Introduction: Human Occupation of the Arctic
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Introduction: human occupation of the Arctic

Peter Rowley-Conwy

Occupying the Arctic is, on the face of it, an absurd thing for a tropical ape to attempt. We have no thermally protective layers of fat or hair, and for much of the year would die in minutes if exposed in our natural state. We cannot migrate fast enough to get away from an Arctic winter, nor hibernate our way through it. In this most seasonal of all environments, we cannot even store vitamin C in our bodies but need a continuous supply. Food sources may be present but apparently inaccessible beneath fast sea ice, or hundreds of kilometres away at the time of year when their consumption would be most useful, or unpredictably absent due to the vagaries of the unstable ecosystem.

And yet the pre-colonial Arctic has a long history of occupation by a remarkable diversity of cultural groups. Occupation of the Arctic is one of the most spectacular achievements of the human species, ranking alongside the occupation of the Australian desert, the reaching of the Pacific islands, and the exploration of the moon. In terms of sheer unlikelihood the Arctic may even outstrip the rest, because among other things not even the normal rules of night and day apply (Fig. 1). The Arctic environment poses extreme problems to people living there: 'in virtually all groups of organisms, the number of species increases markedly towards the equator' (Ricklefs 1980: 687). Two examples of this trend are shown in Figure 2, both taken from Fischer (1960). The upper chart shows the number of species of nesting birds across a range of latitudes in North America, and there is a clear trend for the number to decrease to the north. The same is true of the marine gastropod species shown in the lower part of Figure 2. Terrestrial ecosystems are similar: tropical Africa is home to some seventy species of large grazing mammal, while the Arctic has just the reindeer and the musk ox.

A decrease in the number of species does not tell the whole story, however. Two other aspects of the ecosystem are equally important. Firstly, while the number of species may decrease, the number of individuals *increases* markedly. The two trends are shown in Figure 3, also taken from Fischer (1960). Calanids (pelagic crustacea) decrease in a number of species, but the concentration per cubic metre of seawater increases massively with latitude, only decreasing again under the ice of the Arctic Ocean. Fish concentration is strongly affected. Fish 5–10cm in length that feed on zooplankton are dispersed in the tropics at densities of around one fish per thousand cubic metres of water; a trawl with a mouth of 20 × 20 metres moving at five knots would capture about 4,000 per hour, a total weight of 60kg. This contrasts with the North Atlantic, where hundreds of tons of herring

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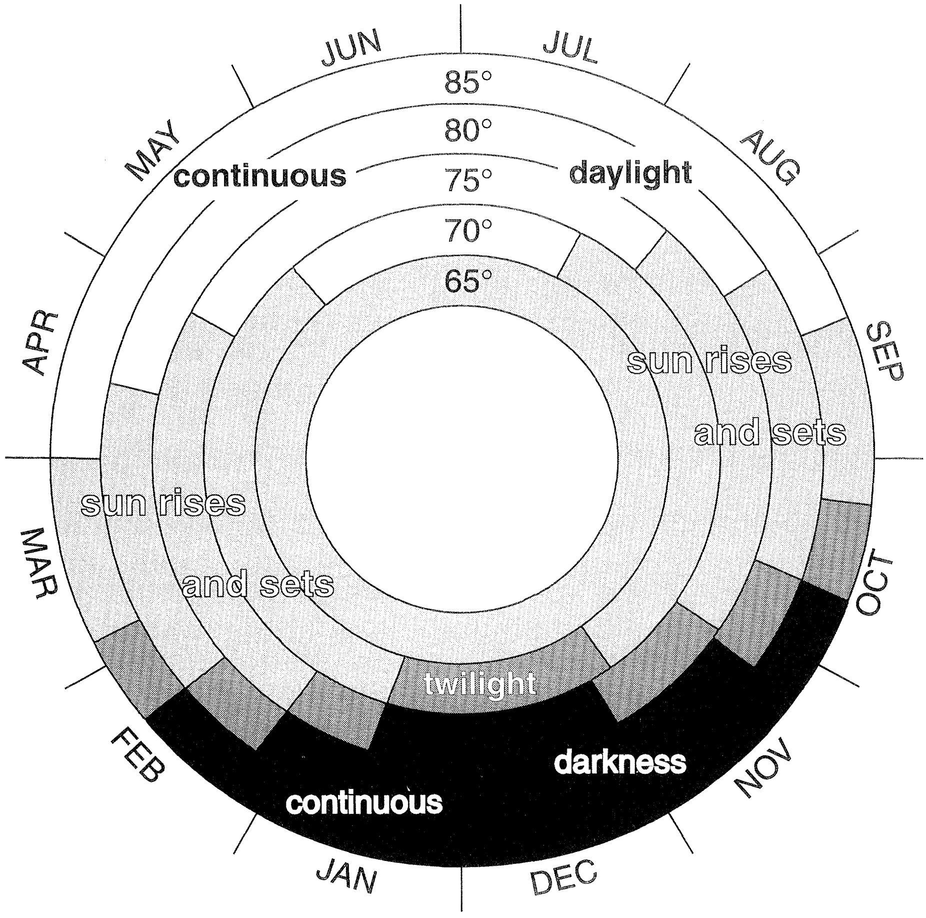

Figure 1 Variation of daylight and darkness, sunrise and sunset, with increasing latitude.

may be caught in one hour in areas of suitable concentration (Cushing 1975: 83); and this writer can testify that anyone who has experienced the June arrival of capelin in Newfoundland will never forget it.

