TABLE 1

Band No.	Wave number (cm^{-1})	Difference	Visual intensity	Assignment	Mode of vibration
	35409+				
1	35581	−173	ms	0−173	
2	35605	−149	ms	0−149	
3	35754	0	s	0,0	
4	35936	182	vs	0+182	Totally symmetric vibration.
5	35984	230	vs	0+230	C-OH bending.
6	36044	290	s	0+451−173 or 0+451−149	
7	36107	353	ms	0+2×182	
8	36162	408	ms	0+230+182	
9	36205	451	s	0+451	α_1 component of 606 e_g^+ vibration of benzene.
10	36658	904	s	0+904	C–C bending.
11	36846 36867*	1092	s	0+904+182	
12	36959	1205	s	0+1205	C–H planar bending.
13	37095	1341	ms	0+451+904	
14	37154	1400	ms	0+1205+182	

† Frequencies observed in solid state.

ms—medium strong, s—strong, vs—very strong.

REFERENCES

Matsen F. A., Ginsburg N. & Robertson W. W. 1945 *J. Chem. Phys.* **13**, 309.
Suryanarayana V. & Ramakrishna Rao V. 1956 *J. Sci. Industr. Res.*, **15B**, 260 and 548.
Sen S. K. 1956 *Indian J. Phys.* **30**, 553.

Indian J. Phys. 213–244, (1970)

Comment on a note on the linear flow of a viscous incompressible conducting fluid past an infinite flat plate with constant suction in the presence of a transverse magnetic field

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(*Received* 7 *August* 1970)

Recently Dube (1969) has studied the effects of the transverse magnetic field and constant suction on the flow of an incompressible electrically conducting fluid when the free-stream velocity varies linearly with time. It should be pointed out that his solutions for velocity and the skin-friction as given by equations

14 and 15 respectively, in his paper are wrong. Also his conclusion on the behaviour of the skin-friction is incorrect. This communication presents the correct solutions for the velocity and the skin-friction. It is further concluded that for a fixed time, the skin-friction decreases with the increase of intensity of the magnetic field

Taking the inverse transform of equation 13 of his paper, we get

$$u = \frac{c}{8}\Bigg[8t - 4tc^{\frac{y}{2}(\sqrt{1+4M^2}-1)}\left\{e^{-y\sqrt{1+4M^2}}\, erfc\left(\frac{y}{4\sqrt{t}} - \sqrt{t(1+4M^2)}\right) + erfc\left(\frac{y}{4\sqrt{t}} + \sqrt{t(1+4M^2)}\right)\right\} + \frac{yc^{\frac{y}{2}(\sqrt{1+4M^2}-1)}}{\sqrt{1+4M^2}}$$

$$\left\{e^{-y\sqrt{1+4M^2}}\, erfc\left(\frac{y}{4\sqrt{t}} - \sqrt{t(1+4M^2)}\right) - erfc\left(\frac{y}{4\sqrt{t}} + \sqrt{t(1+4M^2)}\right)\right\}\Bigg] \qquad \ldots (1)$$

The non-dimensional skin-friction τ_0 is given by

$$\tau_0 = \left(\frac{\partial u}{\partial y}\right)_{y=0} = c\Bigg[\left(1 - \frac{\sqrt{1+4M^2}}{2}\right)t + \frac{1}{4\sqrt{1+4M^2}}\, erf\{\sqrt{t(1+4M^2)}\}$$

$$+\frac{1}{2}\left(\frac{t}{\pi}\right)^{\frac{1}{2}} e^{-(1+4M^2)t} + \frac{t\sqrt{1+4M^2}}{2}\, erf\{\sqrt{t(1+4M^2)}\}\Bigg]. \qquad \ldots (2)$$

The calculated values of the skin-friction from the expression 2 for $c = 4$, $t = 0, 0.04, 0.09, 0.25$ and $M = 0, \sqrt{2}$ are given in table I

Table 1

M \ $t =$	0	0.04	0.09	0.25
0	0	0.537	0.877	1.720
$\sqrt{2}$	0	0.424	0.667	1.331

From the table it is evident that for a fixed time t, the skin-friction τ_0 decreases with the increase of intensity of the magnetic field.

Reference

Dube S. N. 1969 *Indian J. Phys.* **43**, 550.