Success of such a program, however, is dependent on the willingness (i) of the scientist to communicate, and (ii) of the public relations man to adjust his promotive characteristics to the disciplines of science.

Effective public relations *is not* so much a matter of headline grabbing and photographic tricks as it is of advancing the welfare of a cause by identifying its objectives with the public good and telling its story to people, with the sole intent of ultimately bringing its benefits to more people.

By employing the techniques of modern communications and espousing the aims of good public relations, science can and will bring its benefits to more people.

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Thermal Precipitation Analyzed

I read with considerable interest the communication of B. W. Wright (*1*).

It would be difficult for us to measure directly the amount of heat transferred to the cold plate, since there is very little change in the temperature of our cooling water. Also, owing to losses to the surroundings, the amount of heat utilized is only a fraction of the power input. However, we can arrive at a figure for the required power input from a conductivity calculation. If suitable values are inserted into the conductivity equation, $Q = kA\Delta t/x$, where Q is the amount of heat transferred, k is the mean thermal conductivity of air, A is the area of the heated surface and $\Delta t/x$ is the temperature gradient, the value obtained for the power input of a typical run was 6.1 w. The total electric power input was 78 w. This run was with MgO smoke at 600 ml/min, a spacing of 0.010 in., and gave a deposit 3.9 cm in diameter.

I have derived an equation that describes the operation of this type of precipitator by utilizing the equation for the thermal force given by Epstein (*2*) and confirmed by Saxton and Ranz (*3*). Making a force balance on a particle that is being acted on by a viscous drag force, a gravitational force, and a thermal force, I arrive at the equation for the case of the precipitators described by Kethley *et al.* (*4*) and Wright,

$$\frac{q}{\pi z(z+2r)} = \frac{D_p(\rho_p - \rho)g}{18\mu} + \frac{3}{2}\left(\frac{R\mu}{MP}\right)\left(\frac{k}{2k+k_p}\right)\frac{\Delta t}{x}, \quad (1)$$

where q = volume rate of flow, z = length of deposit (= radius of deposit − radius of inlet opening), r = radius of inlet opening, D_p = diameter of aerosol particle, ρ_p = density of aerosol material, ρ = density of gas, g = gravitational acceleration, μ = viscosity of gas, k = thermal conductivity of gas, P = gas pressure, k_p = thermal conductivity of aerosol particle, R = gas constant, $\Delta t/x$ = thermal gradient between hot plate and cold plate, M = molecular weight of gas.

It should be noted that Eq. (1) is of the form

$$V = A + B\Delta t/x,$$

where V is a function of the precipitator geometry and aerosol flow rate, A represents the component of the particle motion attributable to gravity, and $B\Delta t/x$ is the component due to thermal force. In practice, we plot the left-hand member of the equation against the temperature gradient and get a series of points that approximate a straight line for aerosols of the same material and size distribution.

The reason good correlation of performance with power input has been obtained by Wright and others is that, to a large extent, the power input is a function of the thermal gradient.

Examination of the equation also indicates that the performance of a thermal precipitator depends on the absolute temperature of the system only to the extent that the thermal conductivities of the gas and aerosol material and the gas viscosity depend on the absolute temperature.

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The Fungistatic Action of Squalene on Certain Dermatophytes *in Vitro**

Squalene is an unsaturated triterpenoid hydrocarbon that was originally isolated from the liver oil of the shark (*1*). Among its other occurrences, it was found to be present in the fat from ovarian dermoid cysts (*2*). It has also been found in normal human sebum (*3, 4*).

An investigation was undertaken in order to learn whether squalene might exert a protective action on skin. This could come about because squalene, which has the consistency and appearance of mineral oil when pure, rapidly takes up oxygen on exposure to air and forms a yellow viscous oil with a high peroxide content.

It was found that undiluted squalene (*5*) on the surface of Sabourand's agar prevented multiplication of *Microsporum mentagrophytes, M. audouini* (*6*), and *M. tonsurans* (*6*). Undiluted mineral oil under the same conditions did not inhibit growth. In the case of *M. gypseum* (*6*), squalene inhibited growth in some instances, partially in others, and at times not at all. Squalene caused no inhibition of the multiplication of *Aspergillus terreus*.

Some evidence suggests that squalene exposed to air for a time prior to use may be more effective in inhibiting growth than pure squalene. These observations suggest that squalene may be a protective agent on the skin. It is hoped that this communication will stimulate clinical investigation of this material.

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