



3. *South-north motion.*† Suppose a body has moved from *P* to *Q* (fig. 2) the time *t* which is supposed to be so small that the velocity of the body may be assumed as constant during the interval. Since the body has the eastward velocity  $\omega r \cos \varphi$  at *P* and  $\omega r \cos \varphi'$  at *Q* the eastward displacement of the body at the end of the time *t* is  $\omega r (\cos \varphi - \cos \varphi')t$  which we shall denote by *s*. Let the velocity of the body along the

$$\begin{aligned}
 \text{meridian be } v, \text{ then } PQ &= vt = r(\varphi' - \varphi) \div \frac{vt}{\varphi' - \varphi} \\
 s &= \omega r (\cos \varphi - \cos \varphi') t = \frac{\omega vt^2}{\varphi' - \varphi} (\cos \varphi - \cos \varphi') \\
 &= \frac{\omega vt^2}{\varphi' - \varphi} \left( 2 \sin \frac{\varphi' - \varphi}{2} \sin \frac{\varphi + \varphi'}{2} \right) \\
 &= \frac{\omega vt^2}{\varphi' - \varphi} \times 2 \frac{\varphi' - \varphi}{2} \sin \varphi = \omega vt^2 \sin \varphi.
 \end{aligned}$$

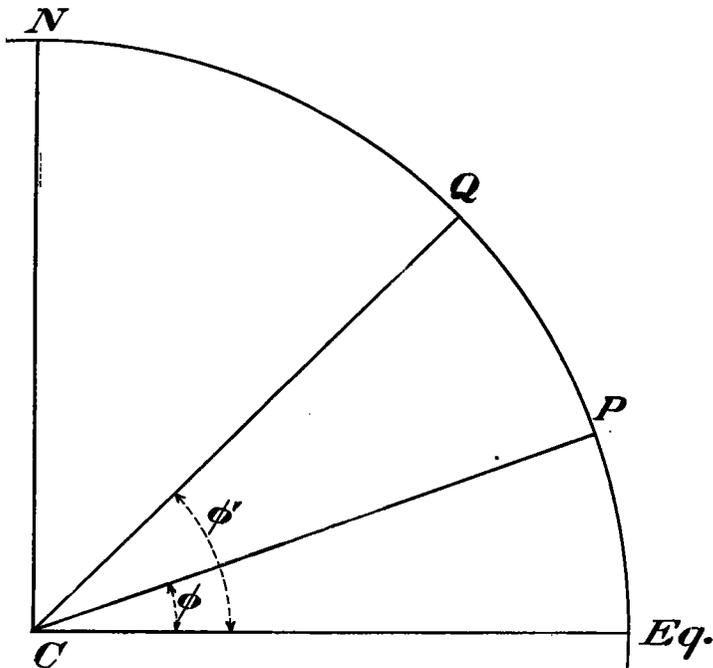


Fig. 2.—Section along earth's axis, thru part of Northern Hemisphere, showing cause of deflection of a body moving northward or southward.

Considering that this eastward displacement is caused by the so-called "deflecting force due to the earth's rotation" we have

$$s = \frac{1}{2} at^2,$$

where *a* denotes the acceleration of the force.

$$\therefore f = m \frac{2s}{t^2} = 2 m \omega v \sin \varphi,$$

which is the same as in the case of the west-east motion. Hence, whenever a body moves in any direction on the earth's surface, there is a force ( $2 m \omega v \sin \varphi$ ) arising from the earth's rotation which tends to deflect the body to the right in the Northern Hemisphere, and to the left in the Southern.

**RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.**

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The following titles have been selected from among the books recently received, as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies. Most of them can be loaned for a limited time to

† The idea involved in this method is due to Dr. P. Schreiber, but it is more generalized in the present note. See his excellent treatise "Studien über Luftbewegungen." Leipzig, 1898.

officials and employees who make application for them. Anonymous publications are indicated by a —.

**Bornstein, A.**  
... Die Entwicklung der Beleuchtungstechnik. Klimatologie. Berlin. n. d. iv, 160 p. 16°. (Naturwissenschaftliche Volksbücher.)

**Blumenfeld, Felix.**  
Das Klima von Wiesbaden. Wiesbaden. 1907. 60 p. 8°.

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Osservazioni meteorologiche dell'annata 1906. Bologna. 1907. 31 p. 1°.

**Denmark. Danish meteorological institute.**  
Nautical meteorological annual 1907. Copenhagen. 1908. 23 p. 1°.

**Fessler, Alois.**  
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**Findelsen, F.**  
Ratschläge über den Blitzschutz der Gebäude. Berlin. 1905. v, 240 p. 8°.

**Great Britain. Meteorological office.**  
The observer's handbook. A new and revised edition of Dr. R. H. Scott's Instructions in the use of meteorological instruments. London. 1908. 134 p. 8°.

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Report of the observatory department for the year 1907. Teddington. 1908. 45 p. 4°.

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Observaciones magnéticas y meteorológicas. Año de 1907. Habana. 1908. 1°.

**Jahrbuch der Astronomie und Geophysik.**  
18. Jahrg. 1907. Leipzig. 1908. viii, 372 p. 8°.

**Koch, Peter Paul.**  
Ueber die Abhängigkeit des Verhältnisses der spezifischen Wärmen  $C_p = K$  in trockener, kohlenstofffreier atmosphärischer Luft von  $C_v$  Druck und Temperatur. München. 1907. p. 379-435. (Aus den Abhandlungen der K. Bayer. Akademie der Wiss. II. Kl. XXIII Bd. II. Abt.)

**Lisbon. Observatorio do Infante D. Luiz.**  
Annaes. 1904. 50. anno. Lisboa. 1908. v 42. 127 p. 1°.  
Same. 1905. 51. anno. Lisboa. 1907. v. 43. 127 p. 1°.  
Same. Observações dos postos meteorológicos, anno 1889, 1890, 1904, 1905. Lisboa. 1906 and 1907. 8°.

**Neumann, S. Navarro.**  
Les pendules Stiattesi à l'observatoire de Cartuja (Granada). Modena. 1908. 10 p. 8°.

**Norway. Norske meteorologiske institut.**  
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Nedboriattagelser i Norge. 13. Jahrg. 1907. Kristiania. 1908. xvi, 218 p. 1°.  
Oversigt over luftens temperatur og Nedboren i Norge. I. Jahrg. 1906. Kristiania. 1907. 23 p. 12°.

**Rudolph, H.**  
Luftelektrizität und Sonnenstrahlung. Leipzig. 1903. 24 p. 8°.

**Schulz, Paul.**  
Klimaschwankungen im Norddeutschland und ihr Einfluss auf die Ernteerträge. Inaug. Diss. .... Halle. Halle a. S. 1907. 51 p. 8°.

**Sonnblick-Verein.**  
16<sup>ter</sup> Jahresbericht für das Jahr 1907. Wien. 1908. 48 p. 4°.

**RECENT PAPERS BEARING ON METEOROLOGY AND SEISMOLOGY.**

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The subjoined titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau. Unsigned articles are indicated by a —

*Aeronautics.* New York. v. 2. April, 1908.  
**Zahn, A. F.** Construction and equipment of wind-tunnels. p. 25-28.  
*American geographical society. Bulletin.* New York. v. 40. May, 1908.  
**Ward, R. DeC.** A railway wind gage. p. 201.  
*Journal of geology.* Chicago. v. 16. May-June, 1908.  
**Barrell, Joseph.** Relations between climate and terrestrial deposits. p. 363-384.