of the parts which apply directly to his specialty, and more time for the study of essential branches of medicine.

None of this would matter so much if ophthalmology was the somewhat limited subject of even 50 years ago—but it has widened in a way which is quite unparalleled, and the time for mastering it has increased relatively little.

I think also that the last paragraph in my letter, in which I dealt with those who fail the Primary and go into general practice, is of particular importance. The failure rate is very high, and their future efficiency in medicine would be greatly increased by a change in the examination requirements.—I am, etc.,

London W.1.

O. GAYER MORGAN.

SIR,—Of correspondence there is no end, save on the action of the editorial blue pencil. Perhaps, however, you will allow me to level the score with Mr. I. A. Tumarkin (November 23, p. 1340) at two all. He and I are agreed on the basic needs of our specialty at academic level, but he has obviously misinterpreted some of what I said in my letter of November 2 (p. 1127), and some of his own recent assertions are short of total accuracy.

Mr. Tumarkin says that I conceded the need for a special Primary examination. I did nothing of the sort. I conceded the need for debate by the specialist bodies and the Royal College of Surgeons. Mr. Keith Lyle has put the other side of this problem with cogency in your issue of December 7 (p. 1474), and, while remaining uncommitted, I am tending to agree with his view. Even specialists, he seems to say, should know and understand the workings of the whole man.

In his original letter Mr. Tumarkin ascribed some of the academic shortcomings of otolaryngologists to the F.R.C.S. examination, while I attempted to refute this by noting the poor support we have from the N.H.S. and the universities. Now he goes off tangentially with misleading information about what may be expected from these sources. Although this aspect is not strictly germane to the original argument, accuracy is an advantage. It is true that the hospital boards have sums at their disposal annually for investigational work, but the total amount of money available is so trivial that it is suitable only for small non-recurring projects, and no single department or individual can count upon a grant being renewable. In no instance, as far as I am aware, is it adequate for the creation of a permanent research appointment in any field, let alone in otolaryngology.

The statement that "universities are willing to set up chairs if an authoritative case can be made out" is an inaccurate generalization from the all-too-rare particular. Universities may or may not be sympathetic to our aspirations, but like the N.H.S. they are largely dependent upon public funds, and to a less degree upon the Foundations, and each

has its priorities in the cutting of the University Grants Committee cake.

Mr. Tumarkin is also misleading when he says that the M.R.C. is eager to promote research, and that any one can approach the Foundations. What he does not say is that the policy of the M.R.C. is to father a unit devoted to a fairly limited field and if this succeeds to hand it over to a university. Nor, in regard to the Foundations, does he say that their inclination is to support isolated projects, rather than to set up chairs. In other words one has to have a project, a worker, and a location before the Foundations will help—instead of an endowed location to which a worker with a project can come, which is the logical method.

To return to our main theme, Mr. Tumarkin evidently agrees with me that the Fellowship of a College of Surgeons is a desirable hall-mark for an otolaryngologist, and I agree with him that the requirements of the various Colleges should be aligned more closely than is the case at present. Academic facilities are a parallel need and we must interest persons in high places in this regard. As usual it turns on finance.—I am, etc.,

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Cystathioninuria and Mental Aberrations

SIR,—I would like to comment upon your annotation (November 9, p. 1148) entitled "Cystathioninuria." The appearance of only two reports is an indication of the rarity of this condition. However, the increasingly widespread use of chromatography for urine analysis may bring to light more cases. Gjessing¹ recently reported several cases of mild cystathioninuria associated with adrenal neuroblastoma in children. I am writing to you because I would like to hear of any cases of cystathioninuria.

Mental aberrations were observed in both the reported cases of cystathioninuria that you referred to, and there is other information which indicates that cystathionine metabolism in the brain is of importance. In 1958 Tallan, Moore, and Stein² found large amounts of cystathionine in human brain tissue taken at necropsy, whereas brain tissue from mammalian species other than primates contained only trace quantities of this amino-acid. This was recently confirmed by Okumura, Otsuki, and Kameyama,³ who, in addition, found that the cystathionine level in brain from human infants and young adults was considerably less than in older adults. Some years ago I was able to produce an experimental cystathioninuria in rats by feeding a diet deficient in vitamin B₆.⁴ Later it was shown that cystathionine accumulated in the brain and certain other tissues of the animals.⁵ The level of cystathionine in the brain of B₆-deficient rats was similar to that observed in adult human brain.²

The cases studied by Tallan *et al.*² showed neither cystathioninuria nor mental aberrations, and of all the tissues analysed only the brain contained cystathionine. However, Harris *et al.*⁶ reported that in their mental defective cystathionine was found not only in the brain but also in the liver and kidney. It is possible, therefore, that the urinary cystathionine arises not only in the brain but also in the peripheral tissues. We may draw an analogy between the vitamin-B₆ deficient animal and the patient with cystathioninuria; both excrete cystathionine and show an accumulation of the amino-acid in peripheral tissues. The presence of cystathionine in the brain of human adults does not give rise to an excretion of cystathionine in the urine. It is evident that mental effects are only seen in cases of severe cystathioninuria. Relatives who had only moderate cystathioninuria showed no mental aberrations.

The observations that you quote on the reduction of cystathionine excretion upon administration of large doses of vitamin B₆ suggests that cystathioninuric patients require abnormally large amounts of the vitamin to maintain the full activity of the enzyme cystathionase.—I am, etc.,

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Thrombocytopenic Purpura and Rubella

SIR,—In your leading article headed "A New Look at Rubella" (November 23, p. 1281) you ask, "... is it correct to regard rubella itself as a harmless disease?"

In reply to this question you did not mention the complication of thrombocytopenic purpura following rubella.

Clearly defined in 1949 by Ackroyd¹ only 20 examples of this condition had been reported by 1960.² Since then, at least six examples of this complication have been seen in this hospital area, the majority of them related to the 1962 epidemic. One of the patients died. Earlier this year five cases were reported from one hospital area by Wallace,³ who, rightly in my opinion, suggested that many cases may go undetected.

It may be, on the other hand, that this complication is so widely known, and so frequently diagnosed following rubella, that it is seldom thought worthy of record. If this is the case, then it is perhaps surprising that no mention of it was made by yourself or your contributors.

Although the purpura may be fulminating and may occur at the height of the febrile illness, as in other infections,⁴ the