

to penetrate northward in that direction—Barentz as early as 1594—we learn that a barrier of ice was found to stretch across the sea between these two groups of islands. And such undoubtedly is the case every year with each recurring summer. It is that immense body of Arctic ice which every spring is known to drift with a powerful current from the *Siberian* coast towards the Atlantic Ocean. In the 80th parallel, and beyond it to the south, it meets with the shores of *Greenland*, *Spitzbergen*, and *Novaia Zemlia*. Between the two latter it encounters the Gulf Stream, which prevents its drifting further south in that direction, and thus renders the shores of northern Europe entirely free from that unwelcome visitor, whereas the American countries in the same latitudes are more or less encased in ice throughout the whole year. On the other hand, between *Greenland* and *Spitzbergen*, the icebearing current steadily pursues its way, passing *Iceland* and the southern extremity of *Greenland*, and reaching the shores of *Newfoundland* and as far as 40° north latitude; so that while its course is arrested between the northern part of *Novaia Zemlia* and *Spitzbergen*,—no floating ice having ever been known to reach *North Cape*,—on the other side of the Atlantic it travels upwards of 2,500 miles further south.

“The barrier of ice which may justly be supposed to exist between *Spitzbergen* and *Novaia Zemlia* during every summer, unquestionably presents obstacles to vessels penetrating northward, but there is no reason to consider these obstacles greater than those on the opposite American side in *Davis's Straits*, *Baffin's Bay*, *Lancaster Sound*, and *Barrow Straits*; and we have, moreover, the testimony of numerous whalers and other navigators in the *Greenland Sea*, that whenever they succeeded in pushing through this barrier of ice, they found to the north of it a sea more or less open and free from ice. A vessel, then, which, by watching for an opportunity, should effect a passage through this ice, would, no doubt, find itself in the great open navigable ‘*Polinya*’ of the Russians.

“The preceding remarks are offered to the attention of the reader, not as anything new, but as well established facts, which are submitted, by way of preparation, for the consideration of that portion of my views which I believe to be entirely new, and which, without further preface, I now humbly submit to public notice. My belief is, nay, I think I am able to demonstrate, that during the Arctic winter months, namely, from September to March, an entrance into the *North Polar Sea* through the opening under consideration, may be much more easily effected than during the summer months; and also, that the further navigation of the *Siberian Sea* may likewise be performed with much greater facility in winter than in summer.

“And here the principles which regulate the distribution of the gaseous and fluid coverings of the earth must, in the first instance, be brought to bear upon the subject. It admits of little doubt that some, at least, of the currents of the Arctic Ocean, are revolving currents, the direction of which is during the summer months from the pole to the south, and, in the winter months, the reverse. Our actual observations of this phenomenon are, unfortunately, very limited; but we know just enough to confirm the argument as far as it relates to the *Siberian Sea*. According to *Wrangell* and others, the current there during the summer runs from east to west; but in autumn, when the cold sets in, it changes, and proceeds from west to east. Now, if we take the compasses, and place one point of them on a polar chart, between *Lancaster Sound* and *Fury and Hecla Strait* (as a centre), and the other point on the *Faroe Islands*, and with the latter describe a circle to the northward, this circle will touch *North Cape*, the northern shores of *Novaia Zemlia*, *Cape Taimura* (the extreme northern point of Asia), the northern coasts of *New Siberia*, and *Behring's Straits*. And as we know that along the first portion of this line, from the *Faroe Islands* to *Novaia Zemlia*, and also along the last portion of it from *New Siberia* to *Behring's Straits*, the current in the winter time flows in the direction from the *Faroe* to *Behring's*