maternal blood during the first seven weeks of gestation would bring this to a close by destroying the trophoblast. In the test as applied to cancer, a tryptic ferment such as trypsin cannot be concerned, owing to the well-known antitryptic properties of the blood in most, if not in all, cancer cases. To this ferment I gave the name of "malignin." If, however—which is impossible—the ferment in Dr. Lowy's cases were trypsin produced by the organism as a reaction to the cancer, the argument for the use of pancreatic ferments in all cancer cases would be all the more cogent. But what at the moment I am concerned with is that Dr. Lowy has confirmed, and to the hilt, the truth of my conclusion that cancer is "an irresponsible trophoblast." One might state this in another way—that cancer and trophoblast are identical.—I am, etc.,

Edinburgh, Feb. 28th. J. BEARD.

THE NATURE OF PREGNANCY.

SIR,—I fear there is at present little possibility of agreement between my friend Dr. James Young and myself. Quite prepared for argument, I am, however, surprised at the focus of our difference.

Frankly, I know nothing of the "philosophical" aspects of an antigen (to which his letter is largely devoted), but at the same time I incline to the belief that Dr. Young is scarcely in a position to discuss the immunological bearings of an antigen.

I do not wish unnecessarily to repeat the points of my last letter, but I must, I see, again insist that the first question to be settled is the actual occurrence in pregnancy of complement fixation and sensitization reactions. If Dr. Young denies these, it will then be possible to discuss the matter on the basis of his reasons for this denial. But, if he can be brought to admit them, I think he may be safely left to the tender mercies of any and every expert immunologist. He will be told that he fails to draw sufficient distinction between an immunity reaction (which may no doubt be accompanied by very complex hormonal alterations) and a simple hormonal reaction—as is evidenced by his association of antibodies and the secretion of milk. He will be told further that the body is not haphazardly lavish with its production of acquired antibodies, and that such a development has never been known to occur except there be some alien material, living or dead, adversely affecting it.

I see no evidence in Dr. Young's letter that he has appreciated the evidence in favour of a subdivision of the ovum into an antigenic part (the trophoblast) and a non-antigenic part (the fetus). He is of the opinion that in considering the relationship it is better to avoid any argument drawn from details. Quite apart from the question of what is detail and what is not detail, this is surely a strange doctrine to come from one who has done so much invaluable histological work as Dr. Young.

He considers the "local suffusing of the tissues with blood and fluid" to be a ready physiological response and to indicate maternal willingness; but I must ask him in what light he views the same phenomenon when it occurs after the admission of streptococci, let us say, beneath the epithelial surface barrier. The work of Loeb and others, too, on the artificial production of the maternal placenta discounts much of his detailed argument.

Finally, I must ask him to re read my letter, when he will find that the only brief I hold for nomenclature is one which pleads that the condition shall be regarded, and if necessary treated, as an instance of an immunity relationship The words "parasite" and "disease" have merely served as a medium for attempting to express in non-technical language the interpretation which workers in immunology feel bound to apply to certain of the phenomena which they have demonstrated.—I am, etc.,

Liverpool, March 3rd. H. LEITH MURRAY.

SIR,—To many it must be a matter of lament that the type of address given by Dr. Ballantyne in his "The Nature of Pregnancy and its Practical Bearings" is not more frequent in current medical literature. It seems to lift medicine out of its narrow rut, and push its frontiers into other territories.

Of the three broad views given from which we can regard pregnancy—parasitic, morbid, or symbiotic—that the last should be most welcome to Dr. Ballantyne's philosopher-mind is not surprising.

The first two hypotheses are interesting exercises for thought, as providing similar points in phenomena of different categories, but they have no great value from a sociological or moral standpoint, and it is questionable how far their likeness can be pursued with profit to shed light on the management of pregnancy and its deviations from normal. Now it is highly important to society which of these theories the profession openly supports. The devil can quote scripture, and the laity is not inapt at using medical opinion when it serves its purpose. A woman is scarcely helped to regard pregnancy as a sacred office when science tells her she is merely fostering some low form of life, or that she is a museum of morbidity.

The address, though delivered to a medical audience, contains much that is exoteric, dealing as it does in general with "this great matter of reproduction," as well as technical, and is engrossing from its wide range of treatment of the subject, from precipitins and fixation complements to politics and philosophy, and in the last few lines I fancy I can read in a recognition of some world-principle, the Thing-in-itself of Kant, or some Divine end to which the whole world moves.—I am, etc.,

Bow, North Devon, Feb. 22nd. ARTHUR KING.

