Abyssinian campaign, 1867-68 (medal); and in the Zulu campaign, 1879, when he was pre-ent at the battle of Ulundi (mentioned in despatches, medal with clasp). Deputy Surgeon-General Semple was unmarried and, owing to his modest and retiring habits, was a man of far more learning and culture than might have been supposed by those who did not know him well.

THE QUEEN AND THE RED CROSS.

It having been recently decided, at the suggestion and under the auspices of their Majesties the King and Queen, that it was most desirable to form a new Red Cross Society, in view of coördinating all existing societies which are concerned with the succour of the sick and wounded in war, a council under the presidency of the Queen has been appointed for that purpose. On the occasion of the first meeting of this council at Buckingham Palace on July 17th, at which the Queen personally presided, Her Majesty made a very graceful speech setting forth the nature and the objects of the new scheme. The Queen appealed to all the women of the empire to assist in carrying it out on the ground of its being essentially a woman's mission and work and the only practical way in which they could lend aid and succour to the army and navy in time of war. The purpose of the new movement is to incorporate the Red Cross Society, established some 35 years ago, with the National Aid Society. There is no need at the present time to set forth the vast benefits which have accrued from such societies. Their aims naturally appeal to our instincts of humanity. But to get the best obtainable results from them it is essential that there should be careful preparation and organised unified effort beforehand. The council appointed by their Majesties, under the presidency of the Queen, has Lord Rothschild as chairman and Lord Knutsford, Lord Esher, Lord Cheylesmore, and Mr. A. K. Loyd, M.P., as vice-chairmen.

THE QUEEN'S VISIT TO THE ARMY HOSPITAL, MILLBANK.

The Queen paid a surprise visit to the military hospital at Millbank on the afternoon of July 18th. Her Majesty was accompanied by their Royal Highnesses the Princess Victoria, the Duchess of Sparta, and Princess Frederick Charles of Hesse. The Hon. Sidney Greville was in attendance.

MEDICAL HISTORY SHEETS IN USE IN THE ROYAL NAVY.

In view of the importance of the medical history sheet for the purpose of diagnosis and of deciding claims for pension or gratuity in the case of invaliding the Admiralty has approved of the following rules being observed for the better security of these documents: "1. The medical history sheet should always accompany the parchment certificate until the man has been discharged from the service, when the history sheet should be sent to the Medical Department of the Admiralty. If a history sheet is missing the fact is to be at once made known to the ship or depôt whence the history should have been received, which will be held responsible for its being replaced. 2. All ships, depôts, and hospitals not already having them will in due course be supplied with locked cupboards, with pigeon-holes alphabetically arranged, for the custody of the medical history sheets. 3. Medical history sheets are never to be allowed in the possession of any petty or non-commissioned officer, man, or boy. 4. At inspections the senior officer is to insert on the paper of inspection a note as to whether the rules respecting medical history sheets are properly observed."

THE WAR IN THE FAR EAST.

All that need be said regarding the news, which is mainly of a military and non-medical nature, from the theatre of war is that the island of Sakhalin is once more in Japanese hands, that General Linievitch's forces in Manchuria are stated to have been reinforced strongly, that Marshal Oyama's forces still remain relatively inactive, and that their Russian adversary is said to have relinquished the idea of making a big offensive movement in favour of one of a defensive character and has accordingly been concentrating his efforts in strengthening the works and position in this respect. It is feared that the railway from Harbin to Vladivostok will be cut within a short time by the Japanese. The heat is at present described as being great and the rainy season, so inimical to any active military operations, has set in. So far as we have any statements about the sanitary and health conditions of the enormous armies in the field the soldiers comprising General Linievitch's forces are said to have been suffering

of late a good deal in health but the accounts are conflicting and untrustworthy. There would seem to be a widely prevalent and possibly growing feeling of disaffection and unrest in Russia and Russian Poland, and it is not to be wondered at that under existing conditions fears of coming famine and epidemic sickness have been expressed. Meanwhile arrangements are going on for the projected peace conference with varying statements from time to time, hopefully confident or otherwise, as to their progress.

Correspondence.

"Audi alteram partem."

SCIENTIFIC REPORT OF THE IMPERIAL CANCER RESEARCH FUND.

To the Editors of THE LANCET.

