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To: Mr. J. T. Landry
From: R. N. Saleeby
Subject: American Cancer Society News Release
of February 5, 1970

Date: February 5, 1970

Attached is a copy of a paper read to the American Cancer Society by Drs. Hammond and Auerbach this morning and on which you read a wire service release. This report describes the study in which Beagle dogs smoked cigarettes for up to 2.3 years through a throat opening to their windpipes. The important finding is that two of the 86 dogs which started the test developed "early squamous cell bronchial carcinoma", i.e., the most common lung cancer occurring in man. This is the first time that cigarette smoke as a direct agent has produced lung cancer in an animal in any reliably conducted experiment.

Details

Almost 100 pure bred Beagles about 2.7 years old were tracheotomized and taught to smoke cigarettes through this aperture for about two months. Of this group, 86 dogs were then divided into four groups and entered a 2.3 year test. An additional 8 tracheotomized dogs were reserved as non-smoking controls. Sufficient quantities of a single 80mm commercial filtered cigarette having 17mm white filter and delivering 17.8mg tar and 1.17mg nicotine were stored under controlled conditions until used. (~~Winston, Marlboro, Viceroy, and L&M could fit this description~~). These cigarettes were either smoked by the dogs as is or with their filters removed. With the filters removed, the cigarettes delivered approximately twice the tar as when the filters were in place. The four groups of smoking dogs consisted of Group F, which smoked seven filter cigarettes per day, Group L, which smoked 3.5 de-filtered cigarettes per day (which, however, gave about the same tar dose as Group F), and Group H, which smoked the same seven cigarettes per day as Group F but with the filters removed and hence about twice the tar dose as Group F. Group h smoked seven de-filtered cigarettes per day, as did Group H, but the dose per unit body weight is somewhat lower as these were the heaviest dogs used. The Group h dogs remain in the experiment until they die. All other groups were sacrificed after day #875 (or after 2.3 years of smoking). On autopsy the lungs of all dogs were examined for fibrosis, emphysema, other pulmonary abnormalities and, most importantly, evidence of tumors.

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Table I summarizes important results. In these researchers' tests it appears that all of the factors examined were worse the greater the duration and degree of smoking. A comparison of data for Groups F and L is particularly interesting in that Group L dogs seem to suffer more in some measures from the tests than did Group F dogs, even though the tar dose was about the same. Apparently removing the filter produced a change which caused a qualitatively different biological reaction at the same tar dosage. These results in totality are much more favorable to filter vis-a-vis non-filtered cigarettes. This is obvious from a comparison of Groups F and H. Dogs in both groups smoked 7 cgt/day (equivalent to a 2 pack a day human), but the latter received twice the tar dose from the de-filtered cigarettes.

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TABLE I

Important Results of Hammond & Auerbach

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| Groups | No. of Dogs in Test | No. Deaths prior to end of 2.3 years smoking | % of Lung Sections After 2.3 years With Severe Fibrosis | With Emphysema | % Lung Lobes with Invas Tumors | Dog Lobes with Invas Tumors |
|---|------------------------|--|--|-------------------|---|--------------------------------------|
| Group C Control dogs - no smoking | 8 | 0 | 0 | 0 | 3.6 | 0 |
| Group F (filter smokers) Filter: Dosage 7 cgt/day, or cumulative 4.4gm* tar/lb body weight for the 2.3 yr test | 12 | 2 | 6 | 13 | 4.8 | 0 |
| Group L (light non-filter smokers) Filter removed: Dosage 3.5, or 4.1 | 12 | 2 | 13 | 24 | 14 | 0 |
| Group H (heavy non-filter smokers) Filter removed: Dosage 7, or 8.3 | 24 | 12 | 92 | 99 | 21 | 10* |
| Group h Filter removed: Dosage 7, or 6.5 | 38 | 12 | - | - | - | 2, so f |

* This is equivalent on a body weight basis to a 150 lb man smoking 42 cgt/day.
 ** Two of these 10 dogs had "early invasive squamous cell carcinomas", i.e., of the
 same type seen in bronchial tubes of humans with "lung cancer". Invasive tumors
 observed in all other dogs are sometimes seen in humans, but squamous cell is
 the predominant kind.