THE FALLING BIRTH-RATE.

SIR,—Following the lead of the Registrar-General in his report for 1911, Dr. Amand Routh exaggerates the fall in our rate of increase of population. That year was one of high death-rate, and of correspondingly low increase, owing to the very hot summer. So when the exceptionally low rate of increase in 1911 is compared with the exceptionally high rate in the period 1876–85, the impression is given that the population is rapidly becoming stationary. The following table will show how much the birth-rate and how little our rate of increase have fallen in the last twenty-six years.

	Birth-rate.	Death-rate.	Rate of Increase.
1886-90	31.4	18.9	12.5
1891-95	30.5	18.7	11.8
1896-1900	29.3	17.7	11.6
1901-05	28.2	16 0	12.2
1906-10	26.2	14.7	11.5
1911	24.4	14.6	9.8
1912	23.8	13.3	10.5

What I said in my letter, however, was that "it [the falling birth-rate] is causing no fall in the population's rate of increase"; and the only objection which could be offered to this statement would be that the diminished fertility having been mainly among the fitter classes had caused the slight reduction in our capacity for supporting an increase. Table LXXII of the Registrar-General's report for 1910 gives the rates of natural increase in different countries from 1881 to 1910, and shows that the falling birth-rate in Holland, Germany, Denmark, Austria, Hungary, Italy, Switzerland, and Spain has been accompanied by an actual acceleration of their rate of increase. According to Sundbärg's statistics, the same is even the case with Europe as a whole—a remarkable proof that the falling birth-rate causes no diminution in the population's rate of increase, which depends on the power of supporting population and not of producing it.

The improvement in Holland, and in the physique as well as in the number of its inhabitants, is particularly striking; and if we were to follow her example by helping the poor and the diseased to limit their families proportionately to their means and health, we would probably raise our rate of increase, and certainly improve the quality of our race. Now that practically all but the poor and unfit are limiting their families, every fall of the birth-rate will be accompanied by a corresponding fall of the death-rate; and this will go on until our death-rate reaches that of a sufficiently-fed community—namely, about 9 per 1,000 per annum as in New Zealand. As we

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are able to sustain a rate of increase of at least 10 per 1,000 per annum, it may confidently be asserted that our death-rate will continue diminishing, and our population go on increasing by over 1,300 a day, until the time when our birth-rate will have fallen to 19 per 1,000 per annum. Dr. J. H. Garrett's argument that a declining birth-rate must shortly mean a rising death-rate is based on the mistaken assumption that longevity will remain the same.

Having become convinced that poverty, prostitution, and venereal disease can only be reduced to the minimum by encouraging early marriage and small families, I feel it to be most urgent—on humanitarian, eugenic, and political grounds—that we should take up the subject in a scientific and disinterested spirit worthy of our profession; and I earnestly hope that the many colleagues who are of the same opinion will support this appeal. In conclusion, I would like to draw attention to the article on the falling birth-rate by Dr. J. A. Rigby of Preston in the February number of the *Nineteenth Century*.—I am, etc.,

London, S W., March 2nd. BINNIE DUNLOP, M.B., Ch.B.

SIR,—In the letters on the above subject in your issue of February 28th I see no reference whatever to emigration as a causal factor.

As a general practitioner I may say that in this district I have seen no evidence of prevention of conception amongst the working classes, who are those chiefly responsible for the increase of population.

On the other hand, as medical officer of health, I have seen a population of 15,181 according to the census of 1901, diminished to 14,129 in 1911. During this period the births in the district exceeded the deaths by 1,852; yet there has been a diminution of population.

Births and Deaths for the Ten Years, 1901-10.

	Births.	Deaths.
1901	437	226
1902	407	215
1903	430	189
1904	409	214
1905	407	202
1906	414	175
1907	356	204
1908	322	109
1909	316	178
1910	343	207
	3,851	1,999

It will be noticed from the above figures that the births suddenly diminished when the tide of emigration began in 1907, from 414 to 366, 322 and 316 in the following years. This, I contend, was practically solely due to emigration.

One cannot obtain from shipping agents in the neighbouring towns the much-to-be-desired returns of the ages of all emigrants and the parishes from which they went. It would be invaluable if one could.

I do not wish to contend that unnatural causes have no relation to falling birth-rate in England, but that emigration is the most potent factor in producing it.—I am, etc.,

PRIDEAUX G. SELBY,
Medical Officer of Health Faversham Rural District.

