On one of her visits, however, she mentioned a dream of the previous night. It was quite brief. In it she saw her mother lying dead; she regarded the spectacle with the utmost composure. With the help of free association to the thought of the dream, she recalled first an identical dream some six months ago; then another of the same sort about a year before the second; and from this passed from one such dream to another (occasionally her father, but usually her mother figuring in them as dead) until it became evident that this particular dream had recurred at varying intervals for more than twenty years. Finally, she recalled an instance from her very early teens. Instead, however, as seemed probable, of continuing the series back to her earlier childhood, she now said that a picture rose before her mind. She saw herself as a little child of four or five, playing on a hearthrug, while, close by on a couch, lay an old gentleman. She recognized him as a friend and near neighbour of her parents. She remembered that she used often to be allowed to go to his house, and would play on the hearthrug while he, presumably an invalid, reposed on the couch, talking to her. She also remembered that on these occasions the wife was never present, and, looking back on these visits, she was inclined to think that she was sent to be company for the old man when his wife went out.

Asked to associate to the thought of this neighbour, she at once recalled how, on going to the house as usual one morning, she was met in the hall by the wife, who told her that the old man was dead. And now followed the incident which was the cause of her lifelong phobia. The wife led her upstairs into the death chamber. The child said she was afraid, but the other, telling her there was nothing to be afraid of, crossed the room and drew back the sheet from the figure on the bed. This frightened her the more. The wife, thinking, it must be supposed, to act reassuringly, then compelled the little child to approach the corpse, to put out her arm and touch its cold cheek. The sensation filled her with penetrating horror. For days she could not get it out of her mind. Then, child-like, she began to reason with herself. If, she argued, her old friend had died, as they called it, and grown cold, other people probably died and grew cold. In that case her mother (for whom she bore great affection) must die and grow cold. The thought of this took hold of her, supplanting the recollection of the icy feel of the dead man, but at the same time drawing to itself the intense feeling of this earlier experience; and thereafter, so the patient recalled, whenever she was alone she brooded on the thought of her mother's death, at night crying herself to sleep with the same thought. This went on for several years until, when she was in her very early teens, her mother became seriously ill and the child was packed off to relatives in the country. Here, where no one knew the fear that was eating out her heart, no one troubled to keep her too well informed of her mother's progress. And then, for the first time, she dreamed that she saw her mother lying dead, but the sight moved her not at all.

The result of this illness was to leave her with an intensified horror of everything suggesting death. About this time, moreover, she learnt, from a conversation between an elder brother and sister over their school lessons, the story of the Black Hole of Calcutta, and the thought of the fate of Surajah Dowlah's victims haunted her until she imagined a similar end for herself. This new terror, working on the old, engendered yet another monstrous fear—namely, that she might be buried alive, and, reviving in her coffin, be suffocated to death.

For brevity, this sombre history has been given only in outline, but, in conclusion, the following fact, which was gradually established by the analysis, though hitherto unknown to the patient, must be added. When any incident in her daily life touched, all subconsciously, this death-complex—such as passing a funeral in the street, calling on a sick friend, or seeing an actor die on the stage—the effect was a severe headache, very often violent enough to incapacitate her.

THE late Professor Duhring has left about £16,000 to the University of Pennsylvania and the hospital connected therewith. Part is to be applied to the foundation of a museum of cutaneous diseases, and a sum of £10,000 is allocated to the hospital for the maintenance of wards of free beds for the treatment of skin diseases.

OBSERVATIONS ON THE TOXAEMIAS OF PREGNANCY, AND ON EUGENICS FROM THE OBSTETRIC STANDPOINT.

Being part of a Valedictory Address delivered before the Section of Obstetrics and Gynaecology of the Royal Society of Medicine by the Retiring President.

BY

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EUGENICS, or the well-being of the race, is now one of the prevailing instincts of our generation. The value of the potential mother and her unborn babe as a national asset is becoming increasingly recognized. I propose to examine the subject very shortly from the medical and the social point of view.

