when No. 2 was held aboard for repairs.

All sounding was done using the following 808 depth recorders:

Launch No.	Recorder No.
2	74-s
3	59
4	46

A hand lead was used for vertical casts to check the fathometers and secure bottom samples.

D. A portable tide gage was maintained at the mouth of the Naknek River, lat. $58^{\circ}43'$, long. $157^{\circ}03'$. Tide reducers will be determined in accordance with the Special Tide Report for the 1947 season submitted by the Commanding Officer, PATHFINDER.

No current stations were occupied in the area of this survey.

E. Smooth sheet data (to be submitted by Processing Office).

F. Control for this survey was provided by triangulation and topographic stations on the north shore of Kvichak Bay from station Cope, 1947 to one mile east of Station King 1947. One triangulation station, Kvichak, was located by the party of Lt. Comdr. J. C. Tribble in 1946. Additional triangulation and graphic control was executed by personnel of the PATHFINDER during the 1947 season. All topographic signals were transferred from metal mounted graphic control sheet T-7099⁽¹⁴⁴⁷⁾ (Field No. PF-F-47). Signal Cope was originally located by sextant fixes, but was later incorporated with station High in the 1947 triangulation by the party of Lt. Comdr. C. LeFever. The sextant location was used on the boat sheet for this survey.

G. No topography or shoreline was available at the time this survey was made. These details will be provided by the Washington office from the compilation of air photographs inspected by personnel of the PATHFINDER and the party of Lt. Comdr. A. N. Stewart. Review, par. 1

H. Soundings were recorded in feet and tenths using 808 depth recorders. Corrections will be made from bar checks taken in accordance with Par. 557 of the Hydrographic Manual.

I. All hydrography was controlled by 3-point sextant fixes.

J. The survey is complete within the area covered. It is anticipated that the survey will be extended to the westward during the 1948 field season. Additional development of shoal areas was not considered practical due to the unstable sandy bottom and yearly changes caused by grounding of ice in the spring break-up. Review, par. 4

Field junctions with adjoining surveys were not entirely satisfactory due to the lack of accurate tidal information. Discrepancies are expected to disappear when the final tide reducers are applied. Review, par. 4

K. Cross lines were run in accordance with the instructions, being approximately 5% of the survey. In general, crossings are good although discrepancies up to 50% of the depth appear on the boat sheet along the cross line run on 17 July. These differences occur in depths less than fifteen feet over an irregular and probably shifting bottom. Depths at crossings now generally good. Review, par. 2 & 7 b.

L. There are no previous surveys in the area.

M. There are no soundings on Chart 8802 within the area of this survey. Review, par. 6 A:

N. The area surrounding and including this area abounds with shoals and flats, most of which are well known to the local operators of small craft.

O. While this survey was being made, the PATHFINDER was anchored in the vicinity of lat. $58^{\circ} 42'$, long. $157^{\circ} 14'$. There are no recommended anchorages within the area of the survey.

A natural small craft channel extends from the southern limit of the survey at lat. $58^{\circ} 46'$, long. $157^{\circ} 17.15$, on a bearing of $022^{\circ} T$ to lat. $58^{\circ} 48.17$, long. $157^{\circ} 16'$, thence on a bearing of $052.5^{\circ} T$ to the eastern limit of the sheet at lat. $58^{\circ} 50.13$, long. $157^{\circ} 12'$. This channel is used from half tide to high water by cannery vessels during the fishing season. The controlling depth of 5 feet is in the vicinity of ~~the shoals at~~ lat. $58^{\circ} 49.18$, long. $157^{\circ} 13.15$. A shoal spot with least depth of 3 ft. closely borders the channel in lat. $58^{\circ} 49.17$, long. $157^{\circ} 12.07$.

P. There are no aids to navigation within the area of this survey. Three beacons are shown on the preliminary chart constructed by personnel of the PATHFINDER. These are the hydrographic signals at triangulation stations Cope, High and King. They are not of a permanent nature and will undoubtedly be destroyed by storms.

