

Since we are dealing with curves of sine and cosine, the numbers repeat themselves in each column, thereby reducing the number of calculations.

As predicted, the error due to curve a is small, indicating that my compass is less than 1° out of line. It would have to be rotated 0.81° anti-clockwise on its base to be correctly set up. Since this is a small error, and I will be applying the deviation in any case, I will not bother to correct this mechanical error. Also, as predicted, errors due to curve e are zero, indicating that my ship is magnetically symmetrical.

Plot the curves on a piece of graph paper. If the results are plotted over the top of the results for the cardinal and inter-cardinal points, there is a discrepancy. This is quite normal, and is a reflection of the accuracy with which the cardinals and inter-cardinals were taken. It is often difficult to hold a ship on a particular course and at the same instant take an accurate bearing. Always use the deviations you have calculated to plot your deviation curve. If there are major discrepancies between the cardinal points taken and the calculated curve, you must do the whole swing again.

It is not intended to cover the whole subject of compass correction in this article, but I would be remiss to ignore it altogether.

Curve A errors: Rotate the entire compass with its magnets and soft iron compensators, as indicated by the error.

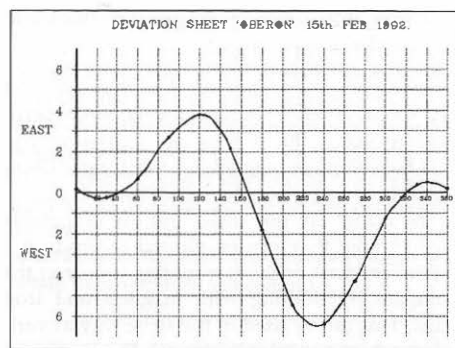
Curve B errors: Place magnets of suitable strength at an appropriate distance in the fore-and-aft direction of the boat, and with the polarity such as to cancel the B errors.

Curve C errors: Place magnets of suitable strength at an appropriate distance in the athwart ship direction, and with the polarity such as to cancel the C errors.

Curve D errors: Place soft iron of suitable size at an appropriate distance on each side of the compass.

Curve E errors: You should not have any if your boat is magnetically symmetrical. The error probably lies in taking your readings or plotting them.

I have not dealt with heeling errors. The aver-



age skipper may be aware of them, but with little hope of measuring them for all points of the compass and all angles of heel. I understand that our old friend Captain Flinders did a lot of work in this area when he found that moving cannon about the deck upset his navigation. Yachtsmen must be aware that heeling errors exist, but we must accept that there is little we can do to quantify them. An inconvenience rather than an error is the fashion in which the compass card dips as one moves about the globe.

* It is good practice to swing the compass at least once a year, particularly if you have a steel or concrete boat. Whenever you get an opportunity, such as comparing a transit with your heading, you can check your deviation. Finally, having produced your curve with the engine running, it is wise to switch it off to see if there is a drastic change, due to magnetic anomalies caused by the generator, etc.

SQ



SWINGING THE COMPASS

Arcoorie Solo from Port Moresby to Darwin

Ken White

[Ken White continues the story of his journey from August/September, 1991. Regrettably this has had to be condensed from a more detailed original.]

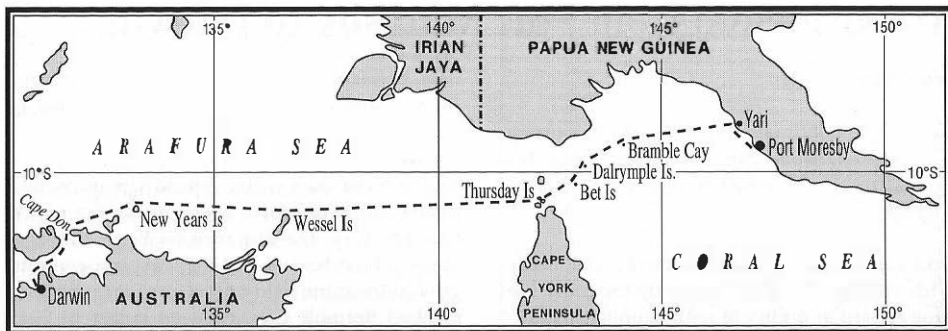
I had agreed to take Michael from Port Moresby to his village of Yari fifty miles up the coast. He came aboard at midnight with supplies, including car tyres and engine parts. In the morning, with Michael hiding below, I raised the anchor and glided out of the harbour, seemingly alone. Once we were clear of detection he took the wheel, as I did not have a chart of this part of the coast, which he knew well. It was an easy sail, chatting about times past when I was his teacher at the Technical College. He dropped out of university to become a motor mechanic; started a business repairing outboard motors; married a girl from the next village; and now has five children.

