ing the face of the mountain a mile on a slope of 15", the elevation is found to be 60°. Find the height in miles; given sin $15^{\circ} = \frac{\sqrt{3} - 1}{2\sqrt{2}}$, sin $30^{\circ} = \frac{1}{2}$.

Denote the foot of the mountain by C, its summit by A, the foot of the perpendicular let fall from the summit by B, and the station to which the person ascends by D.

 $< BAC = < BCA = 45^{\circ}$; $< DCA = 30^{\circ}$. Since DA is inclined to the horizon at 60°, evidently $\langle BAD - 30^\circ$. Hence $\langle DAC = 15^\circ$; and $\langle ADC = 180^\circ - (30^\circ + 15^\circ) = 135^\circ$. Then CA : CD = sin 135° : sin 15°. $\therefore AC = \frac{\sin 45^\circ}{\sin 15^\circ}$ miles since CD is one mile. And the height of the

mountain is CA sin $45^{\circ} = \frac{\sin^2 45^{\circ}}{\sin 15^{\circ}} = \frac{\sqrt{2}(\sqrt{3}+1)}{2}$

AN ANGLE.

By Prof. N. F. Dupuis, Queen's College, Kingston.

Angle is generated or produced | by the rotation of a line about a point, the line being confined to one and the same plane. Now, this rotation of the line means simply that it is continually changing its direction while passing constantly through the same point. If then we fix our attention upon the line before it begins to rotate, and again after it has rotated through a not very large extent, these two directions of the line include an angle between them. So that while we say that an angle is generated by a rotating line, that is, by a line changing its direction while passing through a fixed point, we may define angle in the simplest possible an manner by saying that it is a difference in direction; and the angle between two given lines is the difference between their directions; or if we wish to attach to the angle the idea of something which has grown or is capable of being increased or decreased we may say that it is the rotation which will suffice to bring one of the lines into the direction of the other.

Some people will tell you that

direction is an evasive idea that cannot be defined, and that therefore you should not introduce it into Geo metry. It is quite true that the idea of direction cannot be defined except by itself, but this fact is common to all primitive ideas of the human mind. Neither can we define length except by itself. Absolute direction has no meaning, nor has absolute length; these must be considered relatively, and a difference in direction is just as perceptible and as intelligible as a difference in length. Draw three lines OA, OB, OC radiating from the point O. Any person, above childhood, will indicate at once whether the difference in direction 'between O A and O B is greater or less than the difference in direction between O A and O C; unless under certain circumstances when O A lies between O B and O C. Similar remarks may be made in regard to differences in lengths when O,A,B,C are points taken in a common straight line.

In some way, presumably by early experience, we acquire the

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