1. THE MEDICAL IMPORTANCE OF EUGENICS FROM THE OBSTETRIC STANDPOINT.

The crux of the whole question is the safety of the mother and child during pregnancy, labour, and the puerperium.

The facts that over 3,000 women (3,179 in 1909) die every year in England and Wales from puerperal septic disease and accidents of childbirth, and that in the same year 99,430 infants died during their first year of life, and that in addition there were about 19,000 stillbirths, make this statement a self-evident truth. It will not be possible to speak now of many of the causes of this maternal and infantile mortality, but I would like to say a few words on the efforts being made to unravel the pathological mysteries of the toxæmias of pregnancy which directly or indirectly cause a large proportion of this terrible waste of life.

The Toxaemias of Pregnancy.

In my presidential address of October, 1911, I alluded to several diseases, both in obstetrics and gynaecology, the etiology or pathology of which was to a large extent undecided, and amongst them I instanced in obstetrics the toxæmias of pregnancy, ectopic gestation, phlegmasia alba dolens, pyelonephritis of pregnancy, and hydatidiform degeneration of the chorion, with its not infrequent sequela, chorion-epithelioma.

As regards the toxæmias of pregnancy, I drew attention to the increasing recognition of the fact that investigations should be made by physiological and pathological chemists regarding the auto-toxaemias, if our knowledge of the etiology and treatment of hyperemesis gravidarum, chorea gravidarum, albuminuria, eclampsia, acute yellow atrophy of the liver, and puerperal insanity is to be increased. In printing my address, the BRITISH MEDICAL JOURNAL¹ published a leading article, entitled, "Where Chemistry and Medicine Meet," and the *Lancet*² also published an article on "The Return to Chemistry," both expressing their cordial concurrence with my views. These leading articles helped materially to stimulate interest in the subject. There is no doubt that during these last two years more progress has been made in our knowledge of the functions of the placenta and of the function and interaction of the ductless glands, including the ovary and its lutein tissue, than was previously possible. Dr. Blair Bell and Miss McIlroy have been working on these lines for some years, but a whole army of experts are now engaged in this form of research.

If the foreign journals are examined, more particularly the German, it will be seen that this chemical investigation and the effects of injection of glandular extracts upon animals is becoming increasingly prominent.

As further evidence of the interest now attached to the chemical aspect of the toxæmias of pregnancy, I would allude to the large numbers of books recently published on the "internal secretory organs" or on "the function of the ductless glands," in every case dealing with the influence exerted by the secretions of these organs upon menstruation, pregnancy, lactation, and the puerperium in both animals and man.

The clear advice in the report of the Royal Commission on the University of London as to the need of the perfect equipment of the "hospital unit" is only another indication that it is now being generally recognized that clinical

work can only be scientifically and satisfactorily carried on if the medical officer in charge has at his disposal laboratories suited for the complete examination, treatment, and demonstration of every case. Such laboratories would be devoted to physiology, bacteriology and vaccine-therapy, bio-chemistry, microscopy, x-ray and electrical work, and a general laboratory for the students.

At hospitals in London all these laboratories to some extent already exist for the general use of the staff, except perhaps the bio-chemical laboratory as a separate entity, and it is this particular method of research which, in my opinion, is now the most important for the efficient and scientific management of every obstetric and gynaecological hospital unit.

Much has been done by bacteriology to explain puerperal septicaemia, as well as various local and general infections such as gonorrhoea, bacilluria, syphilis, pyelitis of pregnancy, etc., but physiological chemistry is now needed to help.

In general medicine microbes do not explain gout, diabetes, Graves's disease, Hodgkin's disease, or even rheumatoid arthritis. Physiology has unravelled some of the mysteries of myxoedema, acromegaly, and Addison's disease, but none of these diseases can be fully explained without further light from physiological chemistry. In our own special subjects microbes do not sufficiently explain eclampsia and the other toxæmias of pregnancy. Our ignorance of the causation of puerperal albuminuria and eclampsia, acute yellow atrophy of the liver, hyperemesis gravidarum, chorea of pregnancy, and puerperal insanity is still profound.