Q. There are no objects recommended as landmarks within the limits of the survey.

R. A special report on geographic names will be submitted by the Commanding Officer, PATHFINDER, for the 1947 season. *214. Received LA*

Respectfully submitted,

V. Ralph Sobieralski
V. RALPH SOBIERALSKI
Lieut., C&GS

Approved and forwarded,

R. F. A. Studds
R. F. A. STUDDS
Comdr., C & GS
Chief of Party

C O P Y

Refer to No. 36-McC

Washington 25

22 December 1947.

To: Commanding Officer,
USC&GSS PATHFINDER,
400 Insurance Building,
Seattle 4, Washington.

Subject: Tide reducers, Bristol Bay, Alaska, 1947.

Reference is made to your descriptive report on tide observations made during the 1947 field season in connection with project CS-327. The Division of Tides and Currents has given careful consideration to this report and is in general agreement with its findings and conclusions.

Particularly pertinent is the conclusion that for satisfactory determination of tide reducers a much closer spacing of tide stations and longer periods of observations would be necessary. However, the practical difficulties of providing for adequate vertical control under the circumstances are recognized.

It is believed that in this case little would be gained by any general revision of the field computation of the tide records. This office has no additional tidal information not originally available to your party and no previous observations that could be used for verification purposes. Obviously the field party has given considerable time and care to the analysis of the available tide records and for this office to go over the same ground would seem to be an unwarranted duplication of effort and would unquestionably delay processing beyond the present winter season. This would be unwise as it would be a definite advantage to have the initial processing of reducers performed by personnel directly associated with the actual field operations. Under the circumstances it is expected that considerable office reviewing of reducers may be necessary, but this can be accomplished only after a comprehensive office analysis of available records. It is, therefore, planned to have your party proceed with the processing of the sounding records on the basis of field computation of reference planes and tide reducers.

In this connection this office is in complete agreement with your conclusion that the half-foot unit for tide reducers is impracticable and that the one-foot reducer should be used. Even with this unit it is recognized that reducer determination will be largely a matter of judgment and approximation.

Because of the restricted tides in most parts of the survey area, with particular reference to the low waters, the usual comparisons with simultaneous observations are ineffective and the datums derived from short series will be of uncertain accuracy. Also with the tidal characteristics varying so considerably from place to place with no assurance of uniform variation, any great refinement in sectionalizing the area for tide reducers is not considered justified. Much time and study have been given by the field party to sectionalizing the area on a time basis and the results obtained will be valuable for the determination and adjustment of reducers. However, when allowance is made for the general inadequacy of the available tide records, it is believed that a broader zoning will prove more suitable in practice.

Apparently it was the intention of the field party that inferred tide curves would be constructed for each section on the basis of computed time and height differences applied to observed tides at one or more stations. This would be a correct procedure, but, with narrow sections, it would require a very considerable amount of inferred tide curve construction. It is suggested as a possible alternative that the general area between each two contiguous tide stations be considered as a single broad zone and that the reducers be determined by estimation between the limits of the two reducers obtained separately from each of the two control stations. These two reducers, as your report observes, will sometimes differ by several feet and the actual reducer for any particular soundings must be estimated and adjusted on the basis of the position of the sounding area relative to the tide stations and any other factors that the local hydrographic features may suggest.

Your report bases its conclusion relative to reducers previously furnished for 1946 hydrography on the assumption that they were obtained from the river station. Actually they were largely based on the fathometer station records so that they should prove more suitable for general application than your report supposes. However, as in the case of the 1947 work, estimation necessarily entered into their determination to a considerable degree and they are accordingly subject to such revision as may be needed to effect reasonable agreement between the work of the two seasons.

Sketches attached to your report will be returned as requested as soon as copies can be reproduced for office use. Office processing of the tide records furnished with your transmitting letter of 4 December will be prosecuted for review purposes as rapidly as availability of personnel permits. As it is possible that your party or the processing office may require the further use of some or all of these original records, they will for the present be kept segregated in the form of their receipt so that requests for specific records can be identified.

(Signed) J. H. Hawley,
Acting Director.

H-7617 (PF 2547)

KVICHAK BAY (NORTHEASTERN PART)

Seattle Processing Office Notes

PROJECTION:

The projection is hand made on Whatman Paper. Datum is North American 1927, and depends on the field computations of 1946 triangulation by Tribble and 1947 triangulation by LeFever and Studds.

