

### Some Clinical Notes on the So called Alkaloids of Cod-liver Oil.

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SOME time ago I began clinical observations on the use of the so-called alkaloids of cod-liver oil, with the view of determining whether the effects of these much exploited substances were reliable and to be compared in utility to the oil itself, as we are at present able to administer it. The cases selected comprised chronic catarrhal conditions of the lungs of various associations, various grades and types of pulmonary tuberculosis, chronic rheumatism, anæmia, also mal-assimilation associated with catarrhal disturbances of the digestive tract. The results have been such as to interest me to a certain extent in the current dispute as to the nature and derivation of these alleged alkaloids.

The chemical investigation of cod-liver oil dates back to 1822, since which time there have been upwards of twenty investigators whose experiments were, for a time at least, more or less authoritative, and each of whom discovered something to which he attributed the specific virtues of the oil. The most of these observations are only of historical interest at present, and it would be useless to recount them.

Aside from the claims of morrhua as advocated by Chapoteau, to be considered as the active principle of cod-liver oil, we are chiefly interested in the investigations of Gautier and Mourgues. It is not necessary to recount the various substances which these observers found in cod-liver oil, the results of their investigations have been scattered broadcast. The therapeutic results are, however, said to be mainly due to the presence of morrhaine and morrhaine acid (gadaine).

The recent investigations of Heyerdahl have resulted in the discovery of two new glycerides—therapin and jecolein, also a small amount of palmitic acid. Moller points out that Heyerdahl's experiments would show that the fats of the oil which solidify at a low temperature, contain neither stearine or palmitin, but are glycerides of new unsaturated acids not yet understood; that rancidity is due to the formation of hydroxy acids and not to free acids; that the value of the oil lies in the contained free acids in the form of glycerides, and that these free acids must be preserved absolutely unchanged. Moller, along with other opponents of the so-called alkaloids, claims that there are no alkaloids found in the oil from perfectly fresh livers, and that they are plentiful in proportion to the extent to which decomposition has occurred, and that they are, therefore, poisonous ptomaines.