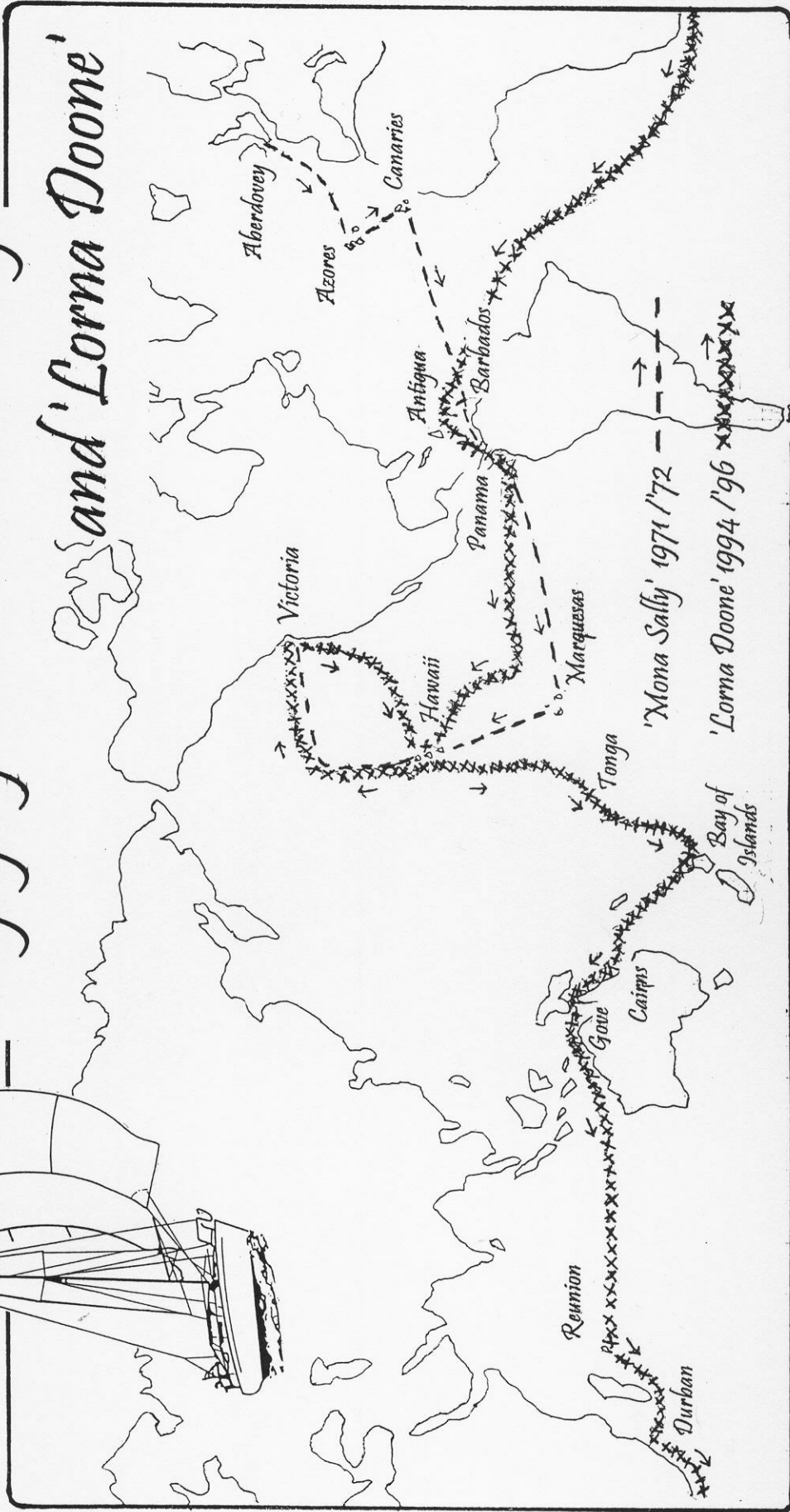
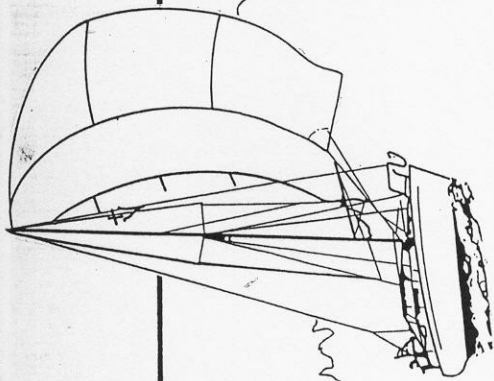


Voyaging With 'Mona Sally'

and 'Lorna Doone'



Navigation on board 'Lorna Doone':

For me, the most intriguing, all absorbing aspect of offshore voyaging has always been the navigation. Had I been born fifty years earlier, I like to think that I could perhaps have been a professional navigator. If I couldn't have been a professional navigator, I would have happily settled for being a joiner - but navigation would be my first choice.

