

OBSERVATIONS CONCERNING HYPERPLASIA OF THE CUTANEOUS EPITHELIUM OF MICE IN ESTABLISHING A SHORT TERM TEST FOR CARCINOGENIC ACTIVITY

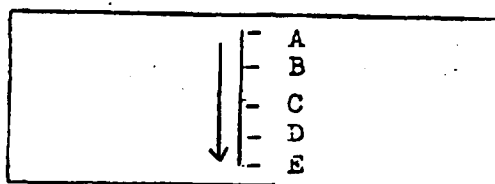
TECHNIQUE

An application of 0.3mg of condensate was made as homogeneously as possible along the shaved dorsal midline of the mice used in the experiment. Six mice were sacrificed after 24 hours and the application was renewed on the remaining mice on the second day. After a further 24 hours another six mice were killed and a third application of condensate made on the remaining, i.e. an interval of 24 hours being allowed between successive applications of condensate. The remaining mice were then killed, six at 24 hourly intervals on a further three days.

Skin was removed from the backs of all mice from the centre of the painted area, fixed in formal-saline and blocked in paraffin wax. Vertical sections were cut in the skin transverse to the backs of the animals in the middle of the zone of cutaneous application. Staining was done using haematoxylin and eosin.

For examination under the microscope a technique has been adopted which eliminates all problem of choice for the observer and therefore reduces the subjective part to a minimum. The slide was placed on the microscope stage so that the vernier reading was at zero (Fig.1A). It was then moved 5 mm to the first field of the skin section (B) where the width of the epidermis could be measured using a graduated eyepiece scale. A further three measurements (at C, D. and E) were recorded for each piece of skin using the same method.

Fig. 1



The averages of the measurements recorded for each type of treatment and day of sacrifice were calculated and the results graphically represented.

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RESULTS

The degree of epidermal hyperplasia for each type of condensate at 24 hourly intervals is shown in the accompanying graph.

The width of the epidermis at 72 hours using

100 mg. S.W.S. = 0.0403mm.

100 mg. NF. = 0.0210mm.

100 mg. N.F.-H = 0.0117mm.

i.e. the degree of epidermal hyperplasia produced after 72 hours using 100 mg Stale Whole Smoke is approximately twice as great as that from 100 mg Neutral Fraction, which is approximately twice as great as that from 100 mg. Neutral Fraction minus Hydrocarbons.

These results seem comparable with the number of tumours produced in the main experiment. After painting 165 mice for 11 months with 100 mg. Stale Whole Smoke the number of tumours obtained was 21; with 100 mg. Neutral Fraction, the number of tumours obtained was 11; with 100 mg. Neutral Fraction minus Hydrocarbons, the number of tumours was 5.

