SHORT NOTES

A NEW SIGHTING OF SOUTHERN RIGHT WHALE DOLPHINS, *Lissodelphis peronii*, IN THE SOUTH-WEST ATLANTIC

By R. M. LAWS *and* G. K. NIEUWENHUIJS

ABSTRACT. A school of *Lissodelphis peronii* was sighted at lat. 47°15′S, long. 45°40′W on 7 February 1980.

AT 1810 h local time on 7 February 1980 at lat. 47°15′S, long. 45°40′W, a large school of *Lissodelphis peronii* was seen from RRS *Bransfield* on passage between South Georgia and Montevideo. The weather was overcast but clear, the wind northerly force 5 with a rough sea. Sea surface temperature was 12.6°C and air temperature 14.5°C. There were between 100 and animals in groups of up to about 15. It was a spectacular display. Their uniform markings – well demarcated black (above) and white (below) and the absence of a dorsal fin, to which the English name is due – left no doubt about the identification and this is confirmed by photographs taken at the time (Figs 1 and 2).

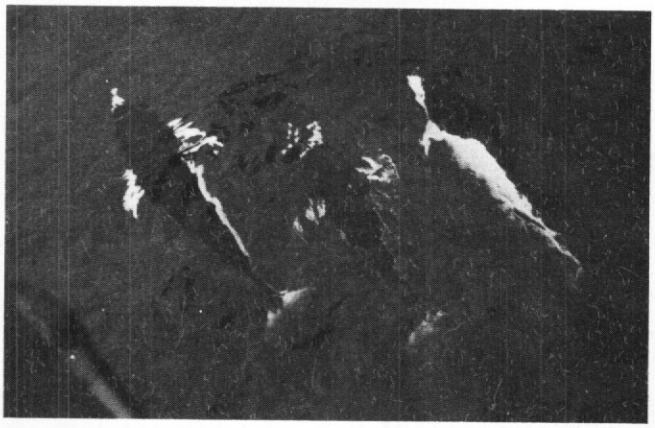

Fig. 1. Three *L. peronii* under the bows of the ship. (Photograph G.K.N.)

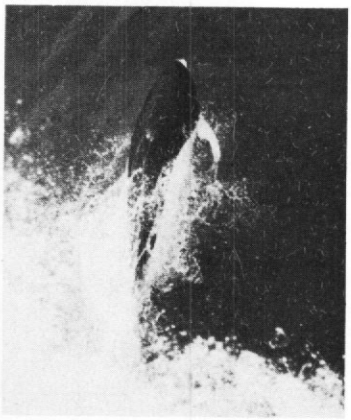

Fig. 2. *L. peronii* in the bow wave. (Photograph G.K.N.)

At the same time about 15–20 pilot whales *Globicephala* sp. were sighted, but they were swimming across the path of the dolphins and it was not evident whether the two groups were associated in any way.

The dolphins were swimming in the ways which Leatherwood and Walker (1979) describe as "fast, surface swimming with much leaping making a series of low angled jumps re-entering the water smoothly head first" and "bow riding". The rough sea condition accentuated the leaps, which were in unison by sub-groups abreast of each other like lines of cavalry. The ship was making about 11 knots and they easily kept pace for about 20 min, some for variable periods in the bow wave.

Southern right whale dolphins and the northern species *L. borealis* are generally considered to be cold water animals. *L. peronii* has been recorded as far north as 18°53′S and 29°35′S, in the

Peru Coastal Current (Brown, 1973; Brownell, 1974) and at 26°/27°S in the Benguela Current (Cruickshank and Brown, in press). Fraser (1955) suggested that *L. peronii* "probably ranges round the world in the southern hemisphere" and Cruickshank and Brown (in press) note that additional records confirm the circumpolar distribution. The species has been observed in association with other delphinids before, including dusky dolphin (*Lagenorhynchus obscurus*) and pilot whale (*Globicephala* sp.) (Brownell, 1974; Cruickshank and Brown, in press). *L. borealis* has also been seen in association with corresponding Northern Hemisphere genera. The speed recorded at this sighting compares with speeds of 12 knots for 20 min recorded by Cruickshank and Brown (in press) for *L. peronii* and speeds of 13 knots and more than 18 knots, sustained for 26 min and 10 min, respectively, for *L. borealis* (Leatherwood and Walker, 1979).