In the early seventies, when I sailed 'Mona Sally' out from the U.K., satellite navigation for yachts was unheard of. I had no alternative but to navigate in the traditional manner, using an ex war department Hughes sextant, a nautical almanac and HO 214 sight reduction tables. By the time I retired in 1994 and went off cruising in 'Lorna Doone', GPS units were commonplace - though still relatively expensive; I purchased a Garmin 50 hand held GPS, and had to pay in the order of \$1,200 Canadian for it.

Despite having GPS on board, I continued to navigate by traditional methods during the entire circumnavigation, taking morning and evening star sights as well as a morning position line from the sun which I would advance to a meridian altitude noon sight. The GPS was, of course, always there as a back-up, a comforting thought when closing the land in overcast conditions when sights were impossible and the accuracy of the dead reckoning had become questionable.

For the circumnavigation I replaced the fifty year old Hughes sextant with two aluminum Zeiss yacht sextants. I also purchased a Merlin navigation calculator which speeded up the process of reducing multiple star sights - and increased the accuracy as it made it feasible to take multiple sights of each star and average the results.

MOON (LOWEST LINES) :	3 HRS 15 MINS 07 SECS	Ho 3° 29'	ZN 108°	WT. 14.7 (A)
	3 HRS 16 MINS 06 SECS	Ho 3° 44'	ZN 108°	WT. 12.4 (A)
	3 HRS 16 MINS 51 SECS	Ho 3° 57'	ZN 108°	WT. 9.1 (A)
RIGHL KENT :	3 HRS 16 MINS 40 SECS	Ho 24° 13'	ZN 169°	WT. 8.7 (A)
	3 HRS 17 MINS 07 SECS	Ho 24° 18'	ZN 169°	WT. 4.3 (A)
	3 HRS 18 MINS 57 SECS	Ho 24° 21'	ZN 169°	WT. 6.7 (A)
ARCTURUS :	3 HRS 30 MINS 49 SECS	Ho 68° 18'	ZN 40°	WT. 4.7 (A)
REJECTED	3 HRS 33 MINS 36 SECS	Ho 68° 48'	ZN 40°	WT. 0.6 (A)
	3 HRS 34 MINS 42 SECS	Ho 68° 51'	ZN 40°	WT. 7.0 (A)
VEGA :	3 HRS 36 MINS 25 SECS	Ho 10° 53'	ZN 51°	WT. 2.7 (A)
REJECTED	3 HRS 41 MINS 31 SECS	Ho 11° 46'	ZN 51°	WT. 8.4 (A)
	3 HRS 42 MINS 23 SECS	Ho 12° 02'	ZN 51°	WT. 2.5 (A)
NUNUKI :	3 HRS 38 MINS 37 SECS	Ho 5° 33'	ZN 117°	WT. 14.7 (A)
	3 HRS 39 MINS 34 SECS	Ho 5° 45'	ZN 117°	WT. 18.2 (A)
	3 HRS 40 MINS 19 SECS	Ho 5° 58'	ZN 117°	WT. 11.9 (A)
POSITION AT 1945 LOCAL TIME :	2° 45' N. ; 157° 47' W			

A page from the navigation log book ; 30th June, 1996 ; just above the equator, North bound, en-route to Hawaii. NOTE : 'Rejected' sights of Arcturus and Vega, where intercepts appear 'out of pattern'; one of the big advantages of using a navigation calculator.

One of the limitations of taking sun sights when North bound or South bound is that eventually the sun's declination and the vessel's latitude coincide - so that the sun is in effect directly overhead and the observed altitude approaches ninety degrees. Briefly, for a day or two, depending on how quickly the vessel is travelling and altering latitude, it becomes almost

impossible to take sights at local noon because of the rapidly changing azimuth and altitude as the sun crosses the vessel's zenith. For 'Lorna Doone' this scenario occurred on three separate occasions; in the North Pacific at the start of the voyage while on passage from Hawaii to Tonga; while North bound in the South Atlantic on passage from the Cape of Good Hope to the Caribbean, and, finally in the North Pacific while on passage from the equator to Hawaii. The standard procedure in these circumstances is to take what are known as 'high altitude' sights. The following extract from the navigation log shows the workings and diagrammatic plot of the 'high altitude' sights taken on Wednesday, 17th July, 1996 when 'Lorna Doone' was Northbound en-route to Hawaii.

