XVI. *A Comparison of different thermometrical Observations in* Sibiria; *by Mr.* Wm. Watson, *F. R. S.*

Read March 15, 1753.

ACCORDING to the thermometrical observations made by Monsr. Demidoff, at Soliskamsky, on the borders of Sibiria, latit. 59, in the year 1751, the greatest degree of cold was upon Nov. 9, at 7 in the morning, when the thermometer, according to Fahrenheit's scale stood at 34 degrees below 0; which is 66 under the freezing point. This degree of cold, tho' much greater than what is ever observed in these parts, is little, when compared with the accounts given us by Professor Gmelin, in the introduction to the *Flora Sibirica*. This gentleman, who was professor of chemistry and natural history at Petersburg, was sent with several other learned men, to inquire into the natural history of Sibiria, and was attended by some students, a painter or two, a miner, and other proper attendants. He continued nine whole years upon this expedition, and the observations he made, extraordinary as some of them are, with relation to their truth, are scarce to be doubted. The mercury in his thermometer, graduated according to De L'Isle's scale, often sunk in winter, in very southern parts of this country, as near Selinga, in lat. 48, to near 226, which is equal to 55 and a half below 0 in Fahrenheit's thermometer, and is 87 and a half below his freezing point. But the cold is often more intense than this, as appears by the experiments made at Kirenginshi,

Kienginſhi, where its ſharpneſs was ſo great, that Profeſſor Gmelin with difficulty ſtaid at the door of his houſe, between three and four minutes.

Feb. 10, 1738, at 8 in the morning, the mercury ſtood at 240 degrees in De L'Iſle; which is 72 below 0 in Fahrenheit. At the ſame place in 1736, Dec. 11, at 3 *p. m.* 254 in De L'Iſle, almoſt 90 below 0 in Fahrenheit. Dec. 20, at 4 o' clock, *p. m.* 263 in De L'Iſle = 90 $\frac{44}{100}$ below 0 in Fahrenheit.

Jan. 9, 1735, 12 at noon, 275 = 113 $\frac{65}{100}$.

Jan. 6, 6 in the morning, 280 = 120 below 0 in Fahrenheit, and 152 below his freezing point.

Such an exceſs of cold could ſcarcely have been ſuppoſed to exiſt, had not theſe experiments demonſtrated the reality of it; and Profeſſor Gmelin aſſures us, they were made with all poſſible exactneſs, and agree with many others made in different parts of Sibiria by his direction.

It was not apprehended, that a greater degree of cold exiſted any-where, than that artificial one produced by Boerhaave, by means of ice and concentrated ſpirit of nitre, which ſunk the mercury 40 degrees below 0 in Fahrenheit's thermometer; and this was ſuppoſed to be the point, beyond which no animal could bear it: and Mr. Gmelin's relation is the more extraordinary, as the French academicians under the polar circle mention the greateſt degree of cold, obſerved by them, to be by Reaumur's thermometer 37 degrees, which nearly correſponds with 70 degrees below the 0 in Fahrenheit's.