the well-known cell-survival curves. Although these factors, and others not mentioned, demonstrate the hazard of transplanting our therapeutic experience to the diagnostic field, they nevertheless suggest that a move to shorter half-lives without any reduction in supposedly acceptable dose levels may be unwise.

It may of course turn out that drastic downward change in delivery times is unimportant (or even beneficial), but we do not know it to be so, and until the time factor has been studied in its special application to routine diagnostic tests or until the results of existing research on the topic become available in a form that the nonspecialist can understand, prudence demands that we use a safety factor by reducing our planned physical dose when the effective half-life is unusually short.

E. RICHARD KING
FEARGHUS O'FOGHLUDHA
Medical College of Virginia
Richmond, Virginia

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TRANSLATION OF AN HISTORIC PAPER

On the Radiations Emitted by Phosphorescence: A Memorandum From M. Henri Becquerel*

*Ed. Note: In his letter to the Editor in 1967 (J. Nucl. Med. **8**:76, 1967) Abraham A. Sherman expressed his interest in using the Journal of Nuclear Medicine as a vehicle for reproducing some of the original outstanding papers of historical interest to nuclear medicine and nuclear physics. Published here is his translation of the original report on radioactivity by Henri Becquerel to the French Academy of Sciences.*

In a preceding session, M. Charles Henry announced that phosphorescent zinc sulfide placed in the path of the rays emanating from a Crooke's tube augmented the intensity of the radiations traversing the aluminum "window."

M. Niewenglowski, on the other hand, recognized that commercial, phosphorescent calcium sulfide emits radiations which traverse opaque substances.

This phenomenon applies to various other phosphorescent substances and, in particular, to the salts of uranium in which the phosphorescence is of very short duration.

With the double sulfate of uranium and potassium of which I possess a thin, transparent piece in crystal form, I performed the following experiment:

A gelatine-bromide, light-sensitive photographic plate was wrapped with two layers of very thick, black paper so that the plate would not be fogged even though it might be exposed to sunlight for a whole day.

There was placed on the exterior surface of the paper a piece of the phosphorescent substance and then the whole thing was exposed to sunlight for several hours. Following this, when the photographic plate was developed, one could recognize the outline of the phosphorescent substance which appeared on the negative. If a coin is placed between the phosphorescent substance and the paper, or if a metallic screen pierced in a design is so placed, one sees the image of these objects on the negative.

The same experiments can be repeated by interposing between the phosphorescent substance and the paper, a thin sheet of glass which thus excludes the possibility of a chemical action due to fumes or vapors which might emanate from the substance heated by the sun's rays.

One must therefore conclude from these experiments that the phosphorescent substance in question emits radiations which traverse the opaque paper and by their light reduce the silver salts.

ABRAHAM A. SHERMAN
Morrisania City Hospital
Bronx, New York

* Originally published in the *Compt. Rend.* of the Sessions of the Academy of Sciences, Paris, **122**:420, 1896.