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Population monitoring. Whatever the system of testing potential pesticides before they are used may be, it can never be perfect. There is always the possibility that some substance will not be revealed as mutagenic by any of the test systems employed and yet represent a mutation risk to man. An example might be a substance that is not itself mutagenic, but which is specifically converted by the human body into a substance that is strongly mutagenic. If such a compound was widely used, we could be doing great harm to our descendants and never discover this fact until the damage had already occurred. And genetic damage, as we have emphasized, is irreversible as far as is now known.

Is there any possibility of setting up a system to detect such a genetic emergency if it should occur? The task would be enormously difficult, for many reasons already mentioned. For one thing, the damage caused by mutations occurs in future general generations, not this one, so the effect would not be observed for some time. In the second place, the effect might be spread out over many generations so that an enormous total effect would still be small enough in the first generation not to be noticed. Finally, the kinds of effects produced by mutations are not unique, so if there were, for example, an increased disease or death