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SEAL SURVEYS, SOUTH ORKNEY ISLANDS, 1971 AND 1974

By R. M. LAWS

ABSTRACT. In February 1971 a survey was made of most of the coastline of the South Orkney Islands. Some 7 377 seals of five species were counted. Three fur seal *Arctocephalus gazella* breeding colonies were found which included 72 females and 61 pups. These were revisited in January 1974 when 28 females and 65 pups were counted. At the largest breeding colony the population increased by nearly 6% annually between 1965 and 1974. Some 419 Weddell seals *Leptonychotes weddelli* were examined in 1971 for tags applied at Signy Island in earlier years and 22.4% carried tags. The incidence of tags varied according to locality and indicated that one third of Signy Island Weddell seals were tagged. The proportion of tagged animals decreased with distance from Signy Island, but even at Eastern Laurie Island 65 km away 15% carried tags.

BETWEEN 9 and 16 February 1971, in association with other botanical and zoological field work, most of the South Orkneys coastline was inspected for seals. Stretches of coast that were considered suitable for seal haul-out were searched closely using one of the RRS *John Biscoe*'s inflatable rubber dinghies. Several areas including Southern Powell Island and Michelsen Island were counted from the land by a number of observers. The remaining coastline was observed by binoculars from the ship, except for most of the north coast of Coronation Island. However, there are probably few if any suitable hauling-out places for fur seals or elephant seals on these stretches of coast. If an opportunity occurs in the future, Governor Islands, Tickell Head, Prong Point and the Laurie Island coast from Cape Dundas to Mackintosh Cove should be examined, because they may include possible haul-out areas. In 1970, the RV *Hero* reported small numbers of fur seal 2–3 miles N.W. of Cape Dundas (P. Lenie, pers. comm.).

TABLE I. SUMMARY OF SOUTH ORKNEY SEAL COUNTS, FEBRUARY 1971, JANUARY 1974

Date	Locality	Fur seals				Elephant	Weddell	Leopard	Crabeater
		male	female	pup	total				
9.2.71	Mansfield Pt./Cleft Pt.[c]	0	0	0	0	4	19	0	0
	Gosling Islands[c]	92	8	16	116	714	67	5	0
	Meier Pt. and rocky point to N.E.[c]	8	0	0	8	317	24	1	0
10.2.71	West from Gosling I. to Return Pt.[c]	1	0	0	1	104	11	6	0
	Moreton Pt. to coast north of Spine I.[c] and Spine I.	45	0	0	45	48	7	6	0
	Monroe Island	202	6	6	214	18	65	9	0
	Larsen Islands	5	0	0	5	2	55	5	0
11.2.71	Robertson Islands	19	0	0	19	26	98	4	0
	Whale Skerries	397[a]	3	0	400	28	27	0	0
	Christofferson Island	8	0	0	8	86	17	0	0
	Southern Powell Island	503[b]	6	10	519	312	14	0	0
	Michelsen Island	326	49	29	404	150	28	0	0
12.2.71	Fredriksen Island	14	0	0	14	15	1	2	0
	Southwestern Laurie I. (Cape Whitson to Cape Burn Murdoch)	50	0	0	50	191	14	1	1
13.2.71	North coast, Laurie I. (Cape Mabel to Fraser Point)	181	0	0	181	45[d]	56	6	0
14.2.71	Saddle Island	12	0	0	12	4	26	5	0
15.2.71	Route Point, Laurie Island	0	0	0	0	24	24	2	0
	Southeastern Laurie Island (Graptolite Island to Cape Dundas)	27	0	0	27	139	151	2	0
16.2.71	Rayner Pt.[c]	0	0	0	0	0	1	0	0
	Saunders Pt. to Iceberg Bay[c]	0	0	0	0	75	39	2	0
20.2.71	Shingle Cove to Lynch Island[c]	0	0	0	0	227	14	1	0
17, 21.2.71	Signy Island	12	0	0	12	1 935	59	3	0
	TOTAL	1 902	72	61	2 035	4 464	817	60	1
10.1.74	Gosling Islands and vicinity	10	10	12	32	208	10	0	0
10.1.74	Monroe Island	5	2	6	13	0	0	0	0
14.1.74	Southern Powell Island and Michelsen Island	133	16	47	196	235	13	0	0
	TOTAL	148	28	65	341	443	23	0	0

[a] 4 carcasses also; [b] including 2 'light' individuals; [c] Coronation Island; [d] 2 carcasses also.

