**The latest phase of the trypsin treatment of cancer / [J.A. Shaw-Mackenzie].**

*Reprinted from* THE MEDICAL PRESS AND CIRCULAR,
NOV. 27TH, 1907.



# THE LATEST PHASE OF THE TRYPSIN TREATMENT OF CANCER.

*To the Editor of* THE MEDICAL PRESS AND CIRCULAR

SIR,—My attention has been drawn to a book published by Dr. C. W. Saleeby entitled "The Conquest of Cancer."

I feel bound to take some notice of this publication by reason of the fact that certain misrepresentations distributed throughout the book have been made in regard to my introduction of the method of treatment of inoperable cancer by trypsin, and the considerations which led me to it.

This is a book which purports to inform the public respecting the views now held by the scientific workers of the profession as to the present position of the cancer question, and the method adopted by the author of carrying out this design is that of abusing everyone who does not happen to agree with himself or Dr. Beard.

I do not deem it necessary to re-discuss the question of priority so far as the introduction of the trypsin treatment of cancer is concerned, inasmuch as my claims have been recognised by independent observers in the scientific Press of this country (vide *Nature*, January 10th, 1907).

But Dr. Saleeby would have his readers believe that Dr. Beard first suggested the treatment, and that I only employed or advocated it. After referring to a paper read by the latter in Edinburgh on December 13th, 1904, an abstract of which was printed in the *Lancet* of February 4th, 1905, he goes on to say:—"Only a few weeks after Dr. Beard's lecture, Dr. Shaw-Mackenzie began the hypodermic use of trypsin in cancer, and to him undoubtedly must be awarded the credit of being the first physician to employ the new treatment. . . . My purpose is to illustrate the conditions under which discoveries are made, and I will here quote from a private letter of Dr. Beard to myself:—'At once, December 8th, 1904, I got all my

critical period preparations . . . and saw at once that I had neglected to lay stress as a character of the critical period on the commencing functional activities of the pancreas gland. So the problem was solved so far. The other thing is a later story. At once I saw there must be an antithesis of ferments, but was not aware whether any ferment had been described in the cancers. . . . January 18th, 1905. . . . Then it was you might have heard my heart thump. All was exactly as I had foreseen. . . .' This letter was not sent for publication, but I have taken the liberty of putting it on record for its personal and general interest."

It was on December 8th, 1904, as published by me in the *Lancet*, February 11th, 1905, I commenced investigations into the action of pancreatic and other ferments on glycogen. The considerations which led me to this were known to many, and published in a pamphlet of mine in October, 1904, in the *British Medical Journal*, January 7th, 1905, and the *Lancet*, January 14th, 1905; but I will here take the liberty of quoting from a letter of Dr. Beard to myself dated December 7th, 1905:—"When you get this letter on December 8th, it is a year exactly since you and I independently arrived at the trypsin idea. . . ."

The strenuousness of the efforts displayed by Dr. Saleeby in the lay Press, no less than in his book on behalf of the claim of another, must clearly demonstrate to any impartial person the weakness of his cause. If anything more was required it is the attempt to submit my work to destructive criticism. It is repeatedly reiterated that trypsin has no action on glycogen. "There is no ferment," he says, "which affects both proteids and carbohydrates, such as glycogen." This is simply begging the question. Observers of old regarded glycogen as starch in proteid combination, and the purest glycogen obtainable still contains nitrogen. Moreover, the action of the proteolytic ferment rather than the amylolytic was and is supported by the fact recently and independently testified to that glycogen exists in the living tissues as proteid-glycogen. Dr. Saleeby mentions Dr. Odier's work. He does not mention that in growths treated with a mixture of pancreas, liver and muscle extracts, coincident with atrophy of cells, histological examination has shown them to be deprived of glycogen. Drs. Saleeby and Beard attribute any action on glycogen to the leucocytes, forgetful that the digestive properties of these are attributed to a proteolytic ferment apparently iden-

tical with trypsin. This additional aid of the leucocytes and increase has long been recognised, and found expression in hypodermic injections of chian turpentine introduced by Col. T. Ligertwood, C.B., M.D., and myself three years ago. Most suggestive of the action on glycogen at the present time is that the pancreas produces an "activator substance for a glycolitic enzyme contained in other tissues." Whatever the explanation, it is obvious the glycogenic nutrition of cancer may be interfered with, whatever the precise nature of the cell proliferation, be it epithelial or "trophoblastic."

Again, while my theory of cancer by analogy with diabetes is noted, no mention is made of the clinical fact of alternation of diabetes and cancer in different members of the same family, which directly led me to the inference that if, as is well known in certain cases, diabetes is a pancreatic disease with defective ferment action, so also might carcinoma be. He notes my suggestion of premature ageing of the pancreas, only to reject it, and to advance on his own account a shortage of trypsin from "whatever cause." In this respect readers of my work will know that, in referring to the age incidence of cancer, I suggested also congenital imperfections, and in referring to cases of spontaneous cure I suggested the removal of inhibitory—*e.g.*, mental, nervous, trophic or chemical causes temporarily interfering with either the general or local supply of the proteolytic ferments.

I pass on to chapters on the preparations of the ferments and the details of treatment. Is there anything here which is not known or indicated in my book? Injections of trypsin were first prepared by Mr. F. W. Gamble, for me. Of early cases treated, two at the present time are apparently in good general health. 2½ and 2 years, whether it is due to treatment or not. The injections were sent to Dr. Beard, at my request, by Messrs. Allen and Hanburys for the purposes of Dr. Beard's experiments on mice, and full information and composition were given by me. As for technique and details of treatment—"hypodermal, oral, and local"—these were fully published by me (*a*), and Dr. Saleeby's recommendations are, so far as I can see, for the most part adopted from my work without acknowledgment. He differs essentially in the importance he attaches to amylopsin and in the additional recommendation of amylopsin injections.

(*a*) "The Nature and Treatment of Cancer" (Fourth Edition). By J. A Shaw-Mackenzie, M.D.Lond. London: Bailliere, Tindall & Cox.

I imagine that most persons will find the most effective commentary upon this and upon questions of the strength of trypsin solutions discussed by Dr. Saleeby, in a paper by Dr. Hald, of Copenhagen, published in the *Lancet*, November 16th, 1907, (*a*) in which the author shows that the so-called solutions of amylopsin actually contain an abundance of proteolytic ferment, and in which paper also the author independently establishes the potency of British tryptic preparations.

Yours faithfully,

J. A. SHAW-MACKENZIE, M.D.Lond.

[We have already accepted the evidence in favour of Dr. Shaw-Mackenzie's priority of claim to the trypsin treatment of cancer as established. Dr. Saleeby has not favoured us with a copy of his book for review.—ED. M. P. AND C.]

---

(*a*) Comparative Researches on the Tryptic Strength of Different Trypsin Preparations, and on Their Action on the Human Body." By P. Tetens Hald, M.D.