

channel from the great bank of Newfoundland to Cape Cod, we cannot avoid the conclusion that the Arctic current and its ice have great power both of excavation and deposition. On the one hand, deep hollows are cut out where the current flows over the bottom, and on the other, great banks are heaped up where the ice thaws and the force of the current is abated. I have been much struck with the worn and abraded appearance of stones and dead shells taken up from the banks off the American coast, and am convinced that an erosive power comparable to that of a river carrying sand over its bed, and materially aided by the grinding action of ice, is constantly in action under the waters of the Arctic current.¹ The unequal pressure resulting from this deposition and abrasion is not improbably connected with the slight earthquakes experienced in Eastern America, and also with the slow depression of the coast; and if we go back to that earliest of all geological periods when the Laurentian rocks of Sir Wm. Logan, constituting the Labrador coast and the Laurentide Hills, were alone above water, we may even attribute in no small degree to the Arctic current of that old time the heaping up of those thousands of feet of deposits which now constitute the great range of the Alleghany and Apalachian mountains, and form the breast bone of the American continent. In those ancient times also large stones were floated southward, and enter into the composition of very old conglomerates.

¹ At the time when this was written I had only studied stones brought up accidentally by fishermen and others from the banks of Newfoundland and elsewhere. At a later date Murray of the *Challenger* has given more ample material. He states that the bottom in the Labrador current, 100 miles from land, was found to be blue mud with 60 per cent. of sand and stones; and mentions a block of syenite weighing 490 lbs. taken up in 1,340 fathoms, and stones and pebbles of quartzite, limestone, dolomite, mica schist and serpentine, one of which was glaciated. This is the modern boulder clay produced by Greenland glaciers and the field ice of Baffin's Bay and the Labrador coast.