

THURSDAY, FEBRUARY 4, 1909.

A SURGEON AND A PATHOLOGIST ON
CANCER.

- (1) *The Natural History of Cancer, with Special Reference to its Causation and Prevention.* By W. Roger Williams. Pp. xiv+519. (London: W. Heinemann, 1908.) Price 21s.
- (2) *Lectures on the Pathology of Cancer.* By Dr. Charles Powell White, Pilkington Cancer Research Fellow. Pp. vii+83; 33 figures. (Manchester: University Press, 1908.) Price 3s. 6d. net.

(1) **T**HE author of this volume has contributed extensively to the literature of cancer from 1882 onwards. Both from the scope and from the duration of his inquiries into the various manifestations of this disease in man, he would certainly seem to have earned the right to express opinions to which other students of the subject must give consideration. The volume contains an immense amount of material, partly the harvest of the author's own experience and partly culled from the literature of the subject. This rich collection of facts, with complete references to the original sources, while evidence of the wide reading of Mr. Williams, must also make the volume valuable in the limited spheres of which it treats as a book of reference for workers on cancer.

Unfortunately it has not been the author's desire to make the compilation and digest of much of the literature of cancer the main purpose of his book; indeed, in this field he has been forestalled by a masterly digest of the literature, which is at the same time an admirable history of the advance in knowledge of cancer, by Dr. Jacob Wolff, "Die Lehre von der Krebskrankheit" (Jena: Fischer, 1907). Rather would the author direct attention to what he is pleased to stigmatise as "the extraordinary concatenation of blunders with which the history of the experimental study of cancer is cumbered," and to the "stagnation of comparative pathology." These serious charges are made because Mr. Williams's "work has hitherto received no recognition from contemporary pathologists occupied with various will o' the wisps," and because his voice has been crying in the wilderness since 1888, when, by the publication of "The Principles of Cancer and Tumour Formation," he attempted to "repair Virchow's error, by laying the foundation of a modified cellular pathology, in harmony with modern biology."

The author is at his best when dealing with the clinical course and the pathology of the disease in man, of which, as a surgeon, he has ripe experience; but most of what he has to say of value appeared in "The Twentieth Century Practice of Medicine," vol. xvii., 1899. It is to be regretted that in the fields of general biology he exhibits that combination of imperfect knowledge and intolerance of the conclusions of workers in spheres outside his own, which, only too frequently, have been features of the contributions of a few other authors who during the past three years

have settled the problems of cancer to their own satisfaction in almost equally bulky volumes.

Mr. Williams is obviously not equipped to deal with the natural history of cancer in the wider sense. Analogies between lumps of tissue in the higher plants and in the higher animals have no dangers for him in a chapter on "Tumours in Vegetable Organisms," at the end of which he refers the Acari to the order Insecta. On p. 205 he writes:—

"It has recently been demonstrated by Boveri and Delage, that denucleated eggs of the sea urchin can be fertilised, when they give rise to the normal gastrulæ and larvæ; so that . . . the nucleus is not the sole vehicle of heredity."

Of course, Boveri's experiments led to quite the contrary conclusion. They demonstrated that the gastrulæ had the characters of the strange species introducing the male nucleus. Mr. Williams's prejudice in favour of his own case is well illustrated by his allusion to Darwin and Haeckel as "the great lieutenants" of Herbert Spencer, and by his bald statement (p. 357), "I also believe that acquired characters are hereditary." "The phenomena of parthenogenesis are of much interest, as representing a transition from sexual to asexual reproduction," is another positive statement of a dubious validity (p. 207). His main argument is that the frequency of cancer goes hand in hand with the average well-being. The inhabitants of Norway—among whom the death-rate from cancer is about the highest in Europe—are *therefore* pictured as the best nourished in Europe. Any Norwegian or Swede would have informed the author that his assumption is erroneous. Referring to the frequency of cancer of the skin of the abdomen in Kashmir (p. 36), where a charcoal oven is worn round the waist, he asserts that "the disease is probably more akin to keloid than to cancer, and, like the former, it is probably due to microbic infection." As a matter of fact, the disease is well known to be cancer of the skin, to form secondary growths in the adjacent lymph-glands, and to follow prolonged chronic irritation.

These and many equally erroneous dogmatic statements, together with the violence of his language when referring to work—biological, pathological, statistical and experimental—incompatible with the views Mr. Williams holds, show that he is unable to interpret his facts without prejudice. It is not surprising, therefore, to find that many of the major problems of cancer which still await solution are, for the author, matters no longer admitting of discussion. Indeed, in his preface he claims:—

"I have devised a new method of cancer research—which may be called synthetic—whereby I have shown that there are modes of life, various habits and so forth which tend to prevent the incidence of cancer almost entirely in healthy stocks, and greatly to reduce its ravages even among the hereditarily disposed."