Signy Island and the nearby coast of Coronation Island was inspected on 17, 20 and 21 February after the main survey was completed. At Signy Island a series of seal counts had been made earlier at intervals during the summer, which showed higher numbers of elephant seals. The primary objective of the South Orkney Islands counts was to record numbers and distribution of fur seals, *Arctocephalus gazella,* particularly any breeding colonies, but elephant seals, *Mirounga leonina,* Weddell seals, *Leptonychotes weddelli,* leopard seals, *Hydrurga leptonyx,* and one crabeater seal, *Lobodon carcinophagus* were also recorded.

The results are summarized by localities in Table I. A total of 7 377 seals was counted. This included 2 035 fur seals, and breeding colonies of this species were found at the Gosling Islands, Monroe Island and Michelsen Island, totalling 72 females and 61 pups. Large concentrations of moulting males were found at these places and also on the Whale Skerries and Cape Geddes, Laurie Island. Tag returns suggest that these are from the South Georgia breeding herd (BAS, unpublished data). At this time of year, the South Georgia females are still suckling their pups.

Some 4 464 elephant seals were counted. These were mainly moulting males because the female haul-out occurs earlier in the season. Tag returns again suggest that they are from South Georgia. The main concentrations were at Cape Meier, the Gosling Islands, Powell and Michelsen Islands and Signy Island (43.4% of the total was on Signy Island).

Weddell seals were fairly evenly distributed, some 817 being counted, mainly as individuals or small groups on rocky shores. An exception was a group of 61 crowded on a small sheltered beach on the Laurie Island shore, north of Graptolite Island. They were tightly bunched, like elephant seals, and the majority were males; from their scarred appearance some were clearly very old. Of 210 Weddell seals that could be sexed, 122 (58%) were males.

In January 1974, visits were made to the three known fur seal breeding colonies, with the results shown in Table I, including 28 females and 65 pups.

Numbers of Weddell seals have been tagged on Signy Island annually since 1960 and in 1970–71 a determined attempt was made to examine the Weddell seals counted for presence or absence of tags. This information was obtained for a subsample of 336 (41%). An additional

TABLE II. PROPORTION OF WEDDELL SEALS BEARING TAGS, ACCORDING TO LOCALITY

Coastline	*Distance from Signy Island* (km)	*Examined*	*Tag*	*% with tags*	*S.D.*
Signy Island		57	19	33.3	6.24
Iceberg Bay	7.5	60	20	33.3	6.09
Robertson Islands	24.0	30	10	33.3	8.61
Gosling Islands	14.5	59	17	28.8	5.90
Monroe I., Larsen Is.	25.0	50	9	18.0	5.43
Cape Dundas vicinity	65.0	67	10	14.9	4.35
Powell I., Michelsen I. and N. Laurie I.	>30.0	96	9	9.4	2.97
TOTAL		419	94	22.4	2.04

number was examined on Signy Island during the summer, making a total of 419 examined for tags in 1970–71.

Of the 419 examined on this survey and at other times during the summer, 94 (22.4%) carried tags. The geographical incidence is summarized in Table II and in Fig. 1; a strong tendency to haul-out in the vicinity of the home breeding colony is suggested. At least one third of the Weddell seal population which hauled out at Signy Island in February 1971 carried tags and it is suggested that, in summer, individuals of the Signy Island breeding population were equally likely to be present up to 15–20 km from Signy but occurred in lesser proportions on the west coast of Coronation Island and on Laurie Island, up to 65 km away, presumably diluting the

local breeding populations in these areas. These data suggest that Signy Island is the focus in the island group for Weddell seal breeding.

A large proportion of the 60 leopard seals counted was in the water.