It is now well established that in addition to the physiological functions of the placenta, the ovaries, and the mammary glands, these organs have important internal secretions which may be either neutral, toxic, or antitoxic under different circumstances.

The Placenta.

Much excellent work has been done of late on the chemical physiology of the placenta.

It seems clear that ferments are produced by the trophoblastic layers of the chorionic epithelium of the placenta, and that these exert a destructive action upon the surrounding maternal tissues. By this action toxins are apparently normally produced and auto-toxaemia may result, under circumstances at present unknown to us. These enzymes or ferments can be demonstrated according to Abderhalden in the blood of pregnant women from the sixth week of gestation to a fortnight after delivery, and their presence provides us with a method of serum-diagnosis of pregnancy which Dr. Herbert Williamson considers absolutely reliable. With the object apparently of neutralizing these toxins, and of preventing auto-toxaemia by rendering the woman immune, antibodies are formed, and are found in the maternal blood between the sixth and fourteenth weeks of pregnancy, the period of the maximum destructive activity of the chorionic epithelium.

Mosbacher³ has also shown that syncytial cell albumen of the early human placenta contains a toxin which is able to produce fatal anaphylaxis in guinea-pigs in thirty minutes, but he finds that antibodies which neutralize the syncytial toxin are found in the blood of pregnant women right up to the end of the gestation period.

These toxins have not yet been isolated, nor is their chemical composition known with any more certainty than in our student days, so that we do not even know if Abderhalden and Mosbacher are speaking of the same toxins.

Acidosis in Pregnancy Toxaemia.

The importance of the phenomena of acidosis in pregnancy toxaemia, on which Dr. Walter Swayne read a paper last session, has led to much attention being paid to that aspect of the question. In an article published in the *Lancet* on May 17th, 1913, Dr. Herbert Williamson further discusses the problem of the diagnosis of the albuminuria of pregnancy, and considers that we are justified in concluding that a condition of acidosis is found constantly in severe cases of pregnancy toxaemia and not in cases of severe chronic nephritis, unless toxaemia has been super-added. If this be so it is a great gain to our previous knowledge on the subject, and clears the line for further discoveries and for more intelligent methods of treatment.

Internal Secretion of the Ovaries and of the other Ductless Glands.

The physiology of ovarian secretion was discussed during last session by Dr. Louise McIlroy in a most valuable contribution, and during this session Dr. Blair Bell, in the Arris and Gale Lectures at the Royal College of Surgeons, has added some valuable facts and suggestions to our knowledge of the genital functions of the ovaries and of the other ductless glands. He dwelt especially upon the effect of removal or disease of the thyroid, the pineal, the pituitary, the thymus, and the suprarenal glands upon functions of the ovaries and the uterus. He further dwelt upon the organic harmony of the ductless glands in health in regard to the genital functions, and upon their altered inter-relations in disease. A valuable review by Dr. Louise McIlroy in the May number of the *Journal of Obstetrics and Gynaecology of the British Empire* has brought our knowledge of ovarian secretion up to date.

As regards the action of the internal secretions of the ductless glands, it is now established that there is not only an organic and functional harmony between them, but a compensatory interaction between all the glands as well. Each gland acts in a particular manner upon the blood stream passing through its tissues, altering its chemical constitution by a chemical process, and often adding to it important organic bodies of vital importance to the well-being of the individual. If any organic disease or abnormality exist in a particular gland, the missing or altered function seems often to be taken on by other ductless glands, so that the individual is saved from disaster. In other cases the altered metabolism of one gland upsets the normal metabolism of other ductless glands and the individual is seriously affected.