The volume contains not a particle of evidence to justify this claim, which is all the more deplorable in that the author goes out of his way time and time

again to pour ridicule on the reasonably substantiated claims of other workers to have made some slow progress by the application of the experimental method, but who, more modest than himself, still remain *non magistri sed discipuli naturae* in regard to cancer.

(2) Dr. Powell White's volume is in many respects an antithesis to that of Mr. Roger Williams. A pathologist by profession, his aims and methods are entirely different. The volume does not profess to contain the whole pathology of cancer, and it is a model of scientific self-restraint. Unlike Mr. Williams, Dr. White extends a whole-hearted welcome to recent experimental work. In four chapters the author covers in simple language much that is of main interest in the present phase of investigation of cancer, the study of which he rightly insists may not be separated from that of tumours generally. To this end he classifies tumours according to their histological structure and relation to normal tissues, and dismisses a classification based upon embryological conceptions as unscientific and useless. He then proceeds to discuss the rudiment of origin, the mode of growth and extension, the clinical features, and the relations of cancer to organisms attacked. In the latter connection it is pointed out that in studying questions of metabolism in individuals naturally attacked, it is difficult to separate the effects of the cancer *per se* from those due to the disturbance of the organ affected. The author is no doubt aware that when cancer is implanted into normal animals this complication is got rid of, and the effects of cancer *per se* obtained pure. Mr. Roger Williams and Dr. Powell White agree that there does not appear to be any specific cancer toxin, and in conformity with modern conceptions "cachexia," or wasting, is regarded as a secondary accidental consequence, and not as a necessary antecedent or concomitant constitutional condition. Original and suggestive work is recorded on the occurrence of cholesterol, fatty, and other crystals in cancer and in the adrenal cortex, and it is hinted that cholesterol plays some part in the regulation of cell proliferation.

The longest chapter in the book is devoted to causation. The evidence for and against extrinsic and intrinsic causation is discussed. A congenital origin is discarded, and a parasitic causation rejected as being entertained mostly by surgeons and bacteriologists who do not appreciate the pathological and biological difficulties which the hypothesis involves, and because, while its upholders never think it necessary to answer the criticisms against it, they continue to bring forward the same old arguments in its favour. This may be too sweeping a criticism of all the work done on the hypothesis that cancer might be a parasitic disease, for, although negative, this work certainly cleared the air, and those who have participated in it have done perhaps more to prove one another wrong than many pathologists who have persistently played the part of scoffing spectators. Still, we entirely agree with Dr. Powell White that the term parasitism can be applied only to the biological behaviour of the cancer cell itself; any further analogy

with the processes of known forms of infective disease is certainly erroneous.

The author considers that extrinsic factors long known to play a part in the causation of cancer are adjuvant, and not essential, factors, and in defining the intrinsic causative factors he comes to the conclusion that a tumour arises from a disturbance of a position of unstable equilibrium between the proliferative forces within the cell and the antagonistic influences of the neighbouring cells. In short, the author seeks his explanation vaguely in the continued removal or diminution of the influences which restrain proliferation, in a disturbance of what is defined as "physiological equilibrium." The phrase physiological equilibrium, when applied to the phenomena of cell life, is, however, just one of those phrases which, while appearing to define something, really defines nothing. It is merely a vague re-statement of the problem, and disregards the fact that the cell is really a very complex mechanism of the component parts of which and their inter-relations we are continually learning more. Dr. White alludes to the progress that is being made by the experimental study of cancer in mice, and incorporates many of the results as bearing upon cancer in man. Now that it is possible to study the life-history of the cancer-cell experimentally, we may hope that ere long Dr. Powell White's vague explanation may be replaced by some more precise definition of the mechanism responsible for the ceaseless proliferation of cancerous cells, in regard to which, and its relations to constitutional conditions of the body, already much that is new is being learned. The volume, which is the outcome of work generously endowed by Mrs. Pilkington and encouraged by Prof. Lorrain Smith, is well illustrated with statistical charts and photomicrographs, and its perusal must prove profitable to all who wish to be brought up to date in the biology of cancer. E. F. B.

MAN'S ANCESTRY.

Unsere Ahnenreihe (Progonotaxis Hominis)—kritische Studien über phyletische Anthropologie (Festschrift zur 350-jährigen Jubelfeier der Thüringer Universität Jena und der damit verbundenen Übergabe des phyletischen Museums am 30 Juli, 1908). By Ernst Haeckel. Pp. iv+58; 6 plates. (Jena: Gustav Fischer, 1908.) Price 7 marks.

DURING the last four decades Prof. Haeckel has so often sketched a hypothetical genealogical tree representing the series of man's supposed ancestors, stretching right back to the remote Protozoa, that his name as the author of a treatise bearing the title at the head of this column will convey to most readers a very precise idea of the general nature and scope of the work.

The book, in fact, is a new edition of the familiar story of man's "phylogeny," brought up to date by the incorporation of many of the results of recent morphological and anthropological research, such, for example, as Semon's, Schwalbe's and Klaatsch's work. That it is embellished with a rich profusion of characteristic new terms is not surprising, when