The 1971 survey was the first comprehensive seal count made in the group and so comparisons are difficult. A helicopter count by American biologists in January 1970 gave totals of 435 fur seals, 1 289 elephant seals, 152 Weddell seals, and 41 leopard seals, but was only a partial count (Erickson and others, 1970). The previous thorough count of fur seals at Michelsen

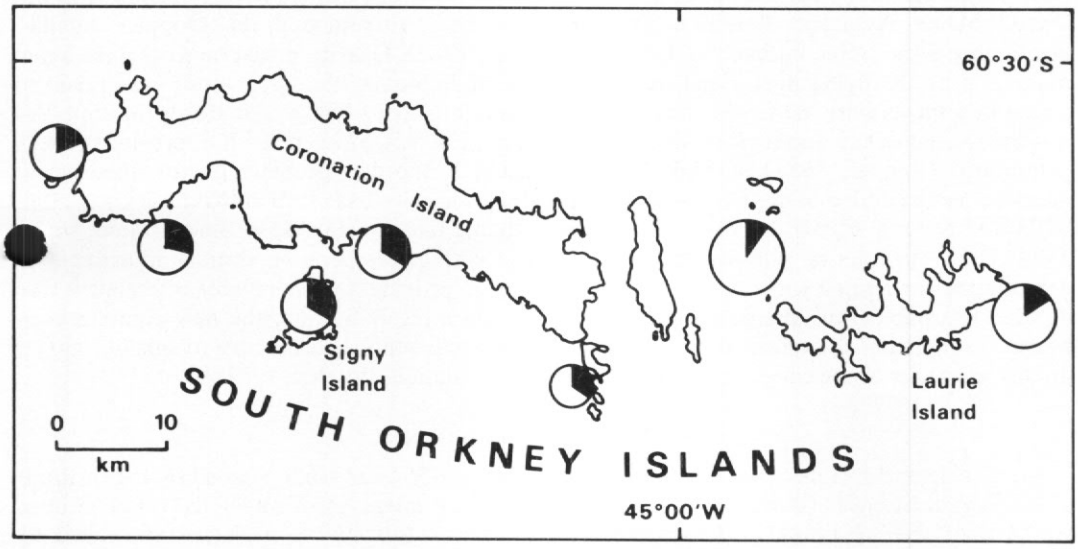

Fig. 1. Proportion of Weddell seals in samples from seven localities bearing tags applied at Signy Island. Diameter of circle proportional to number examined; black sector represents proportion tagged.

Island and southern Powell Island on 6 February 1965 gave a total of 559. Fur seal pups in this colony numbered 28 in 1965, 39 in 1971, and 47 in 1974. It seems likely that there has been a substantial increase both in the breeding colonies and numbers hauled-out in summer. For this colony, pup production has increased by nearly 6% annually between 1965 and 1974; for the three colonies combined, pup numbers increased from 61 to 65 between 1971 and 1974, averaging just over 2% annually.

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AN ABSOLUTE GRAVITY BASE AT SIPLE II STATION, ANTARCTICA

By R. G. B. RENNER

ABSTRACT. An absolute value of the acceleration due to gravity of 9.826256 m s^{-2} was determined at Siple II Station, the coordinates of which as measured in December 1978 relative to the World Geodetic System 72 (WGS 72) spheroid were lat. 75°56′23.65″S, long. 34°14′53.82″W, elevation 1 055 m.

DURING the Antarctic summer of 1978–79 the British Antarctic Survey in conjunction with the United States Antarctic Research Programme (USARP) continued the Doppler satellite positioning programme initiated in 1975–76 (Renner, 1981). Gravity measurements were again made and as the flying operations were centred at Siple Station the opportunity was taken to strengthen the gravity tie to this base by completing a gravity link to McMurdo Station. An absolute value of the acceleration due to gravity (g_{abs}) of 9.826271 m s^{-2} had previously been determined (Renner, 1981) at Siple I Station using a Worden geodetic gravity meter with measurements relative to the British Antarctic Survey's gravity base station 'Rothera Grav'. (lat. 67°34′09″S, long. 68°07′30″W). However, the original locality (Fig. 1) at Siple Station, 'Janie 1974–75', is an external one and the marker therefore requires periodic vertical adjustment to compensate for annual snow accumulation. In order to provide a more reliable reference it was decided to establish an alternative gravity base within Siple II Station, the new complex then nearing completion. However, this alternative position may still be susceptible to small (1 gu/yr) gravity increases as measured at the South Pole gravity station (Bentley, 1971).

