SCOTTISH HOME AND HEALTH DEPARTMENT
St. Andrew's House, EDINBURGH, 1
Telephone: WAVerley 8501, *Ext.*

Our reference: HOS/5/SE/101/12
Your reference: 2SS 235/127/01

30th May, 1968

Blood Transfusion Service in Edinburgh

1. I refer to Miss Baldwin's letter of 30th July, 1965, which conveyed your approval in principle to the building of a new blood transfusion centre and blood products unit in Edinburgh, to be situated together on a site adjoining the Royal Infirmary at present occupied by 35 to 49 Lauriston Place. Since our last correspondence there have been a number of changes in plan which have affected the original proposals you approved and I am now writing to put these proposed alterations before you since they amount to a substantial departure from the scheme you earlier approved.

2. The point with which I might begin refers to the last sentence of Miss Baldwin's letter of 30th July, 1965, which reminded us of the importance of keeping our Edinburgh development in step with progress at the Lister Institute, Elstree. This is a matter to which we attach a great deal of weight and it is mainly this factor which has led us to depart from our original intentions. These have been seriously prejudiced by difficulties that have arisen both with the time-table and the planning for the rebuilding of the north-western corner of the Royal Infirmary site, of which the blood transfusion centre was to be part. As to timing, it seems that the best date the South-Eastern Regional Hospital Board can achieve for the completion of the blood transfusion centre at the Royal Infirmary is 1974, whereas the time-table for the new unit at Elstree is that building is due to start in March, 1969, with aim of completion by mid-1970. As you will realise, because of the proposed distribution of work between the two centres, it is important that there should not be a time lag of the possible order of three to four years between the completion of both schemes. The Scottish National Blood Transfusion Association are now being faced with increasing demands for certain blood products and, in particular, are anxious to undertake the production of jaundice-free plasma protein solution in the required quantities as quickly as possible.

3. The Royal Infirmary site is also presenting difficulties in terms of planning for the future. There is no doubt that the demand for blood products will continue to grow and it would be prudent to allow the new unit some room for expansion. On the part of the Royal Infirmary site which it has been proposed to use for the unit there will be no possibility of future expansion, and on that ground too we are doubtful of the wisdom of proceeding as we originally intended.

4. What we now propose is that the original scheme should be undertaken in two parts, one (essentially the regional blood transfusion centre) to be on the Royal Infirmary site already chosen, and the other (the blood products unit) to be

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on an entirely separate site which could be made available without delay for the erection of this unit, which is the most urgently needed part of the scheme. There are good reasons for keeping the regional transfusion centre on the Royal Infirmary site. The hospital is itself a major user of blood and blood products and makes heavier demands on the service than any other hospital. The close physical association with a large and active teaching hospital is valuable to the blood transfusion service in stimulating and facilitating research and development. Moreover, its central situation makes it convenient for donors when giving blood; and the visible connection with the hospital is a valuable factor in donor recruitment. Some facilities are likely to be required at the Royal Infirmary as part of the regional transfusion centre for producing comparatively small amounts of certain substances from fresh blood. There is not, however, the same degree of urgency about the provision of a new regional transfusion centre as there is about the blood products unit and we would be content to leave it as part of the north-western corner development of the Infirmary in spite of the delays which have arisen.

5. The building of the second part of the scheme, the blood products unit, could therefore go ahead independently on a separate site, though it is our present intention that both units would form one administrative entity under the same Director. We have a suitable site in the southern part of Edinburgh on which the blood products unit could be placed. This adjoins the site of Liberton Hospital, and the South-Eastern Regional Hospital Board have confirmed that 4.1 acres out of 33 acres at present owned by the Board of Management on endowment account could be acquired by the Secretary of State for the blood products unit. This site would be convenient in a number of respects. It is south of the city and therefore easily accessible to traffic coming from the four transfusion centres in the north of England. It is, nevertheless, near enough to the Royal Infirmary to make interchange of staff possible; and movement of supplies will be reasonably easy. An open site such as there is at Liberton would permit the Regional Hospital Board to erect a one-storey factory type building without any of the delays that would be encountered at the Royal Infirmary site. There would also be sufficient room at Liberton to allow for possible future expansion.

6. We are very much aware of the additional space requirements which our amended proposals entail, and we have gone to considerable pains in our examination of the schedules of accommodation submitted to us by the Regional Hospital Board in an attempt to reconcile the amount of space now required for two separate units with the 40,000 sq. ft. originally proposed in our letter of 29th April, 1965. We now estimate that the combined area of the two units will total 46,865 sq. ft. and, in addition, it will be necessary to provide a boilerhouse complex of some 5,350 sq. ft. at Liberton making a gross total of 52,215 sq. ft. The extra area is needed partly because the two units will be on separate sites and some facilities which would have been shared under the previous arrangement must now be provided on both sites; and partly because of technical developments that have overtaken our original plans..

