The flow measurements in streams are often done by taking velocity measurements in several verticals at 0.2 and 0.8 depths measurements may be used to estimate one frequently used parameter in most hydraulic computations, ie, the Manning's roughness coefficient 'n'.

This is achieved by combining the logarithmic law for velocity distribution in streams with the Manning formula to yield.

$$n = \frac{(x-l)\, d^{1/6}}{5.58(X+0.95)} \qquad \text{(equation 1)}$$

Here, *u* is velocity at height y from bottom, *u** shear velocity, K_S is roughness height, *d* is the depth of flow and x $= U_{0.2}/U_{0.8}$ is the ratio velocities at 0.2 and 0.8 depths.

Boyer's (1954) attempt to test the validity of this relation was not conclusive as he did not have sufficient data. Consequently, the objective of the present study is to provide more experimental data to verify the above theoretical approach and to obtain a relationship so that it can be used for practical purposes.

The experiments were conducted in a laboratory flume. In each experiment velocities were made at every 5 mm in a vertical using a micro propeller meter over two types of bed roughnesses. The water surface slope was also measured to estimate Manning's coefficient directly using the Manning formula.

The results are summarized together with the data from Boyer (1954) and the theoretical formula (equation 1). This figure seems to suggest that the theoretical formula slightly under estimates the Manning's roughness. However, the broken line drawn through the data points show better agreement and the equation of this line is

$$n = \frac{(x-l)\, d^{1/6}}{4.8(X+0.95)} \text{ for } 1<x<2 \qquad \text{(equation 2)}$$

with the same notation as before.