The second aspect is seasonality. Figure 4 shows two expressions of this. Plankton productivity is increasingly seasonally constrained with increasing latitude, from continuous productivity in the tropics to a short pulse in the Arctic (Cushing 1975). Many other things are similarly patterned, such as the periods of availability of chinook salmon in rivers up the west coast of North America. This narrows from most or all of the year in the Sacramento River, to little more than a month in the Yukon; in individual places the main period of availability may be just a few days (Schalk 1977: 220–1). This has a terrestrial counterpart in the statement by Binford (1979) that the Nunamiut, who depend on caribou, obtain 70 per cent of their annual food supply in thirty days.

In simple ecosystems with relatively few species, environmental perturbations have an immediate effect throughout the system; fluctuations may also be great in more complex ecosystems, but the more complex interactions between species may cause the effects to

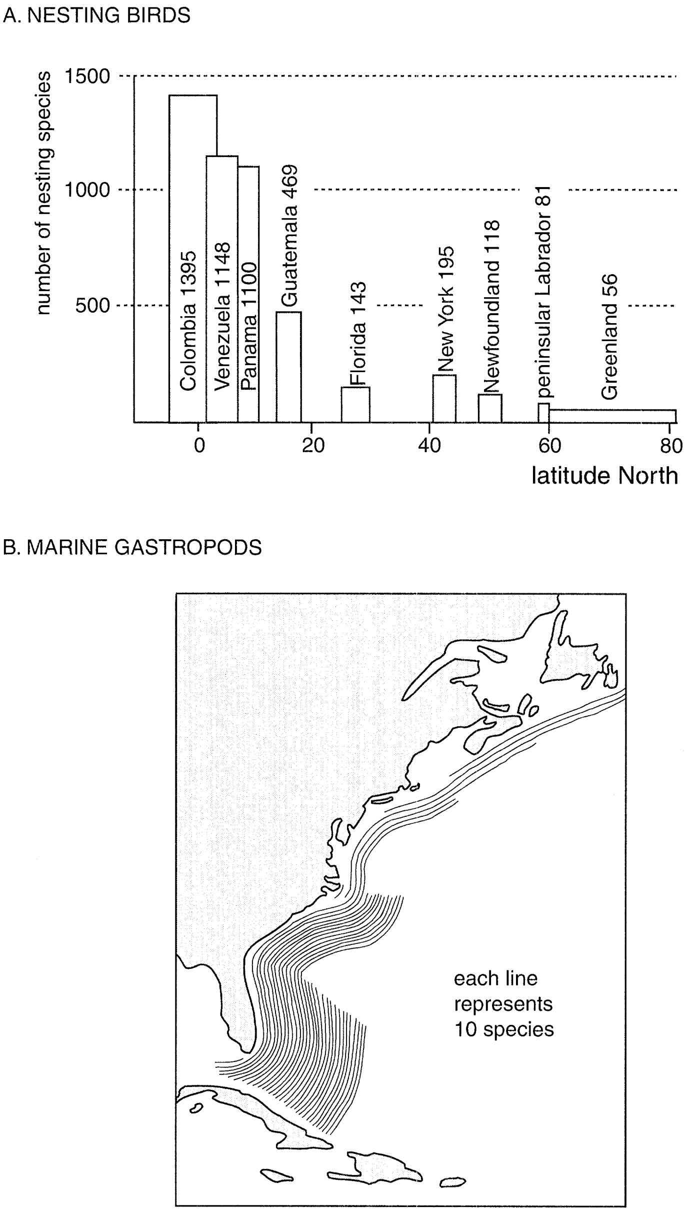

Figure 2 Latitudinal variation in number of species. Top: nesting species of birds; bottom: marine gastropods (modified from Fischer 1960: figs 3 and 12).

be delayed. In this way at least, simple ecosystems are less stable and more risky than more complex ones (Ricklefs 1980: 857–9). In the face of this seasonality and risk, the technologies used by humans for clothing, shelter, transport, food procurement and storage are all areas of unique and startling ingenuity. Taken as a whole, these cultural adaptations have always massively impressed this writer – who despite a keen interest in its archaeology has never yet been north of the Arctic Circle. These cultural adaptations would be sufficient reason in themselves for stressing the importance of Arctic and subarctic archaeology.