INSTRUMENTATION

A LaCoste and Romberg Model G gravity meter (No. 456) was kindly loaned by the Institute of Geological Sciences (IGS), London, England. The instrument has a single-dial range of over 70 000 gu (1 gu = 0.1 mgal = 10^{-6} m s^{-2}) and is thermostatically temperature controlled to 53°C thus minimizing drift and stabilizing calibration. The gravity meter had been re-calibrated in June 1978 by IGS and as a consequence the maker's calibration tables were modified by a factor of 1.00052. I completed further confirmatory calibration checks along the established calibration line between Prees and Hatton Heath in Cheshire (Masson Smith and others, 1974). It was assumed that the correction factor of 1.00052 was applicable throughout the dial range.

FIELD PROCEDURE

The new internal gravity station was located at the mid-way point of the 25-cm-wide wooden threshold situated at the junction of the access tower and the underpass connecting Siple I and Siple II Stations (Fig. 2). Its position relative to the external gravity base station 'Janie 1974–7[illegible]' is shown in Fig. 1. The new gravity station was left unmonumented.

Arrangements were generously provided by USARP for the author to visit McMurdo Station between 7–10 January 1979 thereby enabling the gravity value of Siple II Station to be more directly related to the international gravity network. Transport was by United States Navy Hercules LC-130 aircraft which were then flying regular supply flights to Siple Station. The completed two-way gravity link Siple Station–McMurdo Station–Siple Station was accomplished in 65 h with the interval between successive base station re-occupations on the outward and inward legs of 11.5 and 6.75 h, respectively.

Instrumental drift was documented by the frequent re-occupation of McMurdo Earth Sciences Building (ESB) gravity station (Dewart, 1975) indicating an observed static drift rate of 0.15 gu per day. The residual travel drift averaged 3.1 gu per day and this significantly higher value is attributed to the inherent vibrations encountered on both the tracked vehicle used to ferry personnel and equipment to and from the Williams field airstrip at McMurdo Station and that

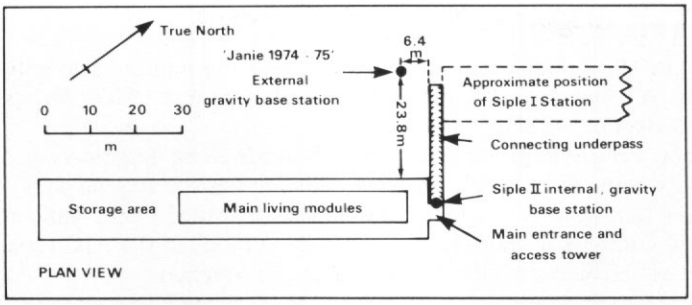

Fig. 1. Relative positions of Siple II and 'Janie 1974–75' gravity base stations.

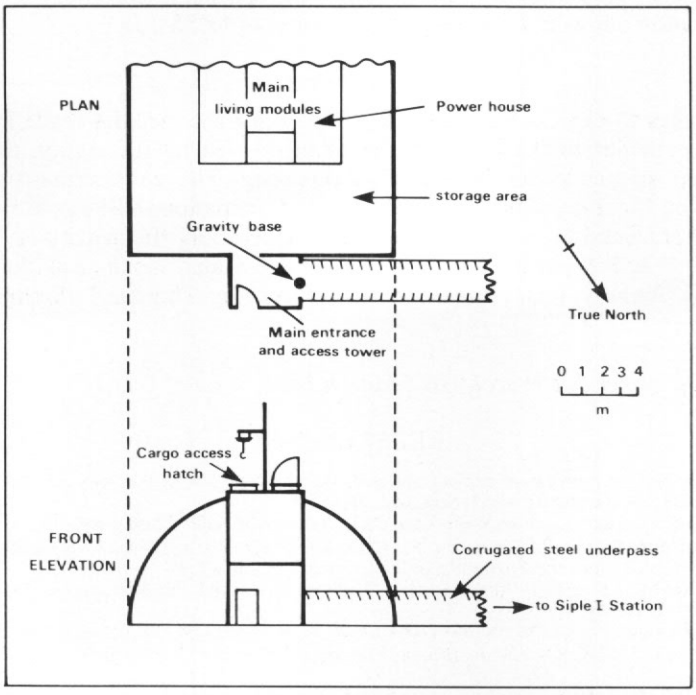

Fig. 2. Gravity base locality at Siple II Station. (See text for precise description.)