SUN'S DECLINATION

TODAY IS $21^{\circ} 01' (N)$ AT LOCAL NOON (1255 hrs) SO DECIDED TO TAKE SOME HIGH ALTITUDE SIGHTS & COMPARE RESULT WITH OUR USUAL MORNING POSITION LINE ADVANCED TO A NOON LATITUDE SIGHT. SUN SIGHTS:

MORNING P. SIGHT:	TIME: 17 hrs 47 mins 34 secs UTC
	Ho: $30^{\circ} 14'$
NOON LAT. SIGHT:	I.E.: $+04'$
Ho (max): $86^{\circ} 49'$	DIP: $-04'$
I.E.: $+04'$	REF ^N : $-02'$
DIP: $-04'$	SEMI DIA: $+16'$
REF: NEG ^{RES}	Ho (cor): $30^{\circ} 28'$
SEMI DIA: $+16'$	G.H.A.: $85^{\circ} 22'$
Ho MAX (cor): $87^{\circ} 05'$	DEC: $21^{\circ} 03'$

DECL^N : 21° 01' (N)

D.R. POS^N : 17° 51' N, 148° 35' W

Z.D : 2° 55'

ASSUMED POS^N : 18° N, 149° 22' W

LATITUDE : 18° 06' (N)

L.H.A. : 64°

H₀ (CALC) : 30° 00'

Z_N : 75°

INT : 28' (TOWARDS)

HIGH ALTITUDE SIGHTS

TIME : 92 hrs 06 mins 03 SECS UTC 21 hrs 57 mins 55 SECS UT

GHA : 149° 59'

147° 57'

DECL^N : 21° 01' (N)

21° 01' (N)

H₀ : 86° 40'

86° 36'

DIP : + 04'

+ 04'

LE : - 04'

- 04'

REFR^N : NEGLIGABLE

NEGLIGABLE

SEMI DIA : + 16'

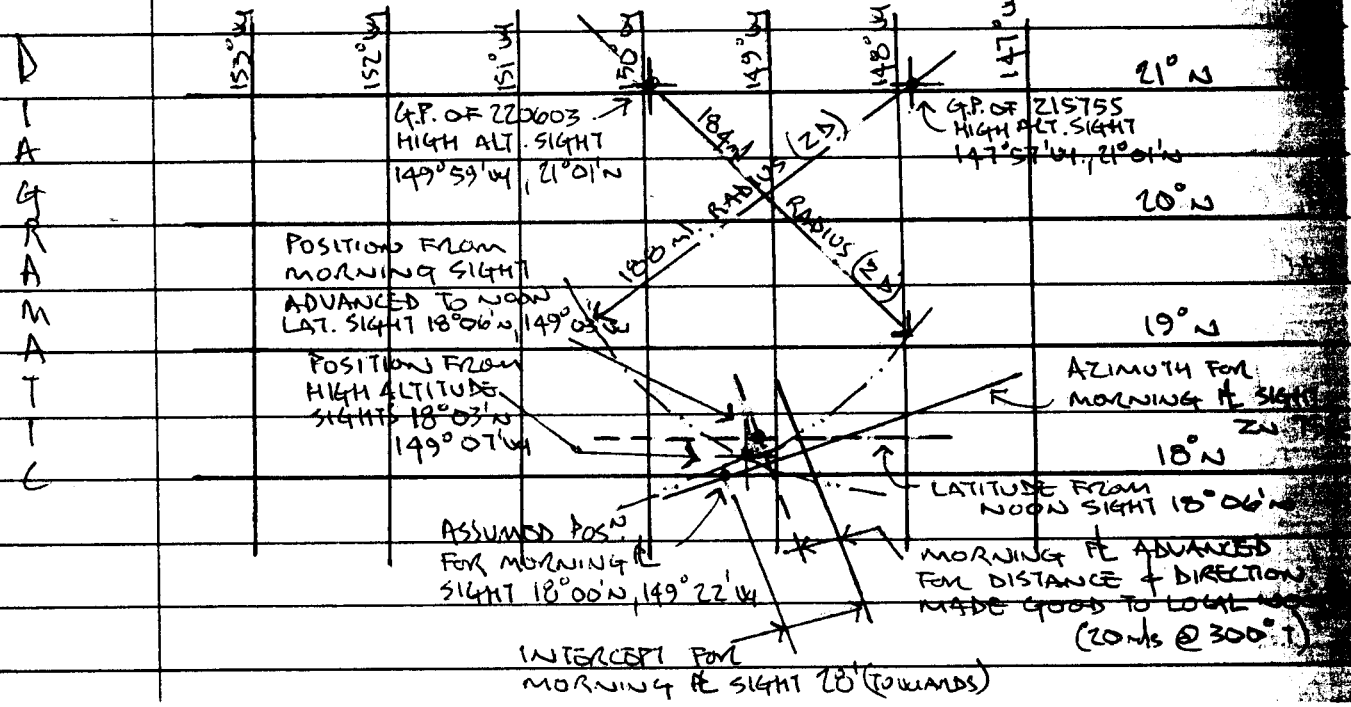
+ 16'