The significance of the whole subject of internal secretion is enormous, and its full recognition is still in its infancy. Dr. Blair Bell, in his Arris and Gale Lectures, said: "It is probable that every cell in the body is a ductless gland and has some influence on the life and functions of the rest." If so, it is easily seen how groups of functionally similar cells can, by forming organic products, act as chemical messengers, or "hormones," as Dr. Starling has called them, and influence the whole body organization. Dr. Blair Bell has also proved in the above lectures that these "hormones" exert a special influence upon "the reproduction of the species in all its intricate necessities." When the ovaries and the other reproductive organs atrophy and become functionally inactive, he further says, "the genital functions of the rest of the ductless glands cease, and the rearrangement of the metabolism that follows produces what are known as the symptoms of the menopause." He suggests that a knowledge of the special function of each of the ductless glands and a close study of the particular menopause phenomena in each case may enable us to treat the symptoms with more success than at present. To treat all the ills of the menopause with ovarian or lutein extract when the symptoms point to the effects of altered metabolism of another ductless gland is not logical.

Lactation.

Physiological chemistry is throwing much light upon the physiology of lactation. It has long been known that lactation is not determined by nerve excitation. A case of my own, when normal parturition and lactation followed complete paraplegia below the fifth dorsal vertebra from an accident six months previously, confirmed this. Recently Sir Edward Schäfer, F.R.S.,⁴ showed experimentally that mammary secretion is induced as the result of galactagogue hormones circulating in the blood derived from the posterior lobe of the pituitary body, from the corpus luteum and the involuting uterus, and from the lactating mammary gland itself, whilst hormones derived from the placenta and the fetus during pregnancy have an inhibitory effect.

2. THE ENDOWMENT OF MOTHERHOOD.

The nation—all civilized nations—in these days of a lessening birth-rate, is waking up to the realization that a pregnant woman and her unborn babe is a national asset worthy of every care and consideration.

We hear much nowadays of the "endowment of motherhood." The Obstetrical Society of London by its successful efforts, spread over fifty years, to improve the

condition of lying-in women and to lessen infantile mortality has done much to endow motherhood in its truest and most comprehensive sense. The "endowment of motherhood" is not only to be obtained by providing financial assistance to the mother, as is done, for instance, by the maternity benefit of the Insurance Act after labour. The chief aim of those seeking to endow motherhood should be to give every mother an assurance of security and well-being during the whole time of pregnancy, labour, and the puerperium, each of which is to her a period of anxiety and stress.

Apart also from all sentiment or sympathy with the individual, "the unmarried mother and the unwanted child," as Harold Begbie phrases it, demand both our professional consideration and the protection of the State.

During the Pregnancy.

This security should be ensured during the pregnancy by skilled professional advice followed by wise, tactful supervision. For the professional advice to be really effectual, a sufficient and in many cases a pelvic examination of every pregnant woman should be made during the middle months of gestation, especially if she be a primigravida. Her urine, also, should be scientifically examined, especially as regards albumen, and if she has previously had abortions or stillbirths the quantity of urea should also be estimated. If evidence be forthcoming that toxæmia is present, or that labour may be abnormal or difficult, the practitioner should be able to arrange for the woman to continue under expert supervision. This is difficult, even in private practice, but almost impossible under our existing conditions as regards the poorer classes. Dr. J. W. Ballantyne's⁵ suggestion of a pre-maternity or pregnancy ward or pavilion seems the best way of meeting the case. The necessary treatment could then be carried out. If surgical treatment were required it could either anticipate or accompany the onset of labour as occasion demanded, instead of being adopted, as it often is now, as an emergency operation, after repeated pelvic examinations or instrumental attempts at delivery before admission. We know that "pregnancy wards" reduce the risk of all obstetric operations enormously; Caesarean section, for instance, has its maternal mortality reduced from 34.3 per cent. in cases previously examined, etc., to 2.2 per cent. in clean cases, such as those who had been inmates of a pre-maternity ward.⁶

Paul Barr⁷ shows that in placenta prævia cases, out of 108 patients treated as "emergency cases," he had 10 deaths from infection, whereas no deaths occurred from this cause in 48 cases in the pre-maternity wards. This plan is now adopted in many of our lying-in hospitals or wards in large cities, but to ensure such security to every pregnant woman a routine examination during the middle months is essential, as well as suitable accommodation within a reasonable distance.