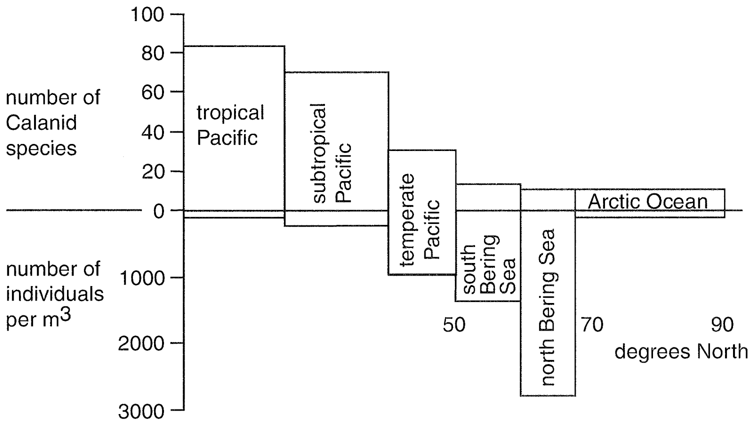

Figure 3 Latitudinal effects on calanids (pelagic crustacea) in the upper 50 metres of seawater. Number of species above the horizontal axis, density of individuals below it (modified from Fischer 1960: fig. 8).

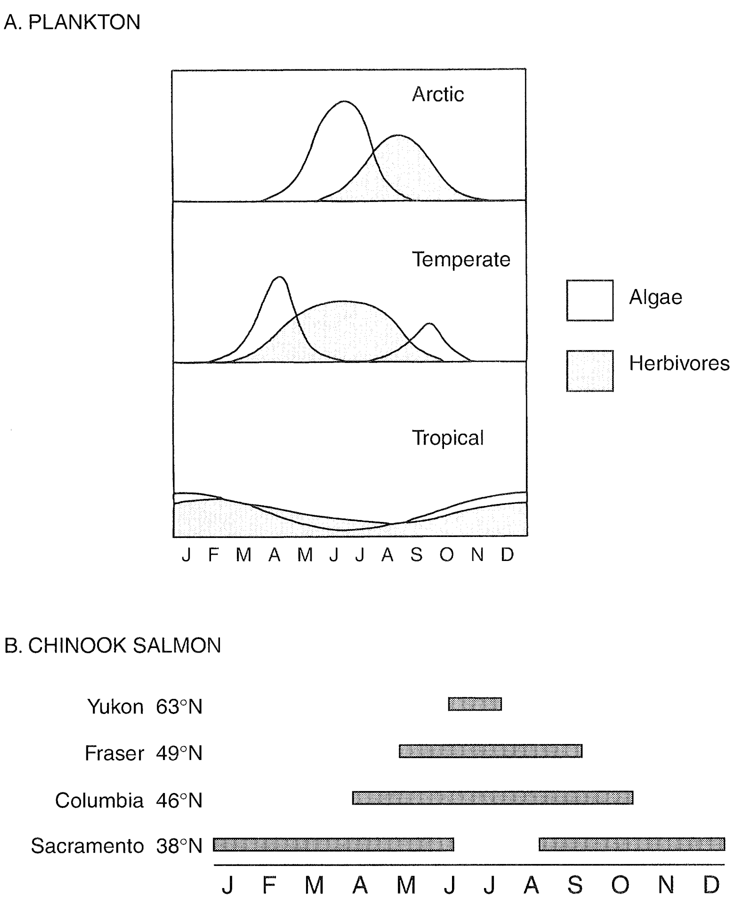

Figure 4 Latitudinal effects on seasonality. Top: plankton production at various latitudes (modified from Cushing 1975: fig. 6). Bottom: main period of availability of chinook salmon (*Oncorhynchus tshawytscha*) in rivers on the west coast of North America, arranged by latitude (data from Schalk 1977: table 5.1).

But there is another reason yet more important so far as non-Arctic specialists are concerned. Arctic archaeology has one very important virtue: it is not subconsciously 'loaded' so far as Euro-American archaeologists are concerned. That is, we are not continually looking (consciously or unconsciously) for directional change towards agriculture or urban life. Things like sedentism and food storage, technological innovations like ceramics, more specialized hunting gear and ground stone can therefore be considered for their own sake, not merely as stepping stones towards something else. The theme that runs through all the papers is non-progressive flexibility in the face of environmental opportunities and technological changes. The flexibility required by Arctic conditions must often be rapid, and is also often highly visible in the archaeological record. The Arctic is therefore one of the best places in which to appreciate how rapidly human social, technological and economic change may occur – without this being placed in a progressivist framework. The ultimate antidote to progressive directional change comes from Siberia: in the words of Vladimir Pitul'ko, the Late Pleistocene was 'that blessed time when the grass was succulent, the animals were large, and the prey was abundant'. With the onset of the Holocene such days were never to come again.

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