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mission of the University of California, Berkeley, California.

Responsible Investigator: Wilbur A. Selle

University Department: Biophysics

Financial Support 1954-55: California Institute of Cancer  
Research \$ 1,233.56.

Title of Project: Topical Application of Diphenyl.

Four sets of experiments on diphenyl - three on mice  
and one on man - are reported herewith. One of these is  
a continuation of observations on experiments with  
topically applied commercial diphenyl which were  
instituted April 1, 1952. The second experiment, started  
October 24, 1952, is an assessment of topically applied  
lemon oil on the development of skin lesions in mice. The  
third, started March 9, 1953, is concerned with epilation  
effects of small concentrations of diphenyl on mice, and  
the fourth is on the effects of topically applied  
commercial diphenyl on human skin.

EXPERIMENT I. Since submitting the first progress  
report on this initial experiment about 12 months ago,  
periodic observations have continued to be made on the  
animals painted twice weekly (from April 1, until October  
24, 1952) with diphenyl.

Impression: Long continued painting with commercial  
diphenyl produces permanent epilation, but no other  
detectable change up to 16 months following initiation

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topical application, and 9 months after cessation of painting.

EXPERIMENT II. This experiment was designed primarily to assess the influence of lemon oil (incorporated in commercial diphenyl mixtures) in producing skin lesions observed in Experiment I. Four groups of approximately 30 animals each were painted twice weekly on the dorsum. One group received 22.9 per cent diphenyl in Grade A saturating oil; Group II received 22.9 per cent diphenyl plus 0.4 per cent lemon oil in Grade A saturating oil; Group III received 0.4 per cent lemon oil in Grade A saturating oil; Group IV (control) received only Grade A saturating oil.

Impression: Diphenyl plus lemon oil is no more irritating, as evidenced by the amount of hair lost and by the rate of regrowth, than is diphenyl alone. Lemon oil by itself does not produce epilation or marked irritation. The saturation oil used as vehicle does not produce epilation.

EXPERIMENT III. This experiment was undertaken to determine the effectiveness of concentrations of diphenyl smaller than those used in Experiment I. Four groups of approximately 30 animals each were painted thrice weekly with diphenyl. Group I received the commercial diphenyl (containing 22.9 per cent diphenyl and other

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ingredients) in standard vehicle (Solution A). Group II received 22.9 per cent diphenyl in standard saturating oil; Group III received 11.5 per cent diphenyl in standard saturating oil; and Group IV received 5.75 per cent diphenyl in standard soluting oil.

Impression: (1) There is no difference in the epilating effect of commercial diphenyl and a solution of 22.9 per cent diphenyl in standard saturating oil. (2)

While the stronger the concentration of diphenyl the greater the denuding effect (both in respect to numbers of animals affected and extent of hair loss per individual animal), an occasional animal responds markedly (if not maximally) to weaker concentrations (5.75 per cent) of diphenyl. (3) Regrowth of hair tends to occur after three weeks and the hair pattern becomes entirely normal in a few weeks if painting is not continued beyond six weeks.

EXPERIMENT IV. This experiment was conducted to determine whether or not human skin is as responsive to diphenyl as is the skin of the mouse.

Impression: The thrice weekly painting of the skin of the human arm for eight weeks with commercial diphenyl was without any observable effect, indicating that the reactivity of the human skin to diphenyl seems to be definitely less than is that of the mouse. It might be assumed that if permanent lesions are not produced in mice, none would be produced in man. It must be

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admitted, however, that the skin of some human beings  
 may be more reactive to diphenyl than was that of the  
 single subject tested in this experiment.

Publications To Date: None.