H₀ (COR) : 86° 56'

86° 52'

Z.D : 3° 04' (184')

3° 08' (180')



DIST. TOWARD LEeward SIDE OF CHAIN	FROM ABOVE, NOON POSITION: 18° 06' N., 149° 03' W. DAY
	RUN 111 mls; LOG READING 102 mls BOOST FROM CURRENT
* W/ib Honolulu.	9 mls (0.375 kts). WE HAD NOW MOVED ON TO THE
	LARGE SCALE HAWAII CHART # 4744; I NOTICE THAT
* HAWAII	ON 22 nd APRIL, 1972 I WAS 285 mls TO THE WEST
	OF OUR PRESENT POSITION IN "MONA JAIL", CLOSE
	HAWAII & PROBABLY * THINKING OF GOING INTO
	HILLO. EVENING STAR SIGHTS:
	VEGA: 5 hrs 05 mins 29 secs Ho 37° 35' Zn 55° Wt. 7.2' (A)
	REJECTED 5 hrs 11 mins 49 secs Ho 38° 41' Zn 55° Wt. 14.7' (A)
	5 hrs 12 mins 28 secs Ho 38° 54' Zn 55° Wt. 9.2' (A)
	ANTARES: 5 hrs 08 mins 57 secs Ho 39° 47' Zn 153° Wt. 10.4' (A)
	5 hrs 09 mins 58 secs Ho 39° 56' Zn 153° Wt. 8.5' (A)
	REJECTED 5 hrs 10 mins 49 secs Ho 40° 05' Zn 153° Wt. 5.0' (A)
	RIGIL KENT: 5 hrs 13 mins 40 secs Ho 10° 47' Zn 183° Wt. 4.7' (A)
	5 hrs 14 mins 34 secs Ho 10° 45' Zn 183° Wt. 6.1' (A)
	5 hrs 15 mins 13 secs Ho 10° 43' Zn 183° Wt. 7.6' (A)
	SPICA: 5 hrs 15 mins 59 secs Ho 51° 49' Zn 221° Wt. 3.7' (A)
	5 hrs 16 mins 57 secs Ho 51° 41' Zn 221° Wt. 2.6' (A)
	REJECTED 5 hrs 17 mins 44 secs Ho 51° 26' Zn 221° Wt. 1.4' (A)

High altitude sights; Wednesday, 17th July, 1996
 Noon position: 18 degrees 06 minutes North; 149
 Degrees 03 minutes West; day's run 102 miles.

One of the advantages of the increased interest in ocean voyaging is that more and more excellent cruising guides are becoming available. Anyone sailing North inside the Great Barrier Reef who hasn't got a copy of Alan Lucas' 'Cruising the Coral Coast' will miss out on countless hidden anchorages that only local knowledge can reveal. Similar guides proved invaluable in Hawaii, Tonga, New Zealand, South Africa and the Caribbean. The father of all guides however - the book which every cruising yacht carries as their offshore passage making bible - is James Cornell's 'World Cruising Routes'. Fondly referred to by the cruising fraternity as 'Jimmy', this is the ultimate guide and authority. Arguments about preferred routes and seasons are quickly settled:

"But Jimmy says....."

Whatever you do, don't leave the dock without a copy of 'World Cruising Routes'.

Traditional paper charts are becoming increasingly expensive. I still had 'Mona Sally's' old 1970 British Admiralty charts for the North Atlantic, Caribbean and North Pacific; the balance I purchased as photocopies from Bellingham Chart printers, and supplemented this with various traded photocopies en-route. The stack of charts for the entire circumnavigation was almost two inches thick, and extremely heavy!

