

lack of decent part-time job opportunities and training posts in most hospitals, there is another glaring inadequacy for both doctors and other women who work in the National Health Service: that is, lack of hospital crèches and nurseries.

I have recently contacted a large number of hospitals in the London area to find out just what is the current situation. Within the teaching hospitals, only one, namely, Charing Cross (Fulham branch), had a crèche, and in many of the others, even where rebuilding is planned or in operation, only one had plans for a crèche within the next few years. In most there was no crèche planned at all and in another it would be at least 10 to 15 years before one was planned.

Perhaps the worst aspect of the situation is that new hospitals are being planned and built without any facilities for crèches. What do those who are responsible for this situation expect women doctors, nurses, and other women in the health service who are starting a family to do during the preschool years?—I am, etc.,

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Vitamin B₁₂ and Folate Metabolism

SIR,—Your series on the scientific basis of clinical practice is excellent, but there is a misinterpretation in the article on vitamin B₁₂ and folate metabolism (26 February, p. 556). In the section on transport it is stated that transcobalamin II is a weak binder and the vitamin B₁₂ attached to it is readily released for urinary excretion. The fact that B₁₂ bound to this protein, more often referred to as transcobalamin II or TC II, is removed rapidly from plasma does not mean that the binding is weak but that the complex is taken up by tissues. A recent review of my own¹ gives what is generally considered to be the function of TC II. When studied in vitro, the bond between TC II and B₁₂ is strong. Some of the binding properties are given in a series of articles from the laboratory of Dr. Lous, Copenhagen.² I know of no evidence that B₁₂ bound to TC II is readily excreted into the urine, but there is substantial evidence to the contrary.

Although perhaps unintentionally, the review gives the impression that TC II does not play a large role in the transport of vitamin B₁₂. Hakami *et al.*³ have recently described the serious consequences of congenital absence of TC II. The loss of this transport protein alone causes a severe megaloblastic anemia.—I am, etc.,

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¹ Olesen, H., Hippe, E., and Haber, E., *Biochimica et Biophysica Acta*, 1971, **243**, 66.

² Hall, C. A., *British Journal of Haematology*, 1969, **16**, 429.

³ Hakami, N., Neiman, P. E., Canellos, G. P., and Lazerson, J., *New England Journal of Medicine*, 1971, **285**, 1163.

Total Replacement of the Hip

SIR,—Your leading article on total hip replacement (22 April, p. 177) quite rightly stresses the excellence of the vast majority of results after this type of surgery whatever technique is used, but the failures which

occur, particularly when acrylic cement is used, merit more detailed consideration.

Bone cement carries with it a small but definite risk of a fatal episode at the time of intervention, much higher in patients with femoral neck fractures than those with osteoarthritis coming to reconstructive surgery, for reasons which are still not quite clear. This risk, which is a small one, would be fully justified if no satisfactory alternative were available, but our experience with the uncemented metal on metal replacement has shown that these joints can give a satisfactory solution to the problem of the arthritic hip joint, provided attention is given to the mechanics of the articulation and a reasonable technical standard of implantation is employed.

You quote from Charnley.¹ He reports a mortality of 2.1% and a risk of deep seated infection, leading eventually to a pseudarthrosis, of 3.5%. This gives a total failure rate of almost 6%, a figure which is certainly far above that in an uncemented articulation. Our mortality in over 900 total hip replacements was 1%, and the rate of deep seated infection, occurring both early or late, was a further 1%, giving a total failure rate of 2%. Although in some of the earlier replacements both loosening and mechanical failure were an occasional problem, our current revision rate for these two complications is little more than 1%. It is important to remember that whereas loosening in an uncemented articulation may present as no more than a radiological curiosity, in those replacements which rely on the use of cement loosening is almost invariably painful.

You are right to insist that the standards of asepsis in any theatre undertaking this type of work must be high, and it may well be that Charnley's enclosure will be shown to have reduced the infection rate at Wrightington and come into common use elsewhere. For many years, however, most of us will have to work under different conditions, and it would be wrong to assume that this type of surgery cannot be undertaken safely in an ordinary orthopaedic unit.

Most patients after a total hip replacement return to a functional level which is appropriate for their age, their joints are painless, and they have a reasonable range of movement. We have, however, passed the stage of appraising the excellence of the results of this operation, and must look very seriously at the risks which are inherent in each of the methods of total hip replacement, and must evaluate to what extent they are due to the environment in which the operation is performed and how far they are related to the materials which are used and the way in which the joint is embedded.—I am, etc.,

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¹ Charnley, J., *Journal of Bone and Joint Surgery*, 1972, **54B**, 61.

Donors for Organ Grafting

SIR,—I am sorry the letter by Dr. H. Hillman and Mr. T. M. Aldridge (1 April, p. 48) seems to have attracted no comment. It is important to avoid popularizing terms in a manner which is not in keeping with their essential meaning. "Irreversible brain damage" (which is proposed as a legally certifiable condition permitting withdrawal of intensive care and organ removal) must

surely occur in varying degrees; and very likely much brain "damage" (if that implies cell or fibre destruction) is largely irreversible. Doubtless this term can properly be applied to many cerebral lesions, both large and small, in old and young (where it is commonly used); and it includes conditions of major and minor importance as regards survival—for example, strokes, head injuries, and even perhaps the normal processes of ageing.

This is clearly not what is intended by those proposing this term for intensive care or transplant purposes (otherwise there could be no shortage of donors), and it would seem advisable to choose a more suitable term. Some qualification such as "gross irreversible brain damage" would help clarify the position, but "damage" may be unduly vague (with many milder clinical usages). Other possibilities such as "gross brain destruction" or "gross cerebral necrosis" also merit consideration; they may seem too precise and extreme, but this is what the clinical situation requires.—I am, etc.,

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Career Structure for Cancer Research

SIR,—I feel that there are certain points in your leading article (8 April, p. 63) on this subject which require elucidation. For example, you use the term "first-class brain" in a context which appears to imply that we all know what this is and the problem is to evolve a career structure which will make it worthwhile for these people to enter the research field. There are, however, good reasons for supposing that an examination how the brain works in solving problems would result in a more fruitful and less expensive effort in this field.

De Bono¹ has shown that thinking processes devoted to the solution of problems can be either vertical or lateral. Vertical thinkers are those who believe that problems can be solved by a conscientious and painstaking progress from one most likely choice to the next and so on, deeper and deeper into an expertly dug hole. "To use his own analogy—as you say, a "deeper understanding of living processes." Lateral thinkers deliberately choose an improbable pathway, "moving sideways," rejecting approaches that do not square with the facts, and refusing to get so deeply involved in any hole as to get out of touch with the rest of the field.

A serendipidist is one who is skilful in arriving at fortunate chance discoveries. This apparent paradox is resolved by the lateral thinker, who deliberately uses chance as a means of finding a solution. His success depends on years of preparation by a vertical approach during which he builds up a mass of information preparatory to his lateral skirmishes into the unknown. The first-class brain therefore will be a combination of sustained academic endeavour but which will retain a freshness of outlook. The researcher who is just expert but pompous will get ever deeper into his interminable hole, developing a jargon that only he and his immediate associates can understand and which is not reducible to simple terms. The lateral thinker with no background of conscientious study in depth will become a