*2.—de Prony's Formula.*

Mean velocity—

$$\begin{aligned} v &= (\cdot 0237 + 9966\, m\, i)^{\frac{1}{2}} - \cdot 1542 \\ &= (\cdot 0237 + 9966 \times 19\cdot 8 \times \cdot 000025)^{\frac{1}{2}} - \cdot 1542 \\ &= (\cdot 0237 + 9966 \times \cdot 000495)^{\frac{1}{2}} - \cdot 1542 \\ &= (\cdot 0237 \times 4\cdot 9332)^{\frac{1}{2}} - \cdot 1542 \\ &= 2\cdot 227 - \cdot 1542 \\ &= 2\cdot 073 \text{ feet per second.} \end{aligned}$$

*3.—Dupuit's Formula.*

Mean velocity—

$$\begin{aligned} \cdot 0000323\, v^2 &= i(1 + \cdot 225\, m) \\ &= (1 + \cdot 225 \times 19\cdot 8) \times 000025 \\ &= (1 + 4\cdot 455) \times \cdot 000025 \\ &= \cdot 0001364 \end{aligned}$$

$$\therefore\ v^2 = \frac{\cdot 0001364}{\cdot 0000323} = 4\cdot 223$$

$$v = \sqrt{4\cdot 223} = 2\cdot 025 \text{ feet per second.}$$

*4.—Chezy's Formula.*

Mean velocity—

$$\begin{aligned} v &= c\sqrt{m\, i} \\ &= 100\sqrt{19\cdot 8 \times \cdot 000025} \\ &= 100\sqrt{\cdot 000495} \\ &= 100 \times \cdot 02225 \\ &= 2\cdot 225 \text{ feet per second.} \end{aligned}$$

*5.—Humphreys and Abbot's Formula.*

Mean velocity—

$$\begin{aligned} v &= \left\{ \left( 225 \frac{m}{2} \sqrt{i} \right)^{\frac{1}{4}} - \cdot 0388 \right\}^2 \\ &= \left\{ \left( 225 \times \frac{19\cdot 8}{2} \sqrt{\cdot 000025} \right)^{\frac{1}{4}} - \cdot 0388 \right\}^2 \\ &= \left\{ \left( 225 \times 9\cdot 9 \times \cdot 005 \right)^{\frac{1}{4}} - \cdot 0388 \right\}^2 \\ &= \left( \sqrt[4]{11\cdot 137} - \cdot 0388 \right)^2 = (1\cdot 827 - \cdot 0388)^2 \\ &= \overline{1\cdot 788)^2} = 3\cdot 19 \text{ feet per second.} \end{aligned}$$

*6.—Hagen's Formula.*

Mean velocity—

$$\begin{aligned} v &= 4\cdot 39\ \sqrt{m} \cdot \sqrt[6]{i} \\ &= 4\cdot 39\ \sqrt{19\cdot 8} \cdot \sqrt[6]{\cdot 000025} \\ &= 4\cdot 39 \times 4\cdot 45 \times \cdot 171 \\ &= 3\cdot 341 \text{ feet per second.} \end{aligned}$$