

The PRESIDENT (Dr. W. S. A. Griffith) said that he was sure that he was expressing the wishes of the Section in offering a cordial vote of thanks to Dr. Blair Bell for his able and interesting paper, and to Miss McIlroy for her contribution to the discussion. Especially would he also thank Dr. Marshall, the Lecturer on Agricultural Physiology at Cambridge, and the author of that well-known book "The Physiology of Reproduction," who had been so good as to come and take part in the discussion. To Mr. James Berry, whose work on the thyroid was so well known, and to the other visitors who by their contributions had added so much to the value of the discussion they also offered their hearty thanks.

Dr. Blair Bell was an enthusiastic investigator of this difficult subject and had recently received from the Royal College of Surgeons the Hunter Gold Medal for his researches, a highly valued appreciation in which all joined in congratulating him.

Dr. Griffith asked Dr. Blair Bell in replying to state what he implied by the terms, "excess and diminution of secretion of the ovaries," and what evidence there was of the conditions (apart from removal of the ovaries) in which either diminution or excess of ovarian secretion occurred. It appeared to him that in the human ovary, though we knew a good deal about the various diseases, we were in ignorance of the variations in their internal secretion which might accompany them.

Dr. BLAIR BELL, in reply, said that the discussion had been of exceptional interest, and he felt that the Section was greatly indebted to the guests, who had been invited to take part, for their extremely valuable contributions. It was impossible adequately to reply to all the criticisms made and points raised, but he would endeavour to deal with some of the more important.

He could not admit that removal of the ovaries in young animals produced a persistence of infantile characteristics in regard to the soma, as stated by Miss McIlroy. Surely it was well established that there was an increase in the growth of bone in young animals after experimental removal of the ovaries. Further, Miss McIlroy said she did not consider it possible to gauge degrees of femininity in women. In reply, Dr. Blair Bell said he could only suppose that women, ever modest, might themselves fail to recognize their greatest asset; but he felt sure that every normal man was acutely alive to the differences in this respect to be found in different women.

With regard to the criticisms made by Miss McIlroy and Dr. Elliott

as to the value of urinary analyses in the estimation of the calcium metabolism, and the suggestion that it was much more accurate to estimate and compare the total quantity of calcium taken in and the total output in the fæces and urine, he thought there was a certain fallacy in the latter method which was not generally recognized. It was, of course, possible by such a procedure to learn how much calcium was retained, if a loss were found in the excretions. But so far as the intestine was concerned it was impossible to find out how much was absorbed, how much was excreted, and how much passed directly through. It had to be remembered, also, that the breaking down and excretion of an unknown quantity of stored calcium, such as occurred in osteomalacia, must confuse the results of experiments carried out in the manner suggested. He ventured to think, therefore, that a urinary analysis gave as true an index of the metabolism in regard to calcium as the method suggested; this was especially so if the urinary analysis were combined with a blood analysis.

He had been greatly disappointed with the trend of Dr. Elliott's remarks; and he could neither agree with him that our knowledge of the subject was a complete blank, as he seemed to imply, nor that the work of clinicians was necessarily unreliable. He believed that future advancement in this subject would come from those who could correlate laboratory and clinical observations. It was the combined laboratory-ward system that gave Germany and America the great advantage they possessed over this country in respect to scientific investigation and achievement. By way of trying to show that the work of Dr. Blair Bell and all other experimenters was unreliable in regard to those results which went to prove that death inevitably followed complete removal of all suprarenal tissue, Dr. Elliott had mentioned the case of a cat which was *still* alive and well some time after he had removed both suprarenals. Dr. Blair Bell considered that the record of this experiment by Dr. Elliott was in itself an illustration of the unreliability in the conduct of experimental work against which Dr. Elliott had spoken so strongly. It was also an instance of the danger of drawing a conclusion from an incomplete experiment. In all probability the animal in question had accessory suprarenals—either complete or represented by chromophile bodies (accessory medulla). These accessory suprarenals, complete or partial, were common in most animals—indeed in some mammals, such as the rat, the main suprarenals could often be removed with impunity so far as life was concerned. This, however, was not usually the case in regard to cats. Consequently

such a case as that mentioned should never have been brought forward as evidence against the experiments of others until a complete post-mortem examination had been made by a competent observer. Mr. Berry and others had answered Dr. Elliott's adverse criticism concerning the frequency of exophthalmic goitre in connexion with ovarian insufficiency.

Exception had been taken by the President and Dr. Leonard Williams to the use of the terms "insufficiency" and "excess" in regard to the secretions of the ovary and other endocrinous glands. Dr. Blair Bell was unable to follow their arguments, as it appeared to him that if an organ were removed there must be insufficiency of its secretion, and conversely in the case of hyperplasia, which produces—at any rate in the case of the thyroid—the same symptoms as an overdose of the prepared extract, there must be excess.

With regard to the view expressed that the pituitary body was one organ, which was criticized by Dr. Leonard Williams, it was not Dr. Blair Bell's intention to convey the impression that the extract of the anterior lobe had the same physiological pressor action as the posterior. It was well known that the extract of the anterior lobe had no such action. Infundibulin was probably produced, however, by differentiated or altered cells of the pars intermedia which came into relation with the pars nervosa. These cells were of the same origin as those of the pars anterior. He was quite unable in the light of our present knowledge to recognize any scientific basis for Dr. Leonard Williams's belief in a multiplicity of secretions by identical cells. It appeared to Dr. Blair Bell that Dr. Leonard Williams had confused multiplicity of function and effect with multiplicity of secretion. Surely one secretion could produce many effects.

He did not think that the case mentioned by Dr. Routh, which apparently was one of male pseudo-hermaphroditism, invalidated the statement that ovarian hyperplasia and tumours alone produced sexual precocity in girls, as he understood Dr. Routh to say.

In conclusion, Dr. Blair Bell thought that in spite of the great difficulty of the subject, and in spite of the scepticism of many about results which did not coincide with their own, there were now definite and acknowledged facts which, taken together, showed that the question of the correlations of the internal secretions had long passed beyond mere theory. And he was sure none could deny, in regard to the subject under discussion, that the treatment of many previously obscure disorders had been materially assisted by the work already accomplished.