Topographic signals are from PF-F-47. T-7099 (1947)

SHORELINE:

No shoreline was available for this sheet. Shoreline will come from photo compilations when completed. | Review, par. 1

TIDE REDUCERS:

These were derived by the field party according to the Special Tide Report for the 1947 season, submitted by the Chief of Party. Except for tide reducer curves in Naknek River all tidal data was sent directly to Washington by the field party. On this sheet the results seems satisfactory except for "a" day.

Crossings on "a" day appear to be shoaler by 2 to 5 feet throughout the entire day. Evidently there is an error in the Tide Reducers as entered in the Record Books.

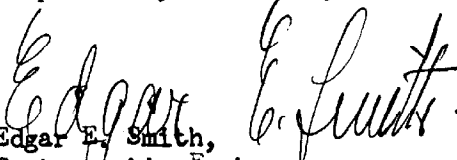
Tide material used by the Ship is not available at the Processing Office to correct this discrepancy.

In drawing the depth curves, the soundings on "a" day were disregarded when the discrepancy was obvious.

It is suggested that a new ^{tide} curve be drawn to furnish reducers for "a" day.

Discrepancies resolved by application of new tide reducers which increased depths by 1 to 4 ft. See par. 7 b. review.

Respectfully submitted,


Edgar E. Smith,
Cartographic Engineer,
Seattle Processing Office.

COMPARISON WITH H-7165 TO SOUTHWARD

<u>Latitude</u>	<u>Longitude</u>	<u>H-7617</u> Feet	<u>H-7165</u> Feet
58°46.9'	157° 15.9'	12	14
		13	15
		14	16
47.2	15.3	10	7
47.2	14.4	16	19
46.55	17.0	21-24	27

*To be considered
in the review of
H-7165*

The rest of the junction is in reasonable agreement except for "a" day, on H-7617 which is considered subject to correction. Soundings in the overlap agree, or show differences which seem satisfactory when considered in relation to the irregular bottom.

*Corrections applied to
tides of "a" day*

COMPARISON WITH H-7616 TO EASTWARD

<u>Latitude</u>	<u>Longitude</u>	<u>H-7617</u> Feet	<u>H-7616</u> Feet
58°47.2'	157°12.6'	11-19 ²⁵	23
47.2'	15.0	13 ✓	10

2 ft. diff. unimportant

*10 Portion of sdg. line rejected
on H-7616*

In general the junction between H-7617 and H-7616 is good. Differences are usually accounted for by pot holes and bars which abound.

*✓ Junction good
for uneven bottom*

HYDROGRAPHIC SHEET H-7617 - 1947

VELOCITY CORRECTIONS

808 Depth Recorder

Cal. Velocity-820 fms/sec.

<u>Fathometer</u>	<u>Depth</u>	<u>Correction</u>	<u>Scale</u>
46	3 Ft. to 12.5 Ft.	+0.5	A
	13 Ft. to 55.0 Ft.	0	A
59	3 Ft. to 22.5 Ft.	0	A
	23 Ft. to 37.5 Ft.	-0.5	A
	38 Ft. to 55.0 Ft.	-1.0	A
74-S	3 Ft. to 10.5 Ft.	0	A
	11 Ft. to 34.5 Ft.	-0.5	A
	35 Ft. to 55.0 Ft.	-1.0	A

H-7617 (PF 2547)

BRISTOL BAY

Kvichak Bay (Northeastern Part)

Geographic Names

(Penciled on Smooth Sheet)

Kvichak Bay

RECORD OF TEMPERATURES, SALINITIES, AND THEORETICAL VELOCITIES

SHEET NO. 7616
7617
7165

Ship or party PATFINDER, R. F. A. Studds, Chief of party. June, July, Aug., Sept., 1947
Locality Krychak Bay, Alaska Project CS-322 Survey No.