SIRS,—It is in no way our present purpose to comment upon the long statistical sections of the report recently issued by the executive committee of the Imperial Cancer Research Fund, for these, though of no special import in the present, will undoubtedly be useful at some future time. In the concluding paragraphs, on the other hand, we find what professes to be an epitome of the work of various authors, and here the matter is of a very different kind. The General Superintendent of Research produces a number of short statements which are intended to convey, for reference and for study, the conceptions of individual investigators, and these are prefaced by the following remarks:—"It will serve to delimit the directions in which the explanation of the growth of cancer must be sought if we review the various theories and hypotheses which still find currency as explanations of the nature and origin of cancer, and incidentally of its powers of growth." That such an undertaking is desirable no one is likely to dispute, but in order that it may have any value it is necessary that it should be not only an accessible, but also an accurate, statement of the works with which it deals. In view of the importance of the last condition it consequently appears necessary to draw the attention of your readers to the manner in which it is fulfilled in what professes to be a statement of the conceptions of Professor J. B. Farmer and ourselves regarding the "gametoid" nature of malignant growths. In thus limiting the discussion it is not in any way implied that we agree with the preceding matter of the report. We desire simply to draw attention to the character of a single section. After quoting a portion of a preliminary communication made in 1903 in the Proceedings of the Royal Society and without any reference to subsequent papers by ourselves, the General Superintendent proceeds as follows:—

The views Prof. Farmer and his colleagues have elaborated amount to stating that malignant new growths arise by the transformation of the differentiated body tissues into reproductive tissue of modified character, which they specify by the term "gametoid," to distinguish it from the true gametogenic or reproductive tissue. They ascribe powers of proliferation, independence, and malignancy to this "gametoid tissue," which *quâ* its character as reduced tissue, i.e., with half the somatic number of chromosomes, behaves as a parasite to the surrounding tissues. They particularise their meaning by drawing an analogy with what they have described in apospory, where the new prothallus (reduced tissue) is said to eat its way backwards along the fern frond from which it has arisen: they describe in detail in a malignant new growth three zones of cells corresponding to the spermatogonia, spermatocytes, and spermatids of the testis.

Firstly, then, and this is a very minor point, we are stated to ascribe the origin of malignant new growths to the transformation of differentiated body tissues into reproductive tissue of *modified* character. That is to say, we regard cancerous tissue as transformed reproductive tissue, for to be "modified" is to be altered or transformed. We may say that we never entertained any such idea. What we did say was that on the assumption of malignancy, tissues presented some of the characteristic features of reproductive cells—i.e., heterotypical and other mitoses with reduced numbers of chromosomes. In itself the use of the term gametoid implies that we regard these cells of malignant tissue as like, but not identical with, reproductive cells. Secondly, we are said to ascribe powers of proliferation, independence, and malignancy to gametoid tissue. We make no such general postulate. For anything that our observations indicate, gametoid tissue might, and possibly

does, exist without any of these properties. That the particular gametoid tissue associated with cancer possesses them no one, we think, is likely to dispute. Thirdly, it is stated that "they particularise their meaning by drawing an analogy with what they have described in apospory where the new prothallus (reduced tissue) is said to eat its way backwards along the fern frond from which it has arisen." With regard to the first part of this statement the General Superintendent is obviously under some misconception. We have never made any original contributions to apospory in this relation. The phenomenon has been generally described by Professor Bower and others. It is well known to fern fanciers and Dr. E. F. Bashford is apparently not acquainted with the fact that prothallial tissue is sometimes formed without any reduction taking place. With regard to the latter part, we have pointed out that in different parts of certain tumours cells of somatic, heterotype, and homotype characters are markedly in evidence, which is something very different in form and in substance from the above assertion. Besides which, all these facts were subsequently confirmed by the observations published by the Superintendent of Research himself. Fourthly, it is stated that:—

An integral part of their explanation of cancer is based upon their view that the reproductive tissues proper arise merely by a transformation of somatic tissue. A similar change occurring at abnormal sites and times gives rise to the modified reproductive (gametoid) tissue, which is cancer.

To begin with, the discovery that reproductive tissue arises by a transformation of somatic cells is in no way due to us. In the young soma of various animals the reproductive tissue becomes differentiated from it at various periods. With regard to the latter part of the above statement, we never supposed, since it does not appear to be the case, that similar changes in abnormal sites necessarily give rise to cancer, for example, Bidder's organ in the male toad. It will thus have become obvious that instead of the epitome of the gametoid theory contained in the report under consideration presenting an accurate statement of our views, of the four principal statements into which it is divisible it may be said: The first is inaccurate. The second is inaccurate. The third and fourth are equally inaccurate and that together they constitute nothing more nor less than a complete misrepresentation of the position we have taken up.

