

are attempting to repudiate. In these circumstances it is not without a sensation of amusement that we offer them our opinion upon this matter, since it may deliver them from the horns of a dilemma between which they are at present absolutely pent up. We have never encountered anything in the least suggesting the fusions they have described and the figures and preparations of this process they have hitherto exhibited would convince no one who, having dealt with similar cytological matters, is familiar with the immense difficulty of observation and the abundant sources of misconception that are involved. On the other hand, the extraordinary behaviour of certain leucocytes in the earliest examples of malignant growths appears to supply this missing term in the gametoid theory. They are, however, wholly dissimilar in nature and position to the processes referred to above.

Here, again, we would gladly have broken off and left others to form their own opinion of the final passages of this singular report, but since in these general biology is involved it seems necessary to lodge some protest against statements the true perspective of which may not be apparent to those who have assailed the cancer problem from its medical approach. It is here, moreover, that a curious unintelligibility often characteristic of the verbiage of the report breaks into full bloom. For example, on page 95 we read:—

Circumscribed nature of primary areas or area.

Proved to be an adequate explanation, by the reproduction of all the characters of sporadic growths by transplanted tumours.

On the left we have a statement posted as embodying an attribute of cancer. In the comment on the right this attribute is said to be an explanation of itself. One has encountered the apostle of the obvious but without exaggeration the present statement is equivalent to saying:—

Copper kettles have the characters of kettles made of copper.

Proved to be an adequate explanation by the production of copper kettles out of copper.

Again, on the same page—

Power of continuous growth.

Experimental propagation is a manifestation of this power of the parenchyma. Its unlimited nature has been revealed by propagation, and indicates that an explanation of the amount of growth which suffices to kill the individual primarily affected, may be inadequate to explain the power of cell division which resides in malignant tissue as such.

We freely admit our limitations and state frankly that much study has failed to enable us to make out any kind of meaning in what is written in the right-hand column. One can only protest again that continuous growth is *not* a special character of cancer cells.

Again, on the same page:—

Infiltrative and destructive character.

Shown to be separable from mere growth of which it is probably a consequence.

To most people the assertion that thing B is a consequence of thing A implies that they are bound together, while mere growth, as in the case of a fibroma, does not of itself endow cells with the properties of infiltration and destructiveness.

It would be quite unnecessary, and certainly tedious, to go further, and there remains only the necessity to draw attention to one final passage of the report in which the author says:—

The fresh light thus thrown on all the features of cancer has enabled us to prove what has long been surmised. The attributes of cancer are the mere co sequences of its growth, which is its only constant property.

There is a triumphant and prophetic ring about the former of these statements, yet we have looked in vain through the pages of the report for the promised light. All that one finds is, "The attributes of cancer are the mere consequences of its growth"! We readily credit Dr. Bashford with the possibility that this sentence as it stands does not express his actual meaning. If it does we can only remark that it appears to be a wholly erroneous assertion. Surely the reducing divisions, the existence of "Plimmer's bodies" corresponding to the archoplasmic vesicles of sperm cells, and so on, are all attributes of cancer, but in what possible way can these be regarded as "mere consequences of its growth"? The statement is unintelligible.

In conclusion, let us, however, say that we regret, as much as any of your readers can do, the necessity for these

criticisms, and that though sorely tempted we have endeavoured to keep what has been said within the limits of propriety. Some explanation is, however unavoidable. The reports of the Imperial Cancer Research Fund are widely read and nothing sticks like the mud of misconception when it is allowed to creep unchallenged into the publications of what ought to be an authoritative source.

We are, Sirs, yours faithfully,

J. E. S. MOORE,

Director of the Cancer Research, University of Liverpool.

July 10th, 1905.

C. E. WALKER.

THE PRINCIPLES OF HEREDITY.

To the Editors of THE LANCET.

SIRS,—In his recent Romanes lecture, entitled "Nature and Man," Professor Ray Lankester (page 28 and note 7) points out that in extra-human nature disease is a minor phenomenon; that individuals alone survive who can tolerate disease without injury, thus establishing immune races; that diseases are unknown as constant and normal phenomena except in man and domesticated races; that when diseases do become prevalent in nature they have been introduced by man or his domesticated herds. Thus the trypanosome lives in the blood of wild game and rats without producing mischief: the hosts are tolerant of the parasite. It is only when domesticated races are introduced, say into Africa, that disease becomes mischievous, so much so as in some regions to exterminate the big game. The disease does not establish itself as a scourge against which the diseased organism incessantly contends. It either obliterates its victims or settles with it into relations of reciprocal toleration.

In dealing with malaria Mr. D. M. Eder¹ says that it was formerly prevalent in England and that it is not now so presumably because, if Dr. Archdall Reid's reasoning be correct, the food-supply of the parasite has been exhausted and thus all Englishmen should be immune. That they are not immune is proved by Englishmen still suffering from malaria in our colonies. Without questioning what extent of England formerly suffered from malaria, nor whether the banishment of the disease is due to drainage, one is led to question whether Mr. Eder has really tried to understand the subject. Dr. Reid has pointed out that there are two diseases (tuberculosis and leprosy) immunity against which is inborn. For the other zymotics evolution has proceeded along lines of "an inborn capacity of acquiring capabilities for making resistance." This does not imply that those who are capable of acquiring immunity are insusceptible to infection. What it does imply is that those who have this power, other things being equal, are more likely to survive and continue the race. Nay, more, Dr. Reid has explicitly stated that though immunity against malaria may be acquired it is swiftly lapsed and thus re-infection is perhaps the normal condition. That immunity is not a question of food-supply is proven by microbes flourishing in the serum withdrawn from the body of an immune animal. As presumably each individual in West Africa suffers from malaria Mr. Eder's argument as to the food-supply breaks down. Again, surely Mr. Eder forgets or ignores the law enunciated by Dr. Reid that sexual reproduction is for the production of regression and if this is so how can a race become so immune that any disease by which it was formerly afflicted dies out?

Mr. Eder, in support of his contention that the Spaniards of unmixed descent are heavy drinkers—that is, drink for the mental effect—quotes the British Vice-Consul as saying "that intemperance is general among the working classes" of Oruro, Bolivia.² Yes, but Mr. Eder forgot to quote the preceding sentence that "the *half-breed* is the labourer of the country." With regard to the Jews Mr. Eder's experience seems to be unique. It is certainly the opposite of my own many years ago in Old Ford, and it is the opposite of those who practise largely in the Jewish district in Liverpool. If Mr. Eder has met so many Jewish alcoholics surely others must have met them also. Against a mass of evidence that can be adduced we have Mr. Eder's assertion. Which are we to believe?—I am, Sirs, yours faithfully,

Liverpool, July 9th, 1905.

C. R. NIVEN.

¹ THE LANCET, June 17th, 1905, p. 1676.

² THE LANCET, June 17th, 1905, p. 1686.