We arrived at Yari village, 50 miles NW of Port Moresby on the first day for weeks with blue sky and a bright sun. Twenty years ago we came to the same anchorage with our earlier boat *Lahara*, with my wife Kate and our two small boys Benjamin and Joshua. This was only the second time that a yacht has come to this anchorage. A dinghy came out, loaded with children and with Abraham at the helm. He was only eight when he came with us for three days on a cruise to Yule island 12 miles away. Now he was a strapping young man of 28. We sped ashore in his twenty foot dinghy powered by a 30 hp outboard motor. It was different from last time, when we went ashore by sailing *Inkatoi*. This was the first of many changes to village life I was to see over the next three days. I visited Grandpa Bu's grave, and reflected on the past when he and I went fishing with a root of a plant that drugged the fish. At night he told stories and danced. Bu was a great man, a village chief who gave me a bird of paradise and his favourite lime pot for organising a big Sing-Sing, when he passed on his culture and demonstrated his dance. Sadly this Mekeo culture has been almost trampled to death, along with Bu, by urbanisation, crime and drunken-

ness. It was sad to return, and sad also to leave friends struggling with the new pressures of development.

As the moon was rising, I headed west with a strong SE breeze for a speck in the sea called Bramble Cay, the entrance to Bligh Passage. Many a boat has missed this cay and come to grief in the mine field of reefs in Torres Strait. I reached Bramble Cay, right on target, at 0245 with rain clouds obscuring the moon. There I turned WSW through Bligh Passage to run down the NE channel of Torres Strait to Thursday Island 120 miles away. I was keen to reach Darwin, and planned the minimum number of stops. The first was to be Dalrymple Island. At first light I saw an island ahead, with a fishing boat in the distance. The satnav indicated a course of 240°, and as I came closer I was steering 215°. Satnav said that Dalrymple Island was 20 miles away, but it looked like five. I was just so tired that the thought of anchoring made me dismiss the utterings of this electronic box. I came in close to a reef to anchor in 5 metres. I forgot to pull the fishing line in, reversed over it, and had to dive over to cut it clear. While I was soaping myself for a shower I heard a loud engine noise, and looked up to see an Australian Customs plane zooming metres above the masthead. When I woke from a long sleep I realised that I was anchored at Stephens Reef, with Dalrymple Island 16 miles to the west. The satnav was correct, and my tiredness made me discount two errors.

Next morning brought a series of rain showers with relatively flat sea and a fresh SE breeze. Visibility was less than five miles, with land forms that appeared and disappeared. I was constantly referring to the chart and marking my position, checked by satnav. If I had not done this I would not have noticed that I was being driven westerly by the tide towards Dungeness Reef, which is submerged at high tide. In Torres Strait the flood tide sets west and the ebb east. The sailing was pleasant, with the boat steering herself. While I was sitting in the afternoon sun reading *Somewhere East of Suez* the plane appeared again, about fifty feet above



most height. He called on the radio for my details, and then read a detailed legal document which basically said that I must not land on any island until cleared by Customs at Thursday Island. Later that afternoon I was approaching Bett Reef. I could see a landform in the distance and the wreck of the *Wongala* close by. What an awesome sight! The sky was grey, and this huge ship was high and dry on the reef not 100 metres from the light. How close but how far from safety was this ship! I reflected on the agony the skipper must have gone through as his ship ground to a halt on the coral. She lay at an angle of 45° with a ladder or plank from the low side to the reef. It looked like Noah's Ark waiting for the rains. The scene sent a chill up my spine as I headed for Sue Island 9 miles away. Night was coming, and with the flood tide to help I sailed for it in 40 minutes. A week later a yacht in the *Cruising World* round-the-world *Europa* Race was lost here. Their steering jammed, the life raft was punctured on the coral, and they were stranded on the reef. Being in radio contact with Darwin, they were readily picked up and taken there.