From the point of view of the unborn child, routine examination of the mother during pregnancy and adoption of appropriate treatment is essential if we are to have any success in dealing with intrauterine mortality. Eugenics should begin before birth, not afterwards. A child has the right to be born healthy.

Careful inquiry should be made as to the causes of previous abortions or stillbirths, and of the deaths of previous children soon after birth, for I am convinced that congenital syphilis, entirely unsuspected, is not infrequently the cause of both fetal and early infantile mortality. As small doses of mercury given to the woman during pregnancy will in such cases often give her a healthy child, every effort should be made to tactfully discover whether such treatment is indicated. It must be remembered that, apart from a history of stillbirths, etc., a woman may show no indication of specific infection. Sometimes information can be obtained by inspecting the mother's other children. There is no doubt that apart from congenital syphilis, which varies in importance in different nationalities, and even in different localities (urban and rural), the three main causes of stillbirth are albuminuria (toxæmia), pelvic contraction, and mal-presentations.

It has been computed that, if women were properly examined in pregnancy, half the stillborn children would be saved. If so, this would mean an annual saving of nearly 10,000 fetal lives in England and Wales, for,

omitting abortions, there were 2,312 stillbirths notified in London alone during 1910, or 2.2 per cent. of the total births. If this proportion holds good for England and Wales, the number of stillbirths in that year would be 19,736, and we could hope to save 9,800 lives by routine prophylactic measures.

Chambrelent⁸ has a large clinic for pregnant women in Bordeaux, and he there examined 642 pregnant women during 1910. He found that 135 women presented complications or abnormalities requiring special care, and as a result of such care the birth mortality was reduced to 2.85 per cent., or a saving of two-thirds as compared with the official figure.

The registration of births should, in my opinion, be compulsory, not only after "viability" as regards births and stillbirths, but should be enforced at every period of pregnancy. If this were done, and the practitioner or midwife were also requested to state the apparent cause of the death or of the expulsion of the ovum, we should, as a first result, begin to realize how little we know of the causes of intrauterine mortality, and, as a second result, we would obtain some statistical knowledge of the huge waste of life continuously going on, and in time would arrive at some precise knowledge as regards etiology and prophylaxis.

Much good might be done by a careful examination both of the fetus, placenta, and membranes, in all abortions and stillbirths in our hospitals. This would accustom the student to that particular type of investigation, and might encourage a continuance of it when in private practice later on. This plan was adopted in 180 consecutive cases of stillbirth by Dr. Herbert Spencer between 1887 and 1900, and his paper of nearly 100 pages⁹ is one of the most valuable and suggestive in our annals, showing, amongst other things, that hæmorrhages into the brain and other organs are a frequent cause of death during labour.

During Labour.

There is no doubt that the prospect of obtaining the 30s. maternity benefit under the Insurance Act enables poor women to approach the time of labour with a greater sense of security than heretofore, and if some arrangement or pre-arrangement could be arrived at by which the benefit could be paid as soon as the birth was notified, its advantages would be very much greater.

Expert or hospital treatment can usually also be secured if special surgical interference be required.

During the puerperium, however, there is often little or no skilled supervision after the first ten days, and the early cessation of supervision tends to encourage the mother to return to work and to married life at a much too early date. The early return to work is the cause of much maternal illness, which is often pelvic, and leads to either a disinclination for, or even to a dread of future pregnancies, or to real physiological inability to conceive again, or to intrauterine fetal death if pregnancy should again supervene. The child too often suffers, even more than the mother, from the latter's early return to work. Errors of diet, neglected ophthalmia, or uncleanness may each cause permanent ill health. Much is being done in large cities where factory girls are numerous to encourage rest during the earlier period of uterine involution, and the medical and sickness benefits of the Insurance Act further encourage this, but much more requires to be done.