Date	Time	Latitude and Longitude	*Depth Fathoms	TEMP. AT DEPTH		SPECIFIC GRAVITY		AT TEMP.		Salinity	CORRECTIONS			Therm. No.	Hydro. No.	Remarks (weather, bottom, etc.)
				Obs.	Cor.	Obs.	Cor.	Obs.	Cor.		Vel.	Sal.	Pos.				Vel.
6/16	1130	Lat 58-42N Long 157-12W	50B	9.6		1.0196	1.0190	11.0						60350	1118	Sand and small pebbles at bottom
7/10	1450	Lat 58-42N Long 157-12W	48B	11.5		1.0120	1.0115	12.5						685699	1338	Low water slack
8/18	1020	"	12	13.7		1.0075	--	15.0						54502	T-1086	Low water
		"	40.5B	13.6		1.0094	1.0095	15.5						54502	T-1086	slack
		"	12	13.8		1.0134	--	15.0						54502	T-1086	High water slack
		"	55B	13.7		1.0147	--	15.0						54502	T-1086	Mud & sand
9/23		"	12	9.8		1.0080	1.0073	10.1						54502	T-1086	Slack water
		"	40B	9.8		1.0100	1.0094	10.4						54502	T-1086	

* If depth recorded is bottom indicate thus: 365 B
† Express in parts /1000. If by titration indicate thus: 34.16 T

GEOGRAPHIC NAMES

Survey No. **H7617**

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K
<u>Alaska</u>				(for title)					1
<u>Bristol Bay</u>				" "					2
<u>Kvichak Bay</u>									3
<u>Halfmoon Bay</u>									4
Gravel Spit Anchorage									5
									6
									7
									8
									9
									10
									11
									12
									13
									14
									15
									16
									17
									18
									19
									20
									21
									22
									23
									24
									25
									26
									27

Names underlined in red
are approved. 7/14/48
L. Meek

STATISTICS FOR
Hydrographic Survey H- 7617

Ship PATHFINDER

Project CS-327
1947

Launch No.	Volume No.	Day Letter	Date	No. Positions	Stat. Miles Sdg. Lines
4	1	a	17 July	77	23.7
2	1	b	24 "	129	28.5
2	1-2	c	27 "	123	29.3
2	2	d	28 "	139	35.0
2	2-3	e	4 Aug.	192	47.8
2	3	f	5 "	180	44.5
2	4	g	14 "	89	21.1
2	4-5	h	17 "	205	50.2
2	5	j	18 "	188	45.7
2	5	k	21 "	33	7.8
2	6	m	27 "	108	26.1
4	6	n	28 "	174	42.6
2	7	p	10 Sept.	71	11.0
3	7	q	13 "	<u>146</u> 1854	<u>30.9</u> 444.2
Totals					

Total square statute miles of sounding - 23.0

TIDAL NOTE

Hydrographic Sheet H- 7617

(1947)

For tide reducers, the Naknek River entrance gage, corrected for time and range at various sections of the sheet, will be used. Corrections will be made in accordance with the Special Tide Report for 1947 season submitted by the Commanding Officer, PATHFINDER.

*This procedure
also followed in
Washington office*

Position of the gage was lat. $58^{\circ} 43'$, long. $157^{\circ} 03'$

Time used on the survey was 150th meridian.

VELOCITY CORRECTIONS

808 Depth Recorders

Cal. Velocity-820 fms/sec.

Fathometer	Depth	Correction	Scale
46	3 Ft. to 12.5 Ft.	+0.5	A
	13 Ft. to 55.0 Ft.	0	A
59	3 Ft. to 22.5 Ft.	0	A
	23 Ft. to 37.5 Ft.	-0.5	A
	38 Ft. to 55.0 Ft.	-1.0	A
74-S	3 Ft. to 10.5 Ft.	0	A
	11 Ft. to 34.5 Ft.	-0.5	A
	35 Ft. to 55.0 Ft.	-1.0	A

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. **H7617**

Records accompanying survey:

Boat sheets 1.4...; sounding vols. 7.....; wire drag vols.; bomb vols.; graphic recorder rolls 4.envel. special reports, etc.

* Boat Sheet returned to Field Party

The following statistics will be submitted with the cartographer's report on the sheet:

Number of positions on sheet	.....	1854
Number of positions checked	.....	82
Number of positions revised	.....	10
Number of soundings revised (refers to depth only)	.....	35
Number of soundings erroneously spaced	.....	25
Number of signals erroneously plotted or transferred	.....	—
Topographic details	Time	..... 8
Junctions	Time	..... 12
Verification of soundings from graphic record	Time	..... 16

Verification by *J. E. Evans* Total time *188 hrs* Date *16 Feb. 1949*

Reviewed by *J. A. Winsmore* Time *19 hrs.* Date *3/15/49*

839
RHC

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Hydrography and Topography:~~

26 July 1948

Division of Charts: R. H. Carstens

Plane of reference approved in
7 volumes of sounding records for

HYDROGRAPHIC SHEET 7617

Locality ↗ Kvichak Bay, Bristol Bay, Alaska

Chief of Party: R. F. A. Studds in 1947
Plane of reference is mean lower low water, reading
3.2 ft. on tide staff at Naknek River Entrance
24.6 ft. below B. M. 2 (1946)

Height of mean high water above plane of reference is 20.7 feet.

