

# BODY LENGTHS AND TEMPERATURES OF THE CRABEATER SEAL

## *LOBODON CARCINOPHAGUS*

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The following data were collected en route to the South African National Antarctic Expedition base (S.A.N.A.E.) in Queen Maud Land, Antarctica, during the early part of 1964. The route taken by the M.V. "R.S.A." to the base passed through the north-eastern fringes of the Weddell Sea. This remote area is seldom visited by passing ships, as a consequence of which few data on its seals are available. The measurements and observations on body temperatures presented here may, therefore, prove to be of interest.

The body lengths of ten males and fifteen females were obtained. These were measured from the tip of the nose to the tip of the tail over the curve of the middorsal body surface. In the males the lengths varied between 85 in. (215·9 cms.) and 102 in. (259 cms.), the mean being 91·5 in. (232·4 cms.). In the females the body lengths ranged from 85·5 in. (217 cms.) to 108 in. (274·3 cms.), with a mean of 93·9 in. (238·5 cms.). It would appear that these seals, taken as being more or less a random sample, could be classified as old, mature animals, falling mostly in the 12-year or older class (Laws 1958), even when taking into account that Laws used straight-line measurements for the body lengths of crabeater seals off the Grahamland Peninsula. Only one male and one female can be regarded as being young mature animals, their body lengths being 85 in. (215·9 cms.) and 85·5 in. (217 cms.) respectively. Unfortunately no teeth were obtained for subsequent determination of absolute age by counting the annual layers of dentine.

Temperatures were taken within five minutes of the seals having been shot on the pack ice, some being still alive when brought on deck. As all the seals were asleep almost up to the time of being shot, the temperatures can be regarded as being resting temperatures. Measurements were made with a quick-acting mercury thermometer, inserted 6–7 in. into the rectum. The highest of five readings was recorded in each case.

Rectal temperatures of four males ranged from 32·5° C to 33·5° C, the mean being 33·0° C. These values are considerably lower than those of comparable specimens of northern fur seals (*Callorhinus ursinus*), where temperatures of 37·7° C were recorded (Bartholomew and Wilke 1956). These authors, however, also point out the surprising lability in the body temperatures of the northern fur seal, and the proneness to overheating due to physical activity or a high air temperature. Perhaps the rather conspicuous difference between the body temperatures of crabeater and northern fur seals could be attributed to the difference in air temperature: –2·0° C as against 8 to 9° C. Unfortunately the crabeater seals could not be chased over the treacherous pack ice in order to determine the effect of activity on the body temperature.

To get some idea of the effectiveness of the blubber and fur as insulating agents under

these conditions, heat loss was registered over a period of three hours in one male. This animal was in good condition with a 1 in. to 1.5 in. layer of blubber on the mid-ventral body surface. It had a body length of 90 in. (228.6 cms.) which would place it in the 12-year or older class (Laws 1958). Rectal temperatures were taken every five minutes from just before death to three hours afterwards. Temperature dropped during this period from 33.5° C to 28° C. When the readings are plotted, the graph reveals some rather prominent plateaux of temperature that are difficult to explain, unless heat from decomposition affected the results. During the first 15 minutes the body temperature dropped sharply; thereafter the curve tended to level off, except for sharp drops after one hour and at two hours. It would appear that under optimum conditions (the air temperature was just below freezing, which is high for these latitudes even in summer) the blubber and fur provide a fair degree of insulation. What the position would be in winter, with a difference between environmental and body temperature far greater than the 35° C to 36° C of summer, is difficult to visualise. Heat stress would seem to be negligible, even in summer, under conditions of maximum physical activity.

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#### REFERENCES

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