As reference texts for navigation I took a copy of Mixter's excellent 'Primer of Navigation' and supplemented it with photocopied extracts from a 1936 edition of Bowditch's 'American Practical Navigator' which I had found in a used book store, but which I decided was too heavy and cumbersome to take on board. One of the photocopied extracts proved invaluable at the end of the voyage. I had been unable to find British Columbian tide tables in

Honolulu, and needed to know the time of the tides for Cape Flattery and Race Passage in the Juan de Fuca strait. Using the following procedure, as explained in Bowditch, it was possible to make a close approximation of the times of high and low water for the required date:

From A

PHOTOCOPIED EXTRACT FROM BOWDITCH
"AMERICAN PRACTICAL NAVIGATOR" (1936 EDITION)
SPENT SOME TIME & CONSTRUCTED TIDE
TABLES FOR CAPE FLATTERY & RACE PASSAGE
SPANNING DATES JEST 4th '96 THRO SEPT 15th '96
ACCORDING TO BOWDITCH THE METHOD SHOULD
BE ACCURATE TO WITHIN 1/2 HRS; CERTAINLY
AN INDICATION ANYWAY — & BETTER THAN
NOTHING. BASED ON THE DATE OF EITHER
A "FULL" MOON OR A "NEW" MOON, &
THE FACT THAT THE MOON TAKES 28 HRS 48 MINS
TO CIRCLE THE EARTH, YOU ESTABLISH THE
TRANSIT TIME FOR THE LONGITUDE OF THE
LOCATION DESIRED & THEN APPLY A HIGH
WATER INTERVAL FACTOR (SUPPLIED FOR PORTS
ALL OVER THE GLOBE — ABOUT A DOZEN PAGES
OF THEM) TO ESTABLISH LOCAL TIME OF
NEXT HIGH WATER. FROM THIS STARTING
POINT SUBSEQUENT & PRIOR TIMES OF HIGH
& LOW WATER ARE READILY ESTABLISHED.

$$\left(\begin{array}{l} \text{LOCAL TIME} \\ \text{OF MOON'S TRANSIT} \end{array} \right) + \left(\begin{array}{l} \text{H.W.} \\ \text{INTERVAL} \end{array} \right) = \begin{array}{l} \text{TIME H.W. ON} \\ \text{DATE OF TRANSIT} \end{array}$$

ABOVE ESTABLISHED	H.W.	+ 6 hrs 12 mins	= NEXT LOW TIME
"	"	L.W.	+ 6 hrs 12 mins = NEXT HIGH TIME
"	"	H.W.	+ 6 hrs 12 mins = NEXT LOW TIME
"	"	L.W.	+ 6 hrs 12 mins = NEXT HIGH TIME

* CAPE FLATTERY :
 LATITUDE $40^{\circ} 23' N$
 LONGITUDE $124^{\circ} 44' W$
 H.W. INTERVAL 0 hrs 08 mins
 MEAN RANGE 5.7'
 SPRING RANGE 8.3'

* SEMI-DIURNAL (i.e. TWO TIDES / DAY)

* RALE PASSAGE :
 LATITUDE $40^{\circ} 18' N$
 LONGITUDE $123^{\circ} 32' W$
 H.W. INTERVAL 1 hr 45 mins
 MEAN RANGE 4.8'
 SPRING RANGE 8.0'

NOTE : PACIFIC STANDARD TIME (AND ONE HOUR)
 SUMMER DAYLIGHT SAVING

	CAPE FLATTERY		RACE PASSAGE	
DATE	HIGH TIDE	LOW TIDE	HIGH TIDE	LOW TIDE
4 th SEPT	0544	—	0721	0109
	1808	1156	1857	1333
5 th SEPT	0632	0020	0809	0157
	1856	1244	1945	1421
6 th SEPT	0720	0108	0857	0245
	1944	1332	2033	1509
7 th SEPT	0808	0156	0945	0333
	2032	1420	2121	1557
8 th SEPT	0856	0244	1033	0421
	2120	1508	2209	1645
9 th SEPT	0944	0332	1121	0509
	2208	1556	2257	1733
10 th SEPT	1032	0420	1209	0557
	2256	1644	2345	1821
11 th SEPT	1120	0508	1257	0645
	2544	1732	0033	1909
NEW MOON * 12 th SEPT	1208	0556	1345	0733
	—	1820	0121	1957
(ACCURACY DIMINISHES AS YOU INTERPOLATE AWAY FROM NEW / FULL MOON)	1256	0644	1433	0821
	0032	1908	0209	2045
14 th SEPT	1344	0732	1521	0909
	0120	1956	0257	2133
15 th SEPT	1432	0820	1609	0957
	0208	2044	0345	2221

Bowditch's procedure used to approximate the times of high and low water at Cape Flattery and Race Passage in the Juan de Fuca strait.