NOTE: The note entered by processing officer regarding tide reducers for A day is subject to question.

Condition of records satisfactory except as noted below:

E. C. McKay
Section
Chief, ~~Division of Tides and Currents.~~

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-7617

FIELD NO. PF-2547

Alaska, Bristol Bay, Kvichak Bay
Surveyed in July - September 1947 Scale 1:20,000
Project No. CS-327

Soundings:

Control:

808 Fathometer

Sextant fixes on shore signals

Chief of Party - R. F. A. Studds
Surveyed by - F. Natella, V. R. Sobieralski
Protracted by - C. N. Hillman
Soundings plotted by - C. N. Hillman
Verified and inked by - L. V. Evans III
Reviewed by - T. A. Dinsmore, March 15, 1949
Inspected by - R. H. Carstens

1. The shoreline originates with the unreviewed manuscripts of air photographic surveys T-9061 and T-9062 (1946-48). The signals are from graphic control survey T-7099 (1947).

2. Sounding Line Crossings

Depths at crossings are generally in good agreement. Occasional differences of 1 - 2 ft., however, do occur. Such differences are considered relatively unimportant over this area of irregular shifting bottom.

3. Depth Curves and Bottom Configuration

The usual depth curves supplemented by the 3-ft. curve in a few places, adequately delineate the configuration of the bottom.

Except for the inshore mud flats, the bottom is extremely uneven. Several shoals which uncover from 1 to 5 ft. at M.L.L.W. are scattered throughout the area. Depths in the natural channel range from 5 ft. in lat. $58^{\circ} 50.17'$, long. $157^{\circ} 12.07'$ to 30 ft. in lat. $58^{\circ} 46.33'$, long. $157^{\circ} 17.52'$.

4. Junctions with Contemporary Surveys

An adequate junction was effected with H-7616 (1947) on the east. The junction with H-7165 (1946-48) on the south will be considered in the review of that survey. Contemplated surveys on the southwest are not registered in this office at the present time.

5. Comparison with Prior Surveys

There are no prior surveys of the area by this Bureau.

6. Comparison with Chart A-3370 (Preliminary print of 5/24/48)

A. Hydrography

Charted information was compiled in the field from advance information of the present survey. The present smooth-sheet soundings, in some instances, differ by several feet from the charted soundings. The present survey, therefore, supersedes the charted information.

B. Aids to Navigation

There are no aids to navigation within the limits of the present survey. No dangers to navigation are revealed by the survey.

7. Condition of Survey

a. The sounding records and Descriptive Report are complete and comprehensive.

b. The smooth plotting was adequate. However, most of the soundings were revised in the Washington Office, after the application of tide reducers taken from new tide curves which were drawn for this area. The tide reducers applied in the field resulted in discrepancies of as much as 5 ft. in sounding line crossings. The revised tide reducers have eliminated these discrepancies and have greatly improved the delineation of the depth curves.


8. Compliance with Project Instructions

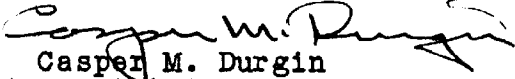
The survey adequately complies with the Project Instructions.


9. Additional Field Work


This is a basic survey and no additional field work is recommended.

Examined and approved:


H. R. Edmonston
Chief, Nautical Chart Branch


Casper M. Durgin
Chief, Division of Charts


K. G. Crosby
Chief, Section of Hydrography


W. M. Scaife
Chief, Division of Coastal Surveys

NAUTICAL CHARTS BRANCH

SURVEY NO. H. 7617

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
11/25/49	9051	<i>J. P. McGinnis</i>	Before <input checked="" type="radio"/> After Verification and Review
2-21-61	8802	<i>J. M. Albert</i>	Before After Verification and Review <i>via ch. 9051</i>
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review

M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.