Teynham, Kent, March 1st.

THE PATHOLOGY OF CANCER.

SIR,—In the JOURNAL of February 21st is an article by Mr. D. A. Crow, in which he throws out a suggestion as to the etiology of cancer. His idea is that it is due to an anaërobic parasite, which therefore tends to flourish in tissues with a poor arterial blood supply, such as scar tissue. I thought the parasitic theory of cancer was dead. Cancerous tissue is no more parasitic than the ovum which derives its nourishment from the stroma in which it lies. It comes from within the organism, not from without, and observers are now looking more to bio-chemistry to explain its origin. Even the changes which occur in malignant tumours on exposure to radium are being attributed to chemical action. It is only, however, when the cancer cell is in contact with certain constituents of the blood or lymph that these degenerative changes can take effect (Clifford Morson).

I have elsewhere[1] advanced a theory which will explain better than that of Mr. Crow the relation of age and chronic irritation to malignant new growth. Briefly, it is this: persistent irritation results in the local production of myriads of young and active cells. What is it that keeps these cells from over-multiplying? How is it that the supply is just equal to the demand? Because there is present in the organism a growth regulator, a chemical substance, or rather a combination of chemical substances, which governs the growth and development of the cells. This regulator of cell growth is apt to become deficient after middle age, owing to senile degeneration of the glands responsible for its production. In old age, for instance, we find evidences of deficient thyroid secretion in the inactivity of the nervous system, the yellow appearance and shrivelling of the skin, and the loss of its appendages; the defective nutrition of the osseous system and the gradual return to a state of infantilism indicate failure of the pituitary, and the loss of stimulation of the heart and blood vessels and of the sympathetic nervous system point to diminished suprarenal secretion. Life and growth are chemico-physical phenomena based on metabolism of protoplasm, and undoubtedly the hormones of the ductless glands, by means of their chemical activities, have a profound influence on metabolism, and therefore on growth. Perfect metabolism means perfect health; cancer is an effect of disordered metabolism. Unfortunately, we are not yet acquainted with all the different phases of the chemical activities of the living cell, nor with the finer disorders of the ductless glands and the disturbances of metabolism thereby caused. When these difficulties are got over, as I suppose they must be in time, we shall be very near the solution of the cancer problem. We shall "rule by obeying Nature's powers."—I am, etc.,

Wigan, Feb. 25th. J. THOMSON SHIRLAW.

CANCER OF THE RECTUM.

SIR,—Mr. Percival Cole and Mr. Sampson Handley have commented on statements made in the article on cancer of the rectum published in the BRITISH MEDICAL JOURNAL of January 31st, 1914, and some answer appears to be called for from the writer of the article in question.

Mr. Cole protests that a recent paper of his was cited to support the view that complete abdomino-perineal excision of the rectum cannot be considered a necessary procedure. No such view was put forward in the article. What was actually stated was that operations less extensive than a complete abdomino-perineal amputation had not yet been proved by pathological anatomy to be indefensible. Whatever investigation on the extramural spread of the disease may show in the future, this plain statement of fact unquestionably represents the position at present. The view held as to extramural extension was sufficiently indicated by the references to "the increased security against recurrence which a pelvic dissection gives," but as the object of the article was to summarize demonstrated facts and not to plead for any particular procedure this view was not emphasized. This lack of emphasis is perhaps responsible for Mr. Cole's misreading of the argument.

Mr. Handley says that he has not made any general statement that the disease in an early stage disseminates widely in lymphatic plexuses in the bowel wall. In his Hunterian Lectures[1] Mr. Handley stated that his examination of a single specimen of rectal cancer showed that "permeation occurs in rectal cancer," that "permeation may extend very widely in the mucous plexus," that "in view of the extent of mucous permeation revealed, excision of a considerable length of the bowel above the growth and of the bowel below down to and including the sphincters is evidently a right practice." Whether the first two of these quotations make general statements or not is arguable, but the deduction drawn in the third is certainly general. If the first two statements are not to be considered general, the deduction is illogical.

The writer does not derive any satisfaction from an argument on the exact meaning of words with men like Mr. Cole and Mr. Handley, who are doing and have done work which is placing the pathological anatomy of this disease on a sure basis, but he cannot admit the misstatements alleged.—I am, etc.,

February 23rd. THE WRITER OF THE ARTICLE.

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[1] *Liverpool Medico-Chirurgical Journal*, July, 1913.

[1] BRITISH MEDICAL JOURNAL, April 16th, 1910.

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