

formation concerning the amount and character of the bituminous substances contained in crude salpeter, an opinion cannot be expressed as to the rôle such agents may have played in producing cutaneous neoplasms. Also, consideration must be given to the possible action of an actinic factor, as the climate in northern Chile is dry and sunny.

BIBLIOGRAPHY

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B. ORGANIC CHEMICALS—GENERAL CHEMICAL AND TECHNOLOGICAL ASPECTS

The organic chemicals incriminated in the production of occupational cancers of the skin are derived from the distillation and fractionation of coal, oil shale, lignite, bitumen, goudron, asphalt, crude mineral oil and similar naturally occurring substances, composed of mixtures of numerous aliphatic or cyclic hydrocarbons and containing not infrequently in addition to the basic elements, carbon, hydrogen and oxygen, also nitrogen, sulfur, arsenic and other elements.

While not all the products derived from these basic substances possess carcinogenic properties, and while the presence or absence of blastogenic properties in derivatives carrying identical names and used for the same purposes depends not infrequently upon the type of technical process and the chemical composition of the particular raw product employed, yet many of the fractionation and distillation products (pitch, tar, crude paraffin oil, lubricating oil, fuel oil, anthracene oil, creosote, soot) have been proven definitely to represent the primary exogenous causes of an appreciable number of industrial cancers.

The predominating practical significance of these carcinogenic hydrocarbons is based, to a great extent, upon the fact that these substances constitute the main foundation upon which modern chemical industry has been erected and that they are used to an increasing degree in the manufacturing processes and products of other industries. The number of persons coming in close occupational contact with these compounds is large and their numbers constantly and rapidly increase. The extensive employment of these substances for various purposes, such as road construction, has brought about a wide spread environmental exposure of the general population to carcinogenic agents of this type. For these reasons these mentioned blastogenic organic compounds are not only suspected, or have been shown to be the cause of certain general environmental cancers, but represent especially etiologic factors responsible for large numbers of industrial malignancies. They are the most common source of cutaneous tumors of occupational origin as well as the causal agent for industrial blastomas of the lip, mouth, lung, and eye. Some of their derivatives (aromatic amines) are incriminated in the production of cancers of the urinary tract in certain groups of chemical workers.