CONCLUSION

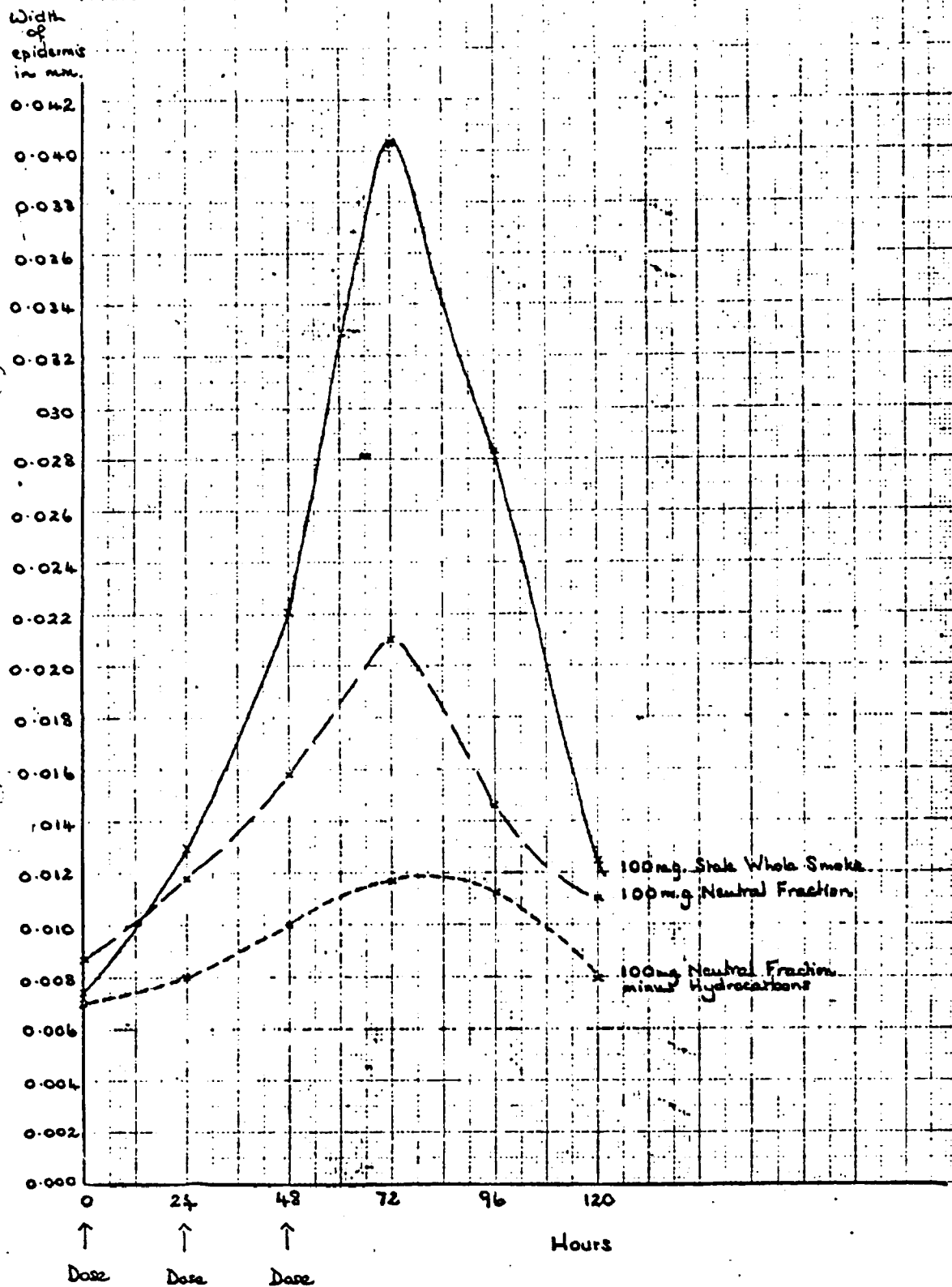
The degree of epidermal hyperplasia in mouse skin after treatment on three consecutive days shows the same relationship amongst the condensates as that in the main experiment.

Paralith

P. A. H.
13th November 1964

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To show the degree of epidermal hyperplasia in mouse skin treated on three consecutive days with 100mg. S.W.S., 100mg. N.F. and 100mg. N.F. - H.



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CUTANEOUS EPITHELIUM OF MICE IN ESTABLISHING A SHORT
TERM TEST FOR CARCINOGENIC ACTIVITY

TECHNIQUE

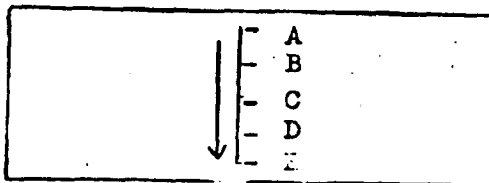
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The averages of the measurements recorded for each type of treatment and day of sacrifice were calculated and the results graphically represented.

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RESULTS

The degree of epidermal hyperplasia for each type of condensate at 24 hourly intervals is shown in the accompanying graph.

The width of the epidermis at 72 hours using

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100 mg. NF. = 0.0210mm.