incurred on the Hercules LC-130 flights. The thermostatic control was maintained at all times and the gravity meter was supported and secured on a cushioned mount throughout.

Results

The calculated gravity difference between McMurdo ESB and Siple II Station was 3 577 gu (Earth tidal gravity effects were calculated to be less than 0.20 gu). Therefore, assuming a value at McMurdo ESB of 9.8298331 m s^{-2} (Dewart, 1975) this gives an absolute value at Siple II Station of 9.826256 m s^{-2}. The measured difference between Siple II and the original Siple I locality was 7.5 gu giving an absolute value for 'Janie 1974–75' relative to McMurdo ESB of 9.826249 m s^{-2}. This differs from the value of 9.826271 m s^{-2} measured in 1975–76 at Siple I by 22 gu. This difference may be explained as follows:

(i) Snow accumulation raises the surface datum of Siple I gravity by an amount estimated to

be of the order of 1.5 m per year which could account for approximately 10 gu. This value may be partially offset by an increase in gravity due to equilibrium being maintained on the ice sheets due to the response to normal accumulation rates and the additional overburden of station-induced snowdrift. An increase of 1 gu/yr attributable to these effects has been measured at South Pole station (Bentley, 1971).

(ii) The Antarctic Peninsula gravity network still needs to be accurately tied in by air to the international gravity network of South America. Existing ties still rely on ship voyages involving several days travel (Griffiths and others, 1964; Kennett, 1965) and, until improvements are realised, errors will continue to exist between gravity stations in the Antarctic depending upon whether they were established via New Zealand or South America.

In December 1978 the coordinates of 'Janie 1974–75' relative to the WGS 72 spheroid were determined from data supplied by Charles D. Ziegler (United States Geological Survey) to be lat. 75°56′23.65″S, long. 84°14′53.82″W, elevation 1 055 m. These coordinates are applicable to Siple II gravity station but with a revised geodetic height of 1 053 m.

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A GRAVITY TIE BETWEEN THE ANTARCTIC PENINSULA NETWORK AND McMURDO STATION

By R. G. B. RENNER

ABSTRACT. An absolute value of the acceleration due to gravity of 9.824796 m s^{-2} is calculated for Rothera Station from a two-way tie to McMurdo Station. This is compared with a value of 9.824817 m s^{-2} previously determined via South America. Updated descriptions are given for McMurdo and Rothera gravity base stations.

FOR almost 20 years, regional land gravity surveys have formed an integral part of the British Antarctic Survey (BAS) field geophysics programmes. Initially, the measurements were

restricted to the west coast of Graham Land (Griffiths and others, 1964) but were succeeded by overland traverses which covered the accessible terrain, inland and coastal, of Graham Land (Davey and Renner, 1969), Palmer Land (Butler and McArthur, in press) and Alexander Island (Burns, 1974). Relocatable gravity base stations were established and, when possible, aircraft tie-flights used to advantage.

With the gradual southerly extension of these surveys, including those localities occupied during a Doppler satellite programme (Renner, 1981*a*) it was apparent that the Antarctic Peninsula gravity net should be strengthened relative to the international network. The original gravity datum on Graham Land was established by Griffiths and others (1964) using a Worden geodetic gravity meter and, later, this network was tightened by Kennett (1965) using a LaCoste and Romberg gravity meter. Whilst both related to international gravity bases in South America both had the disadvantage of intervening sea voyages lasting several days. However, the Antarctic Peninsula network still rests on the results of Kennett because logistic limitations have thus far prevented any direct gravity tie-flights to South America.