Sue Island was a sandy island set on a large extended reef. Ashore some kind of construction was in progress, but being Saturday nobody was working. I anchored on the NW corner, and found it to be an eerie place. I was lying to the wind, with the tide now coming from the south. The reef was exposed, so by midnight I would rock with the turn of the tide. I left at 0300 in the dark for Harvey Rocks 9 miles away. Light rain was falling and the tide was in my favour. I rounded the rocks in the dark, to head for Twin Island. I quickly

closed on the island as two ships passed, continued round Stewart Island, up the channel to Channel Rock. Here the buoy was listing in the direction of the flow of a 7 knot current. I motored to the lee of Horn Island, where some 26 yachts were at anchor. In the SE trades the anchorage off Thursday Island township is rough. The Customs and Quarantine people are very thorough. They took all my supplies, including UHT milk, and went through every locker. I was most helpful at first, but when the Customs officer started pulling up the floor boards I stood back and watched him sweat. I guess they think every yachtsman is a potential drug smuggler. We parted friends as they handed me the bill for \$195 for clearance fees, plus overtime for weekends.

Sailing alone is fine across oceans, but it gets tricky in tight places with strong tides and reefs if you are without an autopilot. I prepare a sheet with distances and bearings, with check points for compass sights. I try to memorise the sheet; stick it to the cockpit seat while I steer; and take bearings at regular intervals.

Thursday Island is a tiny island amongst many, which serves as administration centre for the area. A cluster of shops and four hotels serve this sleepy town of no more than a thousand people, where the main industry is "social service." I took on provisions and fuel, and set off next morning for Wessel Island 300 miles away. This took three days, motoring for the last two in light SE winds. This is the NW tip of the Gulf of Carpentaria, and I can understand why the early Portuguese and Dutch explorers did not

claim this land. It is low lying, rocky and intensely hot. With the autopilot not working I had slept only three hours a day since leaving TL. It was not possible to keep the boat on course untouched for more than twenty seconds at a time — just long enough to shoot down to the galley to make a cup of coffee in three stages. When I needed sleep I usually hove to with the jib backed and the mainsail fully in. Even so, I managed 100 miles a day. The VDO sum log stopped working, which was more of a psychological blow not to see a change in speed as I trimmed sails. The cable had lasted for 10,000 miles, which is not too bad. Then when I pulled in the Walker's log the motor dropped off from rotting of the cotton line where it had lain neatly folded for fifteen years. Disappointing! The coast has not been accurately charted, and I cautiously poked my way into a bay to anchor. The print out on the echo sounder showed jagged rocks below. There were large numbers of fish and wild life,

including turtles. Not having a freezer the food became pretty boring.

The trip of 218 miles to New Year's Island was uneventful in light easterly winds, and took just over two days. After a sleep it was on to Croker Island 30 miles west; another sleep and on to Cape Don. The wind cut out, and I motor-sailed all day to 2330, when I was so tired that I dropped the sails to sleep for an hour or so. With the change of tide I drifted towards Vernon Islands and Clarence Strait towards Darwin. I thought I saw a marker buoy, which turned into the tricolour masthead light of a yacht, to whom I spoke briefly by radio. I arrived at Darwin to anchor in Fannie Bay a mile offshore from Darwin Yacht Club. I was absolutely exhausted and suffering from a viral infection which left me with a crushing headache and fever. I did not wake for a day and a half, still with a raging fever.

[To be continued]



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