or the removal of tumor inhibitors by adsorption to the plastic. Thinking along these lines, the possibility presents itself that free radicals or free radical-yielding substances are involved. This is particularly pertinent in view of the prevailing polymerization techniques using radical-delivering catalysts, and in view of the existence of free radical mechanisms in the living cell, as pointed out by Waters (*1*) and others. In this respect we are in full agreement with the views of Col. Fitzhugh; in fact we have initiated and carried out for more than a year an experimental program to test this possibility. The program includes the use of polymers of different degrees of radical or peroxide contamination, and of different tendencies as carriers of long-lived radicals (as shown by their ability to continue to polymerize). We are also using the radioactive tracer technique to follow the path of sources of potential radicals leaving the polymer.

Because of the slow character of the work no conclusive results are as yet available. It does not, however, appear that Col. Fitzhugh's and our own expectations are borne out, since apparently there is no correlation between the carcinogenic effectiveness of synthetic polymers and their tendency to include, carry, or release free radicals. There is, for instance, an appreciable carcinogenic activity with condensation polymers.

The real difficulty in our investigation, not touched upon by Col. Fitzhugh, lies in the problem of transport. If a radical were to cover the distance, substantial in terms of molecular dimensions, from polymer to the site of the cancer, it would be extremely unlikely to survive. Similarly, a chain process, whereby unpaired electrons would be transferred, is difficult to conceive in view of the large number of steps and components involved. The agent must further be conceived to be of low molecular character so as to penetrate cell membranes.

The conclusion remains that the agent, if a free radical, must be a very stable one, possibly an ion radical, or a molecule that is liable to turn into a radical or participate in radical reactions once it reaches the interior of the cell. The agent might be derived from monomer, catalyst, or catalyst derivatives, products of oxidation or interaction with the bathing lymph fluid. The best clue as yet lies in the observation, so far uncontradicted, that only synthetic high polymers seem to be carcinogenic. This limits explanations based on free radical theories to addition polymers. The carcinogenicity of synthetic condensation polymers would demand a different mechanism and might possibly be attributable to an intrinsic activity of some monomeric constituents or their derivatives.

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Fashions in Medicine and Science

H. J. Morowitz (*1*) has illustrated fashion in science by an elegant and impressive method; the number of papers published per year (about the biological effects of radiation) was shown to follow a rapid rise and then an almost exponential decay as a function of time.

Penrose (*2*) a while ago made use of the same method to illustrate fashion in medical therapy. His example dealt with the use of thallium in the treatment of skin diseases.

It is interesting to observe some of the differences between these two mental epidemics. A longer lag time previous to the rapid rise in the number of papers as well as a longer decay period seem to be characteristics of fashion in medical therapy; further features of the latter are the favorable description of the results obtained during the rapid rise period and a preponderance of critical papers coinciding with the slow decline or period of "increasing immunity to the idea of the treatment."

Speculations about the factors contributing to the above observed differences are left to the reader.

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