Schemes to provide home nursing for insured persons by arrangement between local nursing associations and approved societies now being organized bid fair to be very successful. Approved societies and Insurance Committees have the power under the Act "to grant subscriptions for the support of district nurses," and Queen Victoria's Jubilee Institute for Nursing the Sick Poor, and town and county district nursing associations throughout the country, acting in harmony with these approved societies and with the Central Midwives Board, are doing much and can do much more to lessen the risk of maternal illness and infantile mortality during the few weeks following labour.

Infantile mortality under 1 year of age in England and Wales was 163 per 1,000 in 1899, and is now about 105. This represents a saving of life of over 52,000 infants a year. Very much, however, remains to be done, for in 1909 there were 99,430 deaths of infants in England and

Wales under one year of age, and nearly 40,000 of these died in the first month of life. Out of 1,000 births 11.5 children die in the first twenty-four hours of life, 24.6 infants in the first week, 30.3 in the first fortnight, and 39.75 during the first month. Roughly speaking, out of every 10 children who die in the course of their first year of life, 4 die in their first month.

If the nation could come to look upon maternity as a blessing and worthy of every encouragement and support, and could secure to the newborn child a month's healthy start in life, many of these babes who now die from the ignorance of their mothers, from unhealthy environment, or improper or insufficient food, would survive. It must be remembered, too, that a healthy child who has survived the first month of life has every chance of growing up well, for it is the weakling who dies, not the robust child of a happy, healthy mother. Infantile mortality is being greatly diminished in localized areas by organized home visiting and nursing, and by special effort to encourage lactation instead of artificial feeding, and if the nation, as a result of its appreciation of motherhood and of the greater relative value of the life of the newborn, can make these local efforts a national one, and at the same time avoid the moral disaster of pauperization, the race cannot fail to be improved, and the wealth and stability of our country thereby must be proportionately increased. Our Section will not fail to encourage progress in the scientific portions of such an obstetric ideal.

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- ¹ BRITISH MEDICAL JOURNAL, October 28th, 1911, p. 1118. ² *Lancet*, October 14th, 1911, p. 1785. ³ *Deut. med. Woch.*, No. 22, June, 1911. ⁴ Address delivered before the Liverpool Medical Institution, March 6th, 1913. ⁵ BRITISH MEDICAL JOURNAL, November 1st, 1901, p. 813. ⁶ Amand Routh, *Journ. Obstet. and Gyn. of the British Empire*, vol. xix, 1911, p. 48. ⁷ *Arch. mens. d'obstét. et de gynéc.*, ann. 1, No. 10, 1912, pp. 162, 176. ⁸ *Journ. de méd. de Bordeaux*, No. 17. ⁹ *Transactions*, vol. xxxiii, p. 203.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF NON-FATAL VERONAL POISONING.

On account of the largeness of the dose, among other reasons, the following case of veronal poisoning seems worth recording. The patient, a man aged 45, who had been in the habit of taking veronal freely on account of sleeplessness, was admitted to hospital in a totally unconscious condition. His face was flushed, the cheeks puffed out at each respiration, and the breathing was stertorous; there was no corneal reflex, and the pupils were insensitive and unusually contracted. There was also incontinence of urine and faeces.

As no history could be obtained, and the symptoms pointed to poisoning from some preparation of opium, the stomach was washed out with a weak solution of potassium permanganate, while $\frac{1}{2}$ gr. atropine salphate was given hypodermically and repeated twice within the next two hours. Hot coffee was also given rectally at intervals.

Immediately after the gastric lavage the corneal reflexes returned, but otherwise the condition remained unaltered until four days after admission, when signs of returning consciousness appeared. The patient then gradually improved, and was, on the fifth day after admission, able to give a definite history of what had happened. He stated that he had taken 125 gr. of veronal in one dose.

It is a point of interest that the symptoms differed entirely from those usually associated with veronal poisoning, and that the treatment adopted would have been regarded as contraindicated had we known that veronal was the poison taken; its tendency was to lock up the secretions rather than to increase them by means of diuretics. Nevertheless the patient recovered, though the dose taken was, so far as I can learn, one of the largest ever swallowed without a fatal result.