During the austral summer of 1978–79 the author was attached as geophysicist to a joint USARP (United States Antarctic Research Program)–BAS Doppler satellite positioning project (Kosco and Zeigler, 1978) with operations based from Siple Station, 1 050 km south of Rothera. A LaCoste and Romberg Model G geodetic gravity meter (No. 456), loaned by the Institute of Geological Sciences (IGS), London, England, was used to determine absolute gravity whenever localities warranted. A De Havilland Twin Otter aircraft belonging to BAS transported equipment and personnel from Rothera to Siple Station and from there to pre-selected photo-identifiable points.

On the termination of the Doppler satellite programme an opportunity arose through USARP for a return gravity leg to be flown the 2 400 km from Siple Station to McMurdo Station (Renner, 1981*b*). In so doing, the Antarctic Peninsula network was thereby linked to an important primary gravity base, McMurdo Earth Sciences Building (ESB) and also indirectly tied to the international network through New Zealand (Dewart, 1975). Transport was provided on a United States Navy Hercules LC-130 aircraft then being operated on routine supply flights.

Field Procedure

Gravity base stations at Rothera, Siple and McMurdo were occupied as near as possible to flight departures and arrivals. The duration between successive re-occupations of gravity bases on the outward and inward legs was:

(i) Rothera to Siple Station – 8 h and 11.25 h, respectively.

(ii) Siple Station to McMurdo Station – 11.5 h and 6.75 h, respectively.

Instrumental drift which was documented as frequently as possible throughout gave the following daily rates:

(i) Overall drift Rothera–Rothera over a period of 25 days = +0.75 gu (1 gu = 0.1 mgal = 10^{-6} m s^{-2}).

(ii) Travel drift Rothera – Siple – Rothera (De Havilland Twin Otter and skidoo) = +0.80 gu.

(iii) Travel drift Siple Station – McMurdo Station – Siple Station (Hercules LC-130 and tracked vehicle) = +3.1 gu.

(iv) Overall drift at McMurdo Station = +0.15 gu.

(v) Static drift at Siple Station = +0.35 gu.

The increase in travel drift rate observed over the Siple – McMurdo section may be partially explained through the unavoidable motion encountered when riding the tracked vehicle between the Williams field airstrip and the gravity base station, despite the sympathetic handling shown by the drivers. In addition, vibration-induced drift could have been incurred during the Hercules LC-130 flights.

The gravity meter had been re-calibrated in June 1978 by the IGS and the maker's calibration

tables modified by a factor of 1.00052. A similar calibration correction factor was determined by the author prior to, and after, the Antarctic field season and therefore duly incorporated in the data reduction.

Results

The observed gravity differences after due allowances for instrumental drift are shown in Table I. Earth tidal gravity effects calculated for each locality indicated a variation of less than

Table I. Gravity differences between Rothera and McMurdo Station

Base station localities	*Base station reference*	gu *difference*		*Mean diff.* (gu)	*Total diff.* (gu)
		outward	*inward*		
Rothera Siple Station	'Rothera Grav' Siple II Station	1460.5	1460.4	1460.45	5037.45
Siple Station McMurdo Station	Siple II Station McMurdo ESB	3577.0	3577.0	3577.0	

0.20 gu and are therefore negligible for the accuracy of the survey. Assuming an absolute value of the acceleration due to gravity (g_{abs}) of 9.8298331 m s^{-2} (Dewart, 1975) at McMurdo ESB, the absolute value at 'Rothera Grav' is 9.824796 m s^{-2}. This compares with the value of 9.824817 m s^{-2} previously determined at 'Rothera Grav'. Contributing to the difference of 21 gu must be the error introduced in the Antarctic Peninsula network through the relatively lengthy ship-borne traverses from South America. Verification and further strengthening is required by additional international gravity tie flights, particularly between the Antarctic and South America. Until such improvement the existing gravity datum established by Kennett (1965) will continue to be adopted for the Antarctic Peninsula.