These somewhat necessary corrections having been accomplished we would gladly have left the whole report for some more edifying occupation, but, as will be found in its concluding pages, the General Superintendent posts up a number of alleged characteristics which *he definitely states* collectively embody the fundamental characters of cancer and to which all hypotheses and theories whatsoever must necessarily conform. Without more than stopping to suggest the fact that where observations do not agree with the alleged characteristics of anything it is generally so much the worse for the alleged characteristics, we append these statements as they stand with the author's comments upon his own misrepresentation of our views on the right-hand side and lettered A to H for reference.

A. Circumscribed nature of primary area or areas.	This was not clearly realised by the authors. The hypothesis implies a progressive transformation of somatic into modified reproductive tissue.
B. Relative independence.	Tissue, with half the somatic number of chromosomes has this property in plants, and independence is postulated for the similar tissue alleged to constitute the essential part of malignant new growths.
C. Power of continuous growth.	Postulated for the "gametoid tissue" of cancer.
D. Infiltrative and destructive character.	The authors recognise an analogy for the infiltrative and destructive character of cancer in the similar behaviour of tissue with half the normal number of chromosomes in plants, and at the same time admit that the infiltrating margin of malignant new growths in man consists of cells with the normal number of chromosomes.

Metastasis formation.

E.

It is said to be due to the continuous introduction of cells which have undergone the change into "gametoid tissue."

Age incidence.

F.

This is not explained by the hypothesis.

Single differentiation.

G.

This has not been realised by the authors. The cells are stated to assume the appearance of indifferent germ tissue.

Transmission with all its limitations.

H.

Its limitations and nature are not taken into account. Actual contact. Continuous introduction of cells. Continuous application of suitable stimulus under very peculiar conditions.

(A) This was, and is, one of the characters of cancer with which we have been primarily concerned. After much consideration we are not clear what hypothesis is meant, but no suggestion of ours implies anything of this sort.

(B) Tissue with half the somatic number of chromosomes has sometimes, but not always, this property in plants. Reduced tissue is not regarded by us as constituting the essential part of malignant new growths.

(C) Power of continuous growth is not a peculiar property of cancer. Poplar and pear tree grafts exhibit it admirably. Consequently, in accordance with the dictates of prudence and discretion, no such postulate was made by us. In this connexion one may go further. The unlimited powers of growth, recognised by everyone in cancer, are paraded through the long length of the report as one of the chief attributes of the disease and the discernment of it as one of the chief results of the work in the laboratory of which Dr. Bashford is in charge. To us this so-called discovery seems nothing better than a needless recognition of what has been known to biologists for years.

(D) This paragraph might stand, but it would be better were the word "state" substituted for the word "admit."

(E) No statement that we have made involves "continuous introduction of cells."

(F) One was under the impression that the researches of Maupas, Hertwig, and others on the senility occurring under certain conditions in protozoan swarms brought this matter into conformity with the interpretation that we have put upon our observations.

(G) This matter was fully considered and whether as in some cases the cells do or do not assume the characters of young tissues is from our point of view of no importance.

(H) Its limitations are interesting in themselves, but in no way affect our position.

It might seem that since the epitome of the gametoid theory was previously shown to contain nothing but an inefficient travesty of the views it professes to portray comment upon the involved statements in the above table was unnecessary. A little consideration will, however, show that this is not the case. In the table hypotheses attributed to us are criticised in relation to a number of formulæ, some of which, like the continuous growth statement, have no significance and all of which are open to the most obvious objections. Consequently it is most necessary to make clear the manner in which assumptions that are not ours are made to appear as if governed by criteria we should instantly repudiate. In other words, the Superintendent criticises as ours statements we never made, and then tries them by tests which, had we made such statements, we should certainly not admit as having any value. Moreover, it appears that Dr. Bashford cannot have apprehended the logical termination of his own assertions. It should be pointed out that, provided his own observations upon the alleged fusion of the nuclei of cancer cells be valid, his acceptance of the gametoid theory is a logical necessity. Such fusions, preceded by the heterotype and homotype mitoses we originally observed, observations which he himself has subsequently figured and confirmed, are without meaning unless the original tissues in which reduction has occurred are assumed to have acquired the characters of reproductive elements, to be able to fertilise each other—that is, to have become gametoid in process.

Either Dr. Bashford and Dr. J. A. Murray are wrong in their observations upon nuclear fusion, or they have themselves produced the trump card in the gametoid theory they

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.