for collaboration with an institute of education is perhaps more obvious for a school or department dealing with children than for those covering the older age range. I am certain, however, from our own happy experience that Professor Niblett's advice should be widely followed. It is perhaps immodest to add that the fruitfulness of the collaboration is not, I think, one-sided.—I am, etc.,

Institute of Child Health, University of London. ALAN MONCRIEFF.

Essential Hypertension in Pregnancy

SIR,—Mr. R. H. Paramore writes (August 27, p. 486) that he is not satisfied with the statement made by Mr. John Sophian (August 6, p. 335) in the sense that vascular spasm is the primary change inducing hypertension and that it is the cause of renal cortical ischaemia.

To this concept Mr. Paramore opposes his hypothesis that anuria, whether in the pregnant woman or not, is not the result of a decreased intrarenal blood flow, but on the contrary that it is due to an increased blood flow to the renal medulla, which maintains the "obstruction" of the uriniferous tubules. He attributes to the reduction of the medullary blood flow the benefits derived from repeated spinal anaesthesia, which he so wisely advocated more than twenty years ago. He is probably right in this, but perhaps not in the sense that he thinks it to be.

In favour of his views he mentions Clifford White's histological findings in renal tubules which were obtained from "a minute piece of the kidney" (in White's words) from two uraemic patients; indirectly, he also seems to value the fact that he did not find "any reference to the effect of the secretion of urine on the blood flow through the kidney" in the book *Studies of the Renal Circulation,* in which I was a collaborator. He considers this omission of fundamental importance. While I hope to contribute soon to the discussion of these and other related problems in a more extensive manner, I must now advance that on p. 36 of the English edition of our book there appears a reference to our observations on the correlation between a diminished urine flow and a diminished cortical circulation.

As our immediate purpose was to study the renal circulation and not the renal function we were for the moment satisfied with the confirmation of the findings made more than a century ago by Claude Bernard, who showed that the electric stimulation of the splanchnic nerves caused the urine flow to decrease or even to cease, an observation which has been untiringly repeated since then. We also dispose of a copious mass of information about the renal vascular response to this and other types of stimulus, such as certain hormones (adrenaline, "pituitrin," "pitressin"), toxins from staphylococci, streptococci, and *B. welchii,* and even to simple oxygen lack. The effect of all these apparently different vascular stimuli is to cause constriction of intrarenal vessels. If the stimulus is sufficiently powerful it might cause total renal ischaemia, whereas if the stimulus is of a moderate nature it might only cause a reduction of the calibre of the more excitable intrarenal vessels, such as those of that part of the cortex which is not anastomosed with either perirenal or medullary vessels. It is a consequence of the cortical arterial constriction that the medullary vessels appear engorged in some cases of fatal anuria. In others the whole of the kidney suffers from anoxia.

As a surgeon who has had for many years the misfortune of being confronted with serious forms of traumatic and surgical shock I have difficulty in understanding how shock might help in increasing urine flow. Up till now kidney failure in shock has been one of the greatest surgical problems. We know through a series of careful clinical and experimental observations that "primary" or immediate shock is characterized by renal vascular spasm (see among many others the papers from the school of van Slyke). Probably this vascular spasm is beneficial, as it reduces both the circulatory area of the vitally non-essential organs and it also helps to maintain the blood volume by stopping urine formation.

After a certain time the renal anoxia caused by vascular spasm gives way to that of peripheral collapse of "secondary" shock. In this later stage urine flow is interrupted, not by a functional and reversible mechanism such as arteriolar spasm, but by damage to that part of the kidney which is more sensitive to the lack of oxygen—that is, the tubular cells. I cannot understand how high spinal anaesthesia may contribute to the flow of urine otherwise than by releasing the arteriolar constriction. This seems to be the mechanism of the kidney which "obstructs" the flow of urine. Mr. Paramore gave an early answer to this most pressing necessity by advocating the method which in its more elaborate modern form has in the hands of Dr. Robert A. Hingson produced such satisfying results.—I am, etc.,

Oxford. J. TRUETA.

Medical Education

SIR,—Having read the series of articles in your educational number (September 3) I feel that consideration has been directed in the main too much towards the route and too little towards the destination. The ultimate aim must be the production of a general medical practitioner, yet this point certainly was not emphasized in your *Journal.* Specialization follows after qualification.

Are we in danger of forgetting this? It would appear that we are, since more and more time is being asked for and undue importance attached to the subsidiary clinical subjects. Instead of their being separate entities they should be fused and administered under the general headings of medicine, surgery, obstetrics and gynaecology, and pathology. For example, place paediatrics under medicine, despite the recent development of professorial chairs in paediatrics. Maternity and child welfare and venereal diseases would come under obstetrics and gynaecology, and haematology would assume its rightful place in the more general subject, pathology. These few examples may irritate specialists in the subjects mentioned, but they serve to illustrate the point I wish to make, that with integration would come realization of sphere of influence. And the time has come for specialists in certain subjects to realize that in their subject the requirements for the medical student may be generalizations rather than minutiae. A director of clinical studies would go far to make fusion and administration less difficult.

Professor W. Melville Arnott (p. 497) fears that the increased number of students may result in large ward classes. This need not be so if a considerable part of the present wastage of clinical material is utilized. The greater the number in the class often means the more competitive the spirit in that class. The area union of hospitals should make this problem easy of solution provided the universities are willing to pay their teachers a rate of salary comparable to that in the National Health Service and thus attract sufficient numbers. So far as lecturing is concerned, to lecture to a few is most discouraging. I had the privilege recently of attending a lecture to a class of 250 students of obstetrics in Sydney, Australia. There Professor Bruce Mayes has a microphone installed in his lecture room! The 250 were the survivors from a class of nearly 600 that had started the course. Yet I was assured that each student delivered more than thirty obstetric cases him- or herself—a triumph for administration and utilization of available material.

Let us unite, even at the sacrifice of personal pride in the importance of one's subject, to integrate the subjects in the curriculum so that we produce in the end a man or woman trained in the essentials for general practice. In the words of *The Times* (August 27), "If general practice is not raised to a new level of competence—some would say, restored to its rightful place—the whole of British medicine will suffer."—I am, etc.,

Oxford. G. GORDON LENNON.

Postgraduate Education of General Practitioner

SIR,—The new academic year is approaching and in consequence much is being heard of undergraduate education. I feel it is also an opportune moment for something to be said about the postgraduate education of the general practitioner. If the general practitioner is to play his part in modern medicine it is essential that he should be able to maintain his contact with