It is difficult to convey the satisfaction and fulfillment that comes from satisfactorily completing an ocean voyage. For me personally, it was a lifelong dream; a very private, profound experience.

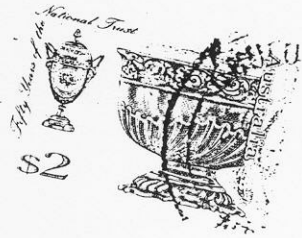
The other evening I was re-reading Rachel Carson's 'The Sea Around Us', and came across the following extract, which seems to me to sum up the whole thing - far better than I could ever hope to do:



IMMIGRATION ARRIVED 30 MAY 1995 PORT CARIS 801 AUSTRALIA

VISITOR'S PERMIT current for THREE (3) MONTHS or earlier if holder leaves New Zealand from ... subject to all visa conditions Immigration Officer NEW ZEALAND IMMIGRATION ACT 1987

IMMIGRATION & ETHNIC AFFAIRS 11 AUG 1995 DEPARTED AUSTRALIA MELVILLE BAYS



DEPARTED 20.10.94

GOVERNMENT OF TONGA IMMIGRATION ACT 1989 SEC. 19 (VISITOR PERMIT) PERMITTED TO ENTER WITH TEMPORARY ENTRY STATUS ON 13.8.94 TO REMAIN FOR 2 Months EMPLOYMENT PROHIBITED PORT VISAS IMM. OFF.

IMMIGRATION TONGA VISITOR PERMIT HAS BEEN EXTENDED ONE MONTH TO 13.11.94 IMM. OFF.

PASSPORT PASSEPORT



CANADA Issuing country/Pays ém. CAN

Type/Type P Surname/Nom SKIDMORE Given names/Prénoms ANTHONY GERALD Nationality/Nationalité CANADIAN/CANADIENNE Date of birth/Date de naissance 27 SEPT/SEPT 43 Sex/ Sexe M Place of birth/Lieu de naissance STANMORE GBR Date of issue/Date de délivrance 04 OCT /OCT 91 Date of expiry/Date d'expiration 04 OCT /OCT 96 Issuing officer/Bureau de délivrance VICTORIA

Passport No./N° de passeport TD792489



SKIDMORE ANTHONY GERALD TD792489

VISAS

REPUBLICA DE PANAMA DEPARTAMENTO DE INMIGRACION Cobradas de ... haber cumplido en el puerto Ders. No: B/10.00 4 de 1996 Director del Departamento

ANTHONY GERALD SKIDMORE 9273M961004

REPUBLICA DE PANAMA INMIGRACION 11 ABR 1995



ENTRY BY SEA DOCKYARD 25 MAR 1995

and Fido Visitor until to remain until ... shall not engage in any occupation



This passport contains 24 pages.

Eventually man, too, found his way back to the sea. Standing on its shores, he must have looked out upon it with wonder and curiosity, compounded with an unconscious recognition of his lineage. He could not physically re-enter the ocean as the seals and whales had done. But over the centuries, with all the skill and ingenuity and reasoning powers of his mind, he has sought to explore and investigate even its most remote parts, so that he might re-enter it mentally and imaginatively. And yet he has returned to his mother sea only on her terms. He cannot control or change the ocean as, in his brief tenancy on earth, he has subdued and plundered the continents. In the artificial world of his cities and towns, he often forgets the true nature of his planet and the long vistas of its history, in which the existence of the race of men has occupied a mere moment of time. The sense of all these things comes to him most clearly in the course of a long ocean voyage, when he watches day after day the receding rim of the horizon, ridged and furrowed by waves: when at night he becomes aware of the earth's rotation as the stars pass overhead: or when, alone in this world of water and sky, he feels the loneliness of his earth in space. And then, as never on land, he knows the truth that his world is a water world: a planet dominated by its covering mantle of ocean, in which the continents are but transient intrusions of land above the surface of the all-encircling sea.

.....excerpt from "The Sea Around Us" by Rachel Carson

Tony Skidmore



Victoria, B.C.

December, 2001