Column nine in Table II. contains the departures of each station on the boundary east of the meridian of Station 1, which is stated as the datum, because it is most westerly of the whole survey.

Column ten is introduced solely with a view to facilitating the computation of the areas, by bringing the numbers to be multiplied together into juxtaposition. This column is derived from column eight by simple addition. All operations are performed with such facility that, with the exception of taking out the traverses which occupies a somewhat longer time, the whole table may be filled up in a few minutes.

Table III.

Station	Northings	Southings	Double Meridional Dist.	N. Products	S. Products
1		5.17	10.16		52.527
2	1.80		31.30	56.340	
3		7.87	51.70		406.879
4	5.81		62.87	365.274	
5	9.80		73.87	723.926	
6	3.73		93.95	350.433	
7	8.98		105.47	947.120	
8	8.50		100.36	853.060	
9	6.93		67.35	466.735	
10		32.51	20.07		652.475
				3762.888	1111.881

Subtracting 3762.888 N. from S. products, 1111.881, equals 2651.007, divided by 2 equals 1325.503 square chains, equals 132.55 acres, plus offsets.

It now remains only to calculate the corrected bearings and distances, or length of the sides of the survey, all of which are necessarily changed by the adoption of the corrected latitudes and departures. This operation will only be necessary where the changes are large. To find the bearing from any station, divide its departure (E. or W.) by its latitude (N. or S.); in the table of natural tangents find the quotient, the angle opposite it being the required angle of bearing. Thus, for Course 1, we have $\frac{5.17 \text{ S.}}{10.16 \text{ E.}} = .5088 =$ natural tangent, opposite which is the required angle, 63° 02′. The bearing, therefore, is S. 63° 02′ E.

Again, for the distance or length of any side, from the table of natural cosines take the cosine opposite to the angle of the corrected bearing, divide the corrected latitude (N. or S.) of the side by the cosine, giving the required distance. It will then be necessary to make a table similar to the following:

Table IV.

Stations.	Bearing.	Distance.
1	S. 63° 02′ E.	11.40
2, etc., etc.	.....	.....

This table will contain all the corrections of the foregoing survey, and if the bearings and distances are correctly plotted, they will close perfectly.

Postmaster-General Samuel, of London, Eng., is inviting applications on tender for the construction of the second of three high-power wireless stations to form an Imperial chain from contractors able to satisfy experts by a practical demonstration of the efficiency of their system. The demonstrations will be required to indicate the capacity of the respective systems to carry on continuous and efficient communication, day and night, over a distance of 2,000 miles.

RESTORING THE TRANSCONA ELEVATOR.

THE contracting firm of Barnet-McQueen Company, Limited, of Minneapolis, who designed and constructed, last year, the 1,000,000-bushel grain elevator for the Canadian Pacific Railway at Transcona, Man., which structure sank and listed to an angle of about 30° from the vertical, on October 18 and 19, when almost filled with grain, have announced a plan by which they hope to fully restore it to its proper upright position. The undertaking will be one of the most unique and unusual of any ever attempted in Canada, and will be observed with great interest.

The elevator consists of a working-house and a reinforced concrete bin-house consisting of 65 circular bins of 14 feet 4 inches inside diameter, and 90 feet depth, arranged in five rows of 13 bins each, and 48 interstice bins, also used for grain storage. The binhouse is built on a foundation which is in the form of a floating monolithic reinforced concrete slab, 195 x 77 feet in area, resting upon a soil of stiff clay, about 12 feet below the surface of the ground, and with the clay extending to a depth of 45 feet or more below the surface. Test loads upon the clay indicated a bearing strength of four to five tons per sq. ft. at the time the slab was built, which was in July, 1912.

Readers will remember a previous announcement that on Saturday, October 18th, the huge structure, practically full of grain, began to settle gradually, the ground for a distance of 25 feet or more on the east, north and west sides of the binhouse, heaving up for about 6 feet. During the 24 hours the movement continued until finally an inclination of about 30°, as stated, was reached. The foundation line of the eastern portion then rested about five feet above its proper level, while the opposite side sunk in the neighborhood of 30 feet. While the listing was in progress, the roof structure and the conveyer cupola slid off and were demolished. The removal of this portion of the load apparently checked the movement of the foundation.

It is interesting to note that the structure itself is but little damaged. The bins, containing practically 1,000,000 bushels at the time, remained intact, and it is just announced that practically all of the wheat consigned for lake shipment before the close of navigation, has been removed without loss through waste or fermentation due to the possible intrusion of ground water. This has been accomplished by tapping the bins through the sides, and erecting temporary conveyers between the bins and the railway cars. The removal progressed at the rate of about 40 carloads per day.

Mr. J. G. Sullivan, chief engineer of the Canadian Pacific Railway, at Winnipeg, has expressed himself of the opinion that neither the design nor construction of the building have been at fault in any way, and that the unfortunate occurrence, due to the crushing out of the foundation sub-soil, was ultimately caused by the shifty material below the 30 to 40 feet of clay with which Winnipeg and its vicinity are underlaid. This material makes it almost impossible to go down below the clay even by sinking air caissons. Practically all foundations in the vicinity of Winnipeg are therefore of the floating type, and heavy structures have frequently been known to settle as much as a few inches. In the case of grain elevators, unusual care is always taken to have the grain distributed as evenly as possible to prevent eccentric loading.

Concerning the restoration of the elevator, the contractors are planning to excavate below the eastern portion, allowing it to sink and become perpendicular.