CORRECTIONS TO THE ARTICLE "A SOLUTION OF DIFFUSION EQUATION WITH NONLINEAR RIGHT SIDE," PRIKLADNOI MEKHANIKI I TEKHNICHESKOI FIZIKI, No. 4, 1969

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The formulas (1.18)-(1.27) are incorrect. The solution of the problem (1.6)-(1.8) is given by the formulas

$$h_1(x,t) = h_0 + \int_0^t x \exp[s(t,\tau)\,x^2]\, w_1(\tau)\,d\tau + \int_0^t [x-\chi(\tau)] \exp\{s(t,\tau)[x-\chi(\tau)]^2\}\, w_2(\tau)\,d\tau$$

$$v(x,t) = F(x,t) + \int_0^t [x-\chi(\tau)] \exp\{s(t,\tau)[x-\chi(\tau)]^2\}\, w_3(\tau)\,d\tau + \int_0^t (x-L)\exp\{s(t,\tau)(x-L)^2\}\, w_4(\tau)\,d\tau$$

$$w_i(t,\tau) = v_i(\tau)(t-\tau)^{-3/2} \quad (i=1,2,3,4), \qquad s,(t,\tau) = -[4a^2(t-\tau)]^{-1}$$

where $\nu_2(\tau)$, $\nu_3(\tau)$ are the solutions of the linear Volterra integral equations of the second kind with a kernel of the type $K_i(t,\tau) = L_i(t,\tau)/\sqrt{t-\tau}$, the functions $L_i(t,\tau) = \Phi_i[t,\tau,\chi(t),\chi(\tau)]$ being regular,

$$v_i(t) = \varphi_i(t) + \int_0^t K_i(t,\tau)\,v_i(\tau)\,d\tau, \quad K_i(t,\tau) = (-1)^i R(t,\tau) + \frac{1}{4a^2\pi}\int_\tau^t \frac{P_i(t)\,P_i(\tau)}{[(t-\sigma)(\sigma-\tau)]^{3/2}} \exp\left\{-\frac{1}{4a^2}\left[\frac{P_i^2(t)}{t-\sigma}+\frac{P_i^2(\tau)}{\sigma-\tau}\right]\right\} d\sigma$$

$$(i=2,3) \quad R(t,\tau) = \frac{1}{2a\sqrt{\pi}}\,\frac{[\chi(t)-\chi(\tau)]}{(t-\tau)^{3/2}} \exp\left\{-\frac{[\chi(t)-\chi(\tau)]^2}{4a^2(t-\tau)}\right\}$$
$$P_2(t) = \chi(t), \qquad P_3(t) = L-\chi(t)$$

the functions $\nu_1(t)$ and $\nu_4(t)$ are given by

$$v_1(t) = \varphi_1(t) + \int_0^t K_1(t,\tau)\,v_2(\tau)\,d\tau$$

$$v_4(t) = \varphi_4(t) + \int_0^t K_4(t,\tau)\,v_3(\tau)\,d\tau, \quad F(x,t), \varphi_i(t) \quad (i=1,2,3,4), \quad K_i(t,\tau)$$

where $K_i(t,\tau)$ $(i = 1, 4)$ are some functions, $\chi(t)$ is a function which is unknown in advance and can be found from the nonlinear integral equation (1.16).

The solutions (2.2), (2.3), (2.5), and (2.10)-(2.12) of this problem which were obtained approximately in Sec. 2 do not satisfy the condition $h(x, 0) = H_2$, only the conditions (2.3) and (2.11) in which one sets $l(t) = 0$.

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