of tar, such as the acridines, were regarded as particularly active in eliciting the neoplastic response. It is correct that the development of malignancy in the skin of man and animals exposed to tar is accompanied, in general, by a marked chronic, inflammatory reaction in the subepidermal connective tissue. But recent, experimental studies of Reinhard and Thibaudeau made on mice, which were subjected to tarring and roentgen-irradiations, showed that tar cancers may develop in the skin without being associated with any appreciable, inflammatory reaction. This observation indicates that a chronic, chemical dermatitis does not have an essential part in carcinogenesis by tar, but is mainly a coincidental phenomenon.

This theory has lost many of its former supporters after the discovery of synthetic carcinogens of the anthracene series, and the experimental demonstration that the chief irritative chemicals contained in tar are noncarcinogenic. Kennaway investigated a large number of substances present in or derived from tar which proved to be noncarcinogenic (ancenaphthene, fluorene, fluoranthrene, dihydroanthracene, hexahydroanthracene, beta-methylanthracene, phenanthrene, retene, pyrene, picene, truxene, naphthacene, naphthanthracene, chrysogene, benzerythrene, crackene, diphenylene oxide, betanaphthofurane, alpha-and-beta-naphthene, alpha-dimethylquinoline, carbazole, phenyl-p-naphthylcarbazole, acridine, diphenylene sulphide, tetraline, naphthalene, naphthoyl benzoic acid, beta-naphthoic acid, dinaphthylene dioxide, beta-dinaphthyl ether, beta-2-tetroyl propionic acid, gamma-2-tetralylbutyric acid, phenylisocrotonic acid, cyclohexane, cyclohexene, styrene, hydrophenanthrene, hydrochrysene, hydroretene, dodecahydrotriphenylene, octhracene, octhracenone, 1.2-benzanthraquinone, 2.3-tetrahydrobenzanthracene, and perylene).

When Kennaway tested 1.2-benzanthracene, he found this substance to be carcinogenic for the skin of mice. This positive observation led him to examine other benzanthracene derivatives of which, during the early stages of this investigation, 1.2.5.6-dibenzanthracene and 1.2.7.8-dibenzanthracene were found to give rise to cancer formation. None of the synthetic, carcinogenic substances discovered at first could be demonstrated in and extracted directly from tar. Nevertheless, an important and effective approach to this problem had been obtained, since Mayneord had found, in 1927, that all carcinogenic fractions obtained from tar were very fluorescent, and possessed a characteristic fluorescence spectrum. By utilizing this information and new methods of identification by fluorescence spectroscopy, Cook succeeded, in 1933 to isolate from tar 3.4-benzpyrene, which was shown to possess definite, carcinogenic properties. Firket and Malter found that English pitch contains 3 per cent 1.2-benzanthracene and 0.3 per cent of 3.4-benzpyrene; German pitch, 1 per cent 1.2-benzanthracene and only traces of 3.4-benzpyrene; Cockerill pitch, 2 per cent 1.2-benzanthracene and 0.2 to 0.3 per cent 3.4-benzpyrene, and Augrée pitch, 8 per cent benzanthracene and 0.3 to 0.4 per cent 3.4-benzpyrene. Before