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CONCLUSION

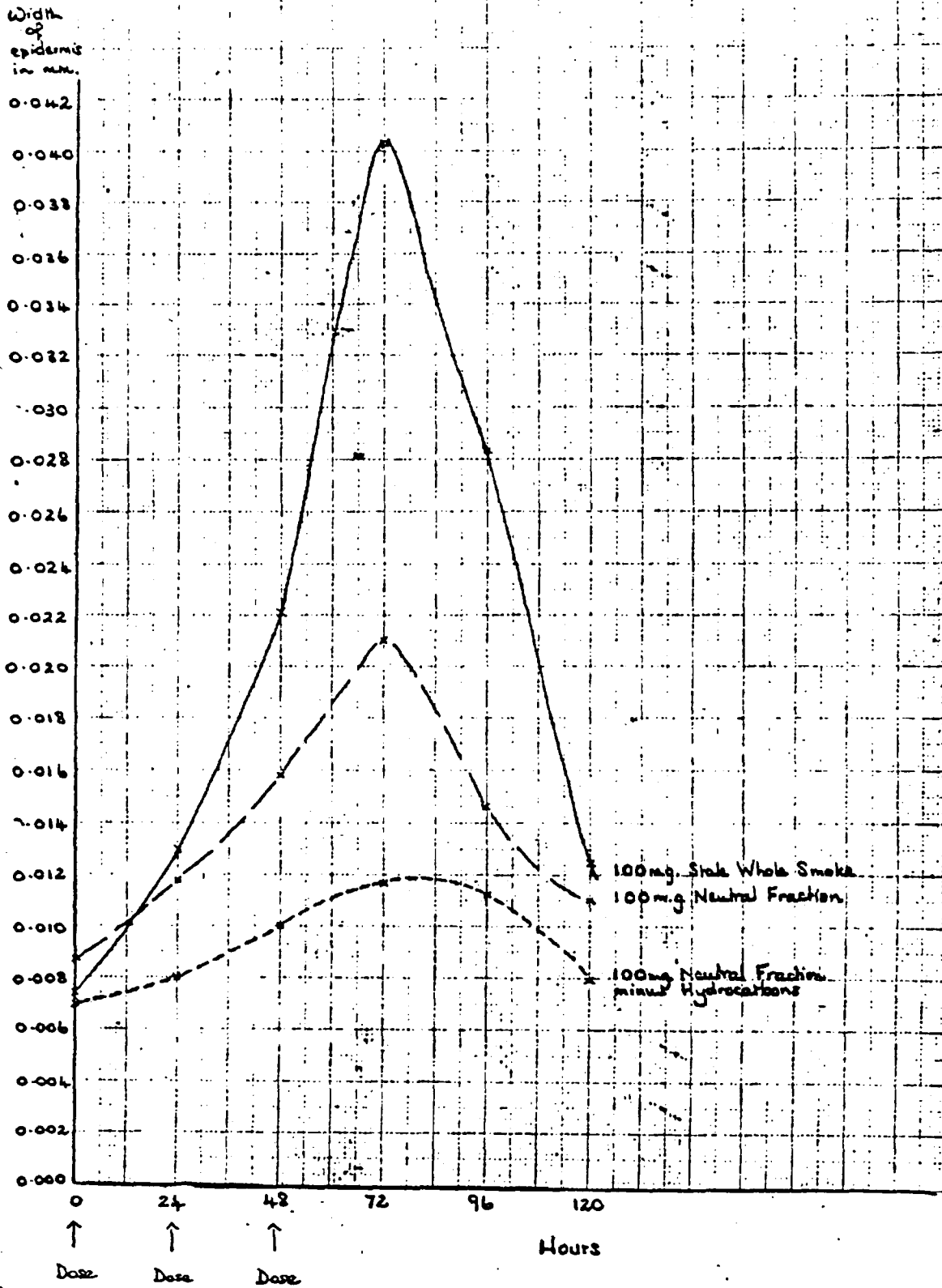
The degree of epidermal hyperplasia in mouse skin after treatment on three consecutive days shows the same relationship amongst the condensates as that in the main experiment.

Paralleled

P. A. H.
13th November 1964

105610827

To show the degree of epidermal hyperplasia in mouse skin treated on three consecutive days with 100mg. S.W.S., 100mg. N.F. and 100mg. N.F. - H.



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