

common noun (with a small i) to signify any ice sheet having the principal characteristics of the Greenland ice sheet, that is to say covering a large part or the whole of a continent, and as a result modifying the general atmospheric circulation. There are in geography many other well-known examples of this linguistic phenomenon; before becoming common nouns, *karst* originally signified a limestone region of Croatia, *somma* a crest of volcanic origin surrounding Vesuvius, *erg* two regions of dunes in the Sahara, *bray* a region of the Paris basin where there was a large anticline.

The terms *nappe de glace* (ice sheet), *champ de glace* (ice field) and *calotte glaciaire* (ice cap) are not satisfactory, since they can be applied to an ice mass of any size. However, the transition from glaciers and local ice fields to an *indlandsis* or vice versa as the climate changes, occurs in an irreversible fashion, as Brooks and Tronov have shown, and as I have described in my book (Lliboutry, 1964–65, Tom. 2, p. 798–805). It is this discontinuity which allows us to classify glaciers and ice caps on the one hand and the *indlandsis* and their tributary glaciers on the other.

I hope Danish glaciologists will be so good as to lend us the word, and not to write ® *Indlandsisen*.

Laboratoire de Géophysique et Glaciologie,  
2, rue Très-Cloîtres,  
Grenoble, Isère, France  
17 February 1967

L. LLIBOUTRY

## REFERENCE

Lliboutry, L. 1964–65. *Traité de glaciologie*. Paris, Masson et Cie. 2 vols.

SIR, *About the use of the expression "Indlandsis": comments on Dr. Weidick's letter*

As a Dane I can only welcome Anker Weidick's initiative to elucidate the use of the term "inland ice", *indlandsis*, and cognate terms, as these are often used at random.

Based on knowledge of Rink's works published in Danish it is beyond doubt that Rink meant his term *Indlandsisen* as a geographical place name to distinguish the huge part of Greenland from the different, remaining part of the country. The term *Indlandsisen* is therefore used on Danish topographical maps as an ordinary place name, and according to general rules for geographical place names it should not be transcribed to "inland ice" or other anglicized terms, and further it should be spelled with capital I.

Besides as a geographical place name *Indlandsisen* has been used by numerous authors to indicate a glacier, an ice sheet of huge dimensions. It deserves notice, however, that Rink's original definition—as also stressed by Weidick—does not only emphasize that the ice is of immense extent, but also that it should be barred from the sea by a generally wide, coastal land strip. The latter is not even 100 per cent the case with the Greenland ice sheet though nearly. If it is maintained that the ice should be barred from the sea by coastal land, it is obvious that the term "the Antarctic Inland Ice" is incorrect and presumably also "a Pleistocene Inland Ice". The terms "ice sheet" or "ice cover" are more correct to indicate these phenomena. The word *Indlandsis* should therefore only refer to the Greenland ice sheet. Of general use in Danish is the word *Iskappe*, normally indicating a glacier type of smaller dimensions than *Indlandsisen*. The older literature in particular uses it to describe *Indlandsisen*, but here it does not signify a particular place name, and the corresponding English word "ice cap" may therefore also be used of the Greenland ice sheet.

Københavns Universitets Geografiske Institut,  
Haraldsgade 68–70,  
København Ø, Denmark  
14 February 1967

BØRGE FRISTRUP

SIR, *About the use of the expression "Indlandsis": comments on Dr. Weidick's letter*

Very large masses of glacier ice, covering hundreds of thousands of square kilometres, are at present to be found only in Greenland and Antarctica. They lie mainly on a rock bed, but in Antarctica extensive

areas are also afloat. It is convenient to distinguish the parts which are afloat from those which are not. In English therefore there have arisen terms which permit this: "ice sheet" means the whole mass, "inland ice sheet" the part resting on rock, and "ice shelf" the part afloat. In Greenland, "ice sheet" and "inland ice sheet" are virtually synonyms, and the first is the one normally used.

With these terms Dr. Weidick presumably has no quarrel. He expresses concern, however, that the Danish *indlandsis* should not be regarded as the equivalent of "inland ice sheet" or "ice sheet", and prefers to think of it as a place name referring only to the feature in Greenland.

It is not for us to suggest Danish terms to Danes. But we would have thought that *indlandsis* could be a closely-fitting equivalent to "inland ice sheet". Historically, that in Greenland was the first to become known, so it is natural that the descriptive geographical term and the place name should be the same. This has been a normal development elsewhere. A feature which gave rise to a new geographical term has been found to occur in other regions. Not only has the original geographical term been applied wherever appropriate, but it has often been convenient to use it as the generic part of the place names required for these features. Examples are Larsen Ice Shelf, Ross Ice Front, Marr Ice Piedmont, Napier Ice Rise and Simler Snowfield. It frequently happens, as in the case of *indlandsisen*, that these geographical terms are used in the definite form when first used or when they refer unambiguously to a single specific feature, but they take the indefinite form when more widely applied. But we hope that this practice will not make Danish glaciologists feel obliged to find another term when they want to describe the inland ice sheet of Antarctica, or one in Pleistocene times. The French have felt no such need—perhaps because *l'indlandsis* does not have the same historical associations for them. But, we repeat, this is something which only Danish glaciologists can decide. Their decision will not affect the English terminology. That could only happen if the word *indlandsis* were to be adopted in English (which is not at all likely), and even then it might not happen, for loan-words often change their meaning.

Scott Polar Research Institute,  
Cambridge, England  
10 May 1967

TERENCE ARMSTRONG  
BRIAN ROBERTS  
CHARLES SWITHINBANK

SIR,

*About the use of the expression "Indlandsis": a reply*

In reply to the comments on my letter on the term *Indlandsisen* (Armstrong, Roberts and Swithinbank, Bauer, Fristrup and Lliboutry, this issue p. 949–51), it seems necessary first to clarify one evident misunderstanding; the letter was not written on behalf of Danes in general or any particular group of Danes, but only to express a private opinion and proposal. Furthermore, when the word "Danish" was used, it was an explanatory term covering only (a) the origin of the word *Indlandsisen*, (b) the special grammatical problem involved in the definite article *-en* in this language, and (c) the nationality of a person (Steenstrup). This fatal word was not used to evoke any chauvinistic sentiments as presumed in the French comments and I deeply regret not having expressed this clearly enough.

The comments on the subject proper—the term *Indlandsisen*—at least serve to demonstrate the confusion which has arisen in the meaning of the word. To sort out the matter it seems necessary to look at three aspects of the problem:

- (1) the word "Indlandsisen" ("the Inland Ice", "l'Indlandsis") as a place name.
- (2) the expression "inland ice" (or possibly better "inland ice sheet") or *indlandsis* as a glaciological expression for a certain feature.
- (3) the use of the expression "inland ice" (*indlandsis*) for formerly existing ice sheets.

A fourth aspect is the use of synonymous words in foreign languages in general, but as I do not feel competent to extend the discussion so far (even to the problem of translating *indlandsisen* into Chinese which worries Bauer), it will be sufficient to restrict the discussion to the first three points and leave glaciologists elsewhere to find out an adequate terminology in their own language.

(1) There seems to be no trouble in translating the place name "Indlandsisen" into French as "l'Indlandsis" (Lliboutry) using a capital "I" in French. It was also thought to be easy enough to translate the word into English as "the Inland Ice". However, from the comments of Armstrong and others (1967), it does not seem clear whether in this context "the Inland Ice" is preferable in English to "Indlandsisen" (without translation), "the Inland ice sheet", "the Greenland inland ice sheet" or something else. When