The relationship between the relative wave amplitude and intensity is almost linear for a "pure" transverse elastic wave in the given range of variation of intensity. Insignificant deviations from linearity are probably related to anisotropy of the physical properties of the investigated rocks.

These experimental relationships are confirmed and explained by theoretical investigations made earlier in connection with the problem of the propagation of elastic waves in homogeneous elastic media [2].

It was assumed in [1] that, correct to cubic terms, the elastic energy per unit volume of a deformed body under the influence of a propagating elastic wave of finite amplitude is given by

$$\varepsilon = \frac{\lambda + 2\mu}{2} J_1^2 - 2\mu J_2 + \frac{l + 2m}{3} J^3 - 2m J_1 J_2 + n J_3. \qquad (2)$$

Here λ and μ are the Lamé constants, l, m, n are certain constant coefficients of anharmonicity, J_1, J_2, J_3 are the invariants of the strain tensor, equal for the case of propagation of a plane elastic wave along the x-axis to

$$J_1 = u_{11},\ J_2 = u_{12}^2 - u_{13}^2,\ J_3 = 0$$

(u_{ik} is the displacement vector).

If the wave is longitudinal ($u_x \neq 0$, $u_y = u_z = 0$), the elastic energy is equal to

$$\varepsilon = \frac{\lambda + 2\mu}{2} u_{11}^2 + \frac{l + 2m}{3} u_{11}^3. \qquad (3)$$

However, if the wave is a pure shear wave ($u_x = 0$, $u_y \neq 0$, $u_z \neq 0$), the energy is equal to

$$\varepsilon = 2\mu (u_{12}^2 + u_{13}^2) \qquad (4)$$

It can therefore be seen that for a longitudinal wave of finite amplitude there should be nonlinear effects, whereas for a purely transverse wave such effects are absent.

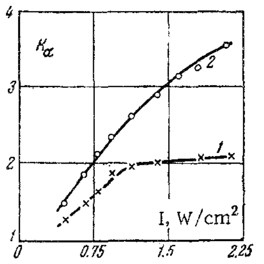

Fig. 2

These points are fully confirmed by experimental data obtained from the propagation of low-intensity longitudinal and transverse elastic waves in rocks.

The results of this investigation should be taken into account in the study of the damping of sonic and ultrasonic waves in rock media.

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3 June 1964 Moscow

Correction to E. G. Sakhnovskii's article "Viscous friction and heat flux for a partially ionized medium flowing in a plane channel with allowance for anisotropy of the transport coefficients," Journal of Applied Mechanics and Technical Physics no. 2 March–April 1965.

The table of values of the parameters at the top of page 81 should read as follows:

1	$\omega_e\tau_0 \ll 1$,	$\omega_i\tau_i\ \theta$	$s \in [0,1]$
2	$\omega_e\tau_0 = 40$,	$\omega_i\tau_i \ll 1$,	$s \ll 1$
3	$\omega_e\tau_0 = 40$,	$\omega_i\tau_i \ll 1$,	$s = 1$
4	$\omega_e\tau_0 = 1$,	$\omega_i\tau_{in} = 1$,	$s \ll 1$
5	$\omega_e\tau_0 = 1$,	$\omega_i\tau'\theta = 1$,	$s = 1$