7. When we wrote to Miss Fothergill on 29th April, 1965, we provided details of the proposed levels of production of certain blood products. These were the subject of agreement between this Department and the Ministry of Health earlier in 1965. At that time we envisaged that the new blood products unit would be operated on a batch principle, which would be a very much enlarged version of the process then in use in Edinburgh. One of the disadvantages of this method of production is that it lacks flexibility, and increased

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production beyond the limits of the batch size planned would be impossible without duplicating equipment and providing substantial additional accommodation. We were therefore anxious that, on the one hand, the batch size should be adequate to cope with foreseeable increases in production; and on the other hand that it should not be excessively large. In trying to assess production levels we were, and are, aware of the unpredictable variability of the factors which will determine production. The limiting factor is the amount of plasma available which will depend on the quantities of blood obtained from voluntary donors in the various regions. Our experience in Scotland, and particularly in the south-eastern region leads us to believe that we have not yet reached the limit of availability of blood from voluntary donors, and that, if necessary, more could be obtained; although this would call for greater effort and resources. The other factor of significance is clinical demand. Estimates of demand for plasma protein solution based on present use of plasma may prove inaccurate since clinicians are at present inhibited to some extent from using plasma because of the risk of causing serum hepatitis. We are now inclined to the view that the estimates we made in 1965 for production of plasma protein solution will prove to be too low. Futhermore, we are satisfied, on the basis of our experience since then, that the estimates of anti-haemophilic globulin required are also too low. Enquiries are at present in progress and we would not wish to commit ourselves to a new estimate at this stage.

8. Since 1965 work has been in progress in Edinburgh on the development of a continuous flow process and a pilot plant is now in operation. This has proved successful and has advantages over the batch method, particularly in flexibility. We therefore propose that the new blood products unit should operate on the continuous flow principle and should be designed to a work load of 1,500 litres of plasma per week; but it will be capable of adaptation, without substantial structural alterations, to operate at levels up to 3,000 litres per week should this become necessary. Apart from production of plasma protein solution and anti-haemophilic globulin already mentioned, the unit would also produce gamma globulin and a range of other fractions required for therapeutic purposes. It will also be possible to produce special fractions for research purposes, and there will be facilities for research and development at the unit. Our estimate of the space now required for both units is set out in the appendix to this letter.

9. The Regional Hospital Board provisionally estimate that the cost of providing the regional transfusion centre will be in the order of £280,000, at the Royal Infirmary excluding fees and equipment. It is difficult to provide firm cost figures for the blood products unit, as a scheme of this type has not been undertaken before, but we estimate that the cost will be:

	£
Fraction Production Building	685,672
Research laboratory	91,712
Boilerhouse and ancillary buildings	105,105
External works	91,185
Professional fees	26,000
	£999,674

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We estimate that the cost of equipment for this unit will be £386,534, to which 8–10 per cent will require to be added for establishing a stock of replacement items. Another £1,000 will be needed for the boilerhouse, making a total of about £425,000 in all.

10. There are two further matters we are still considering which will affect the cost of the blood products unit. The first is the possibility of reclaiming the alcohol used in the blood processing, which we are examining. If it proves, as we think will be the case, more economical to recover the waste alcohol for re-use rather than to dispose of it as waste material, there are two alternative methods of doing this. We can either provide plant in the unit for the purpose, or have the alcohol recovered by a commercial organisation. If we find that the more economical solution is to provide plant, this could add about £15,000 to the cost of the scheme. The second matter is the advisability, and the capital and operating costs, of using computer control of the processing system. We have had a meeting with Mr. Llewellyn of the Ministry of Technology and it has been agreed that manual control will not be possible because of the complex nature of the plant involved; and although auto-control would be possible it would be difficult to operate correctly and efficiently and would require a number of highly skilled staff to work. It would seem that computer control would be the best method in terms of accuracy and efficiency and we think that it will probably not be significantly more expensive overall than auto-control. We are, however, at present consulting computer firms with a view to further study of the requirements of the unit.

11. Our request therefore is for your approval to build a blood products unit at a cost of about £1 million at Liberton hospital, to be followed at a later date by a regional transfusion centre at the Royal Infirmary. If you agree that we should proceed in this way, we should also be glad to have your authority to purchase the land at Liberton, at a cost of £12,000. We understand that the Ministry of Health have recently received your approval to proceed with the extension to the unit at Elstree, and if we have your approval to our revised proposal the South-Eastern Regional Hospital Board consider that they should be able to have the blood products unit completed and in operation by mid-1972.

12. I am sending a copy of this letter to Hughes at the Ministry of Health and enclose a copy for your convenience in replying.

(A. H. M. MITCHELL)