walls of which, though distended, can be advanced caudally and united to the perineum.[1] The use of a free skin graft to line a pocket newly created between the bladder and rectum may be a simple procedure but an annular construction often develops at the site of union between the graft and vaginal epithelium, which necessitates the frequent use of moulds in order to retain vaginal patency.

Secondly, in the absence of a functioning uterus Williams's vulvovaginoplasty,[2] a form of long perineorrhaphy, is particularly easy to perform. The operation is not only brilliantly simple in design but healing usually occurs quickly and without the troublesome formation of postoperative granulation tissue. As soon as the perineal skin is united the new pouch is immediately functional as a vagina. It does not depend for its patency upon coitus or the insertion of vaginal moulds.

Any anatomical disadvantages which may attend vulvovaginoplasty are more theoretical than practical and are perhaps quite overshadowed by the singular advantage of the operation—namely, that it may safely be performed at a time which will assist the natural sociosexual development of the teenager. Free skin graft procedures, though resulting in a normally situated vagina, are best deferred until regular coitus is expected; otherwise vaginal patency must be maintained by the regular use of dilators, instruments which sometimes serve chiefly to remind the young female of her fundamental abnormality as a woman. While accepting Mr. Cobbett's comment that the use of a free skin graft to line a newly created pocket is a simple operation, I submit that in amenorrhoeic women a vulvovaginoplasty is simpler and preferable and that in patients with a functioning uterus advancement of the vagina is probably the treatment of choice.—I am, ec.,

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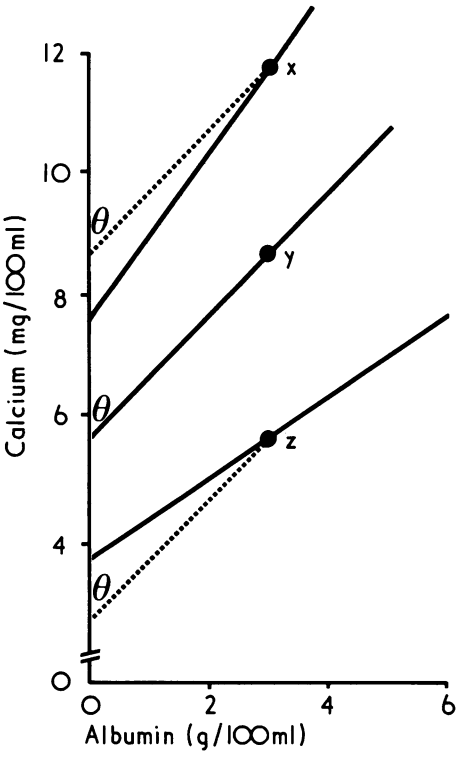
1 Jeffcoate, T. N. A., *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 1969, **76**, 961.
2 Williams, E. A., *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 1964, **71** 511.

Adjustment of Plasma Calcium Measurements

SIR,—Dr. R. W. Marshall and Professor B. E. C. Nordin (29 June, p. 729) appear to misunderstand the way in which we derived our adjustment of total calcium concentration for albumin concentration (15 December 1973, p. 643). It was based on the calculation of "non-albumin-bound" calcium concentration. The slope of the regression of calcium on albumin in our patients was fortuitously very close to 1·0 (centre line in figure, $\theta = 45°$), so non-protein-bound calcium (mg/100 ml) was calcium (mg/100 ml) minus albumin (g/100 ml). We added 4·0 mg/100 ml to these values to adjust them to the familiar normal range for total calcium. High ionized calcium values (x in the figure) give results which are higher than they should be and low ionized calcium values (z in the figure) lower results.

It is impossible to choose an albumin concentration for the "correction" of calcium which would be appropriate for all ages and



both sexes, as Dr. E. M. Berry and his colleagues have pointed out (6 April, p. 53). The calcium-albumin nomogram in preparation by Dr. Marshall and Professor Nordin would probably best be used to calculate non-protein-bound calcium.

We proposed our adjustment simply as a screening procedure to select from the many patients with abnormal albumin concentrations those who may need further investigation of calcium homoeostasis. We believe it fulfils this function.—We are, etc.,

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E-rosette Inhibition Test of T-lymphocyte Sensitization

SIR,—Dr. N. R. Farid and others (30 March, p. 635) have suggested that the rosette inhibition test using antithymocyte globulin directly measures sensitization of thymus-dependent (T) lymphocytes. This assumption is based on the evidence that increased amounts of A.L.S. are necessary for spontaneous rosette inhibition during rejection of grafted kidneys in man.[1 2] We have shown that this test does not solely detect sensitization of lymphocytes since similar changes have been noted in severely ill patients.[3] Furthermore, these changes were not seen during rejection of skin grafts.[4] We have suggested that these changes are seen during rejection of an internal organ because this is a major pathological process. Such processes have been shown to be associated with a requirement for increased amounts of A.L.G. to inhibit rosette formation.[3] Therefore rejection of a grafted kidney does result in changes in this test but other factors are also involved. This is thought to account for the over immunosuppression which resulted when this test was used routinely in the post-transplant period.[2]

Dr. A. Cantaluppi and others (30 March, p. 636) note that patients receiving azathioprine and prednisone do not demonstrate a correlation between the urinary electrolyte ratios and the results of the test. However, these agents are known to affect the urinary electrolyte ratios and no correlation would be expected in such patients. We found a positive correlation in burned patients who were not receiving treatment which would directly affect electrolyte excretion.[3] In such patients we suggested that the results of the tests reflected intrinsic secretion of adrenal corticoids and other similar substances produced in response to stress. A dramatic change in the test correlated with a change in clinical status. We do not think that the modification of the test used by Drs. Farid and Cantaluppi, but not by Bewick *et al.*[2] or ourselves, significantly alters the interpretation of the test since Dr. Cantaluppi's results are similar to those of Munro *et al.*[1] and Bewick *et al.*[2]—We are, etc.,

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1 Munro, A., *et al.*, *British Medical Journal*, 1971, **3**, 271.
2 Bewick, M., *et al.*, *British Medical Journal*, 1972, **3**, 491.
3 Chapel, H. M., and Batchelor, J. R., *British Medical Journal*, 1973, **4**, 385.
4 Chapel, H. M., and Batchelor, J. R., *British Medical Journal*, 1974, **2**, 636.

Lawn Mower Injuries

SIR,—"Robust footwear" (Dr. J. R. Hulme and Mr. A. R. Askew, 13 July, p. 113) if made only of leather does not give adequate protection against injuries from rotary lawn mowers. Some years ago I persuaded a friend who uses such a mower extensively to buy a pair of steel-toed shoes. In due course he showed me one of these shoes after the mower had slipped on to it. The stout leather outer toecap bore a cut going right through it to the steel beneath. Without the steel he would probably have lost some toes.—I am, etc.,

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SIR,—I would add one point to Dr. J. R. Hulme and Mr. A. R. Askew's (13 July, p. 113) interesting letter. I would feel that even wearing some form of eye protection is indicated—for example, goggles. I am appalled to see the number of eye injuries today that could be avoided.—I am, etc.,

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Effects of Hyperthermia on Bladder Cancer

SIR,—I wish to comment on the interesting paper of Mr. R. R. Hall and others (15 June, p. 593).

During the past 15 years there has been an increasing amount of experimental work on the effect of hyperthermia on cancer. A natural and critical question is whether malignant cells behave differently from normal cells under heat stress. Experimental