

Ship..... R.R.S. SHACKLETON  
 UNIVERSITY OF NEWCASTLE  
 Cruise Dates (Inclusive, port to port) .....

Cruise No 10/79  
 29th October 1979 to 23rd November 1979

It is requested that the following aspects of the cruise may be covered in this report of proceedings for dispatch or delivery to the Director, Research Vessel Base, immediately on return to port.

- a) Main objectives of the cruise.
- b) Geographical area. Reference stations or points in latitude and longitude.
- c) Sea and weather conditions encountered.
- d) Conduct of cruise, main problems encountered and success or otherwise of the program.
- e) Equipment performance.
- f) Ship performance.
- g) Any recommendations.
- h) Signature and date.

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Brief comments are preferred but if necessary please continue on another sheet.

- a) To obtain magnetic, gravity and precision depth records for the northern Red Sea in the direction of sea floor spreading (N 44/224°).
- b) Red Sea: north of 19°N. A total of 44 profiles. For the last profile the airgun was deployed and successfully tested in readiness for the following leg in the Gulf of Aden. As the ship was making good time on passage to Djibouti we moved to at 16° 54'N., 41° 01'E on 23 November, and obtained two bonuses.
  - (1) a core in 564 fathoms for Dr. Samiha, our Egyptian observer from the Institute of Oceanography Alexandria and (2) successfully tested the new NERC coring release device of Mr. I. Chivers.
- c) Sea generally calm except for November 2 and 3 in the northernmost Red Sea when most scientists felt some discomfort and on the last day when there were strong southerly winds and a fairly heavy swell slowing the ship to under 8 knots as the straits of Bab el Mandeb were approached. The weather was generally fine and pleasantly cool for the Red Sea (renowned for its hot, humid conditions). A heavy rain shower was experienced near Suakin on the morning of November 19.
- d) The cruise was conducted with four NERC research students, two NERC technicians and three overseas scientific observers (two from Egypt and one from Saudi Arabia). In addition we were accompanied by Lt. Salah El Din Zaki Abdoul Saadat of the Egyptian navy who was extremely helpful. This made a very interesting team. The only problem with the scientific personnel was due to one of the Egyptian observers having to leave the ship in Egypt (see separate correspondence with F.C.O.). Relations with the officers and crew were very good and the observers became more and more appreciated. Some problems arose with the ship's medical doctor which took far too much of the P.S.O.'s time. By far the greatest problem was the ship's radar. The lack of good radar on the bridge for a large part of the cruise meant we could not approach as close to the shores as scientifically

desirable for reasons of safety. Most profiles were terminated in water depths greater than 400 fathoms instead of less than 100 fathoms. As one of the main objects was to locate the ocean/continent boundary this was particularly unfortunate especially as the F.C.O. had managed to get clearance from the nations concerned. Apart from this, the fact that we were able to obtain 44 profiles testifies to the success of the programme. This was particularly gratifying after the delay from the previous leg (transit was made through the Suez Canal on Wednesday 31st October instead of Sunday 28th October).

On the domestic side, it should be realised that the whole purpose of the ship is to do marine science and not medicine. Science must take precedence. On this occasion, the ship was set up for medicine with no facilities for the P.S.O. For example, the P.S.O. was without communications. It is ridiculous that the ship's officers have to descend three flights of stairs to fetch the P.S.O. There was nowhere to look after diplomats and observers except the captain's cabin. This was particularly severe in port and was made tolerable only by the magnanimous attitude of the two captains, both of whom were clearly embarrassed by the situation. The whole medical set up gave a very bad image of NERC which we did everything possible to cover.

e) Most of the equipment functioned fairly well, apart from the radar (already mentioned). Once again, the air conditioning was inadequate, the resulting high temperatures giving problems with the electronics. On 21st November the temperature in the gravimeter room reached  $34.8^{\circ}\text{C}$  and in the main laboratory  $30.7^{\circ}\text{C}$ . The SATNAV gave up in these conditions but was restored by opening the electronics and using a makeshift electric fan.

The back up precision depth recorder had been removed. The one remaining gave trouble on 14 and 18 November. Fortunately, only about two hours of data were lost but even this is too much when considered in the light of the high cost of the gravimeter (gravity data are useless without depths).

The gravimeter functioned well except for a small breakdown of about  $1\frac{1}{2}$  hours on 6 November when a small servo became disengaged. The magnetometers gave good service. It was necessary to change the fish twice and to change consoles once.

At the request of the technicians, the airgun system was tested along the last profile in readiness for the following leg. The system was proved to work but not with the wave shape kit. It is noted that the system still does not have digital recording which is essential for the data processing.

Towards the end of the cruise a piston core was obtained for one of the observers the coring apparatus working successfully first time. The opportunity was taken to test a prototype trigger device (designed by one of the NERC technicians, Mr. I. Chivers) to eliminate premature firing both during rigging and descent (which can be exceedingly dangerous). The test was a complete success.

The biggest disappointment was the inadequacy of the data logging facility. For example, there was no facility for soundings which are essential for the reduction of the gravity values. The previous system seemed to be evolving well and it has been completely changed with no notification to P.S.O.'s. This is a major tragedy and will seriously hinder the reduction and interpretation of data.

f) The ship's general performance was good, the speed for most of the time being in excess of 10 knots. There were some problems such as an emergency stop for engines (1½ hours on Nov. 3rd) ship's steering (10 Nov) and a complete power failure (17 Nov) which meant all scientific equipment had to be rehabilitated.

g) Recommendations

- (1) There should be a technician on board trained to look after the ship's radar in the same way as for the other scientific equipment.
- (2) More attention should be given to backup equipment. For example, it should be unnecessary to have to ask for a backup PDR to be air freighted to the ship. With the ever rising high cost of ship's time, back up equipment should be on hand at all times.
- (3) The data logging facilities should be fully restored.
- (4) The number of air conditioners in the laboratories should be at least doubled.
- (5) To avoid wasting ship's time, a clear written rule is needed that observers join and leave the ship only at the beginning and end of a leg.
- (6) The concept of having a ship's doctor should be reviewed immediately and guidelines laid down for the future.

Date: 6/Dec/79

Signed: R.W. Giddler