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APPENDIX

Amendments to Gravity Base Descriptions

Rothera Station

Several new buildings have been constructed at Rothera Station since the gravity site was first described (Renner, 1981*a*). The original 'Rothera Grav' is still accessible and is located (Fig. 1) on a small rock outcrop between the main living complex and scientific laboratories. It lies

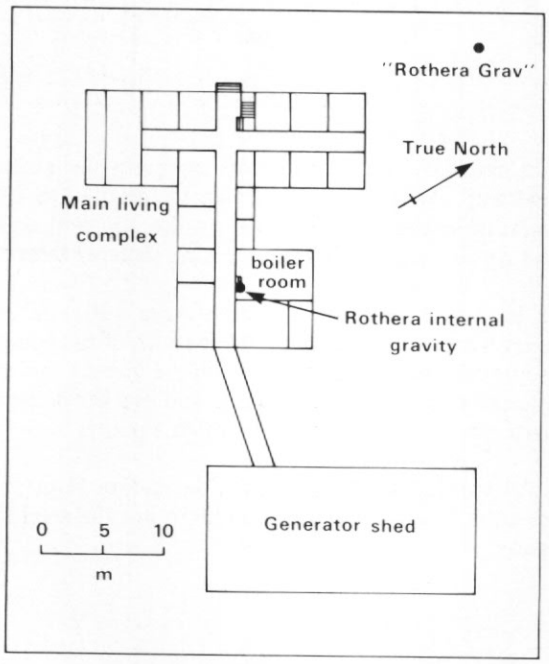

Fig. 1. Plan view of Rothera Station showing gravity base localities. (See text for precise description.)

9.9 m north of the north-west corner of the main living complex and is marked by a USGS tablet 'Rothera Grav' 1975–76 set in a 0.4 m concrete square.

Latitude 67°34′09″S
Longitude 68°07′30″W
Elevation 12.1 m

$g_{abs} = 9.824817$ m s^{-2}

A second gravity station has been established at Rothera Station and is to be found (Fig. 1) in the main living complex immediately behind the door and adjacent to the flight of three steps leading from the central corridor down into the boiler room. It is marked by a 12 cm by 10 cm brass plate stamped 'British Antarctic Survey, Gravity Base Station, Rothera Internal, 1977–78' set in the centre of three tripod locating grooves chiselled in the concrete floor.

$g_{abs} = 9.824816$ m s^{-2}

McMurdo Station

All four gravity stations described by Dewart (1975) were occupied on at least two occasions with the exception of a single occupation at 'Hut Point'. Gravity differences observed by the author relative to McMurdo ESB are given in Table II as a comparison with those determined by Dewart.

1. *McMurdo ESB*. The primary gravity base at McMurdo Station is located immediately to the west side of the rear entrance of the Earth Sciences Building. It was found in good condition although only one of the two brass plaques ('U.S. Geological Survey Seismic Position 1966–67') was present.

TABLE II. GRAVITY DIFFERENCES AT MCMURDO STATION

Base station Reference (Dewart, 1975)	*Observed gravity differences from McMurdo ESB* (gu)	
	Dewart 1975	Renner
McMurdo B85	+36.0	+35.5
Mcmurdo CA	−6.1	−5.5
McMurdo HR	+63.2	+63.0

2. *McMurdo B85*. This is situated on a 0.5 m square concrete pier at the south-east corner of a small storage alcove mid-way along the eastern wall inside the USARP vehicle maintenance building (No. 85). Numerous relevant inscriptions on the adjacent walls confirm the location although it may be necessary to temporarily remove some shelving to occupy the exact position.

3. *McMurdo CA*. This is at the benchmark 'Camp Area 1961–62' established by the U.S. Geological Survey on a level area approximately 67 m south of the south corner of building No. 133. It is obvious that some demolition has occurred in the vicinity since the original description by Dewart (1975) for the radio antenna, cairn, signal and marker barrels were no longer visible. Four bent steel pipes surround the benchmark over which a pole is loosely guyed.

4. *McMurdo HR*. This is located at the triangulation station 'Hut Reset' on the Hut Point peninsula. It was found to be in a satisfactory condition but the steel signal rod as well as the brass plaque is now missing.

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Page 117: TABLE II. DISTRIBUTION OF CRUSTACEA IN THE ANTARCTIC AND SUB-ANTARCTIC
The entry referring to the copepod *Parabroteas sarsi* under the heading Alexander Island should read – not +.