Let me also add that as the stomach washing took place at least five hours after the poison had been taken, it was probably useless, for I understand that veronal leaves the stomach within the first two or three hours after its introduction. Hence practically the whole of the poison taken must have been absorbed, and yet the patient recovered.

Bradford.

J. BROWNING ALEXANDER, M.B., Ch.B.

ETIOLOGY OF BERI-BERI.

THE memorandum at page 1271 of the JOURNAL of June 14th is interesting, and I have no doubt similar evidence could be supplied from all countries in which beri-beri is endemic.

I cannot quote statistics or figures from the official reports of the Brazilian sanitary authorities as I have not the opportunity of seeing them here, but I can state certain facts in regard to the province of Matto Grosso, in the far interior of Brazil—facts which ought to be faced by those who are seeking proofs of the "polished rice" theory of beri-beri.

The facts are the following:

1. Beri-beri has occurred and does occur in the southern Amazon regions, and in Matto Grosso in people who have never eaten rice of any kind at all.

2. Members of the various expeditions sent by the Brazilian Government for the defining of frontiers between Matto Grosso and Bolivia or Peru, and of the exploring and surveying expeditions of railway and telegraph companies in the heart of Matto Grosso, who sickened of beri-beri, had come from other provinces and had been polished-rice eaters all their lives, but had never contracted beri-beri until they came to the districts where that disease is endemic. Why had they not contracted beri-beri in Rio de Janeiro or in Rio Grande do Sul, where they had similar conditions of climate and temperature in which to eat their polished rice as they had when they went to the beri-beri districts of Matto Grosso? I know of Brazilian military men who were invalidated down country from Acre on the Brazilian-Peruvian frontier, where they had contracted beri-beri. They ate polished rice amongst other things provided in their rations, but they had always eaten polished rice before going there. A German friend of my own, an explorer and geologist, accompanied an expedition to the far north of Matto Grosso. Forty members of the party died of what from my friend's description I consider was beri-beri. Yet these people had eaten polished rice for years before going to the beri-beri country.

3. In my own practice I have had various cases of beri-beri brought to me from Matto Grosso. The curious thing about those cases, which were undoubted examples of beri-beri, was that the patients were of the farming agricultural class, who grew their own rice, cleaned it themselves, and ate it brown in the grain, and had never, except perhaps by accident, eaten imported polished rice, and yet there they were—prostrate with beri-beri.

All due credit must be given to the earnest investigators who are seeking out the etiology of this obscure disease, and due consideration ought also to be given to the views of those who do not hold the current theory. Let us hope the investigators get outside their laboratories and study the disease of beri-beri in the countries where it is endemic. For there are many who see the cases and know the regions from which they come that cannot accept the food theory of its etiology, but believe that the causative agent is to be found only in the endemic districts.

Belén, Paraguay.

J. W. LINDSAY, M.B.

As one who has suffered from beri-beri it is with the keenest interest that I note any observations in regard to it, and I feel that the present accepted theory as to its cause at least requires modifying; there has been too great a tendency to accept the case for vitamin deficiency as proven, if made, to refer to rice dietary only.

In the BRITISH MEDICAL JOURNAL of September 14th, 1912, there is, in a lecture by Dr. Leonard Hill, on the Influence of Muscular Exercise and Open Air on the Bodily Functions (p. 601), a statement which I had hoped would be referred to by somebody interested in the subject. Alluding to the Labrador fishermen, whose diet is quoted as in the main "white bread, tea stewed in the pot till black, fish occasionally, a little margarine and molasses . . . old dark-coloured flour" (note there is no mention of rice), he says: "In consequence of this diet beri-beri has become rife to a most serious extent, and the hospitals are full of cases."

The valleys of the Amazon and its tributaries furnish a larger number of cases than is ordinarily supposed. In a paper by my late chief, Dr. Carl Lovelace, of the Candelaria Hospital, Porto Velho, Brazil, published in the