

tion observed in the general population and for deviations of this ratio in special groups. While the relative incidence of labial carcinoma for unselected series is approximately 10 males to 1 female, von Haberer found this ratio shifted in favor of the women in the Puster Valley of the Austrian Alps, where pipe-smoking is common among women. A similar observation was made in the United States by Pettit and Brewer, who found that labial cancer is more prevalent among Negro women. Pipe-smoking (clay-pipes) is relatively common among Negro females as compared to white females, who rarely indulge in this type of smoking. In a group of white women over 70 years of age, 8.04 per hundred thousand died of carcinoma of the lip, while in a like number of Negro women 30.1 per hundred thousand succumbed to labial malignancy (Brewer).

Additional circumstantial evidence has been supplied by an evaluation of the frequency of lip cancer among the members of various occupational groups, especially disposed to smoking. In a statistical study of the incidence of labial cancer in several occupations, Young and Russell observed that agricultural workers, dock-laborers, outdoor railwaymen, and merchant seamen showed a liability to labial malignancy exceeding by 200 to 300 per cent that noted in the general population. Other outdoor workers, such as masons, general laborers, farmers, graziers, paviours, and similar workers had an excess ranging from 60 to 100 per cent of cancer of the lip. Coal miners working below ground, not being permitted to smoke during work, exhibited a mortality of lip cancer not surpassing that of the average population; in contrast, employees of the mines engaged in work above ground, and having occasion to smoke, showed an excess of labial cancer. Commenting on these observations, Young and Russell expressed the belief that the statistical data supported the conception of causative interrelations existing between smoking, certain occupational activities, and cancer of the lip.

Brief mention may be made of a second habit, common to oriental countries—the chewing of betel, which furnishes an example of the dependence of lip cancer upon an extraneous agent. In a series of 669 cases of betel carcinoma, reported by Orr, 40 affected the lips, while Fells stated that 7.5 per cent of betel cancers were situated on the lips.

III. PHYSICAL AGENTS

The occupational exposure of outdoor workers to sunlight, such as exists for farmers, fishermen, gardeners, trucksters, mail-carriers, and street-cleaners has been blamed by Haagensen for the increased incidence of cancer of the lip in these occupational groups. This investigator stated that the high incidence of lip cancer among outdoor workers has not been recognized. He argued that the location of the cancer on the lower lip, in these instances, was due to the fact that the lower lip protruded and, in contrast to the upper lip, was directly exposed to the carcinogenic action of the sunlight, the labial mucosa thus