I have read the article by Byrne et al. [1] with interest. The authors mention my operation technique in their discussion [2,3] and suggest that, ‘Because the valve is placed 3 mm above the level of the annulus, one must be very careful about the placement of the coronary buttons on the tube graft, because the buttons will either be very close to the valve or potentially kink due to the 3 mm displacement. In Urbanski and Hacker’s report they describe a 10% (2/20) incidence of the need for CABG because of technical complications’ [1]. This claim is incorrect and may be based on lack of understanding of the operation technique described.

The 3 mm margin of the Dacron tube is only intended for the fixation of the conduit to the aortic annulus and, due to the everted suturing technique, does not cause any dislocation of the valve prosthesis away from the annulus (Fig. 1). The technical problems that led to CABG are clearly stated in the article, ‘The bypass grafts were performed in five patients to address coronary heart disease and in the other two for the technical reason that re-implantation of the right coronary ostium did not seem feasible because of calcification of the aortic wall’ [3].

Incidentally, one of the two patients was among the first six who were operated on before modification of the technique. The second belonged to the group of 47 patients in whom the modified technique was used for operation. The re-implantation of the coronary buttons did not otherwise cause any problems.

There are two reasons why I moved the valve prosthesis into the Dacron tube. The first is that in a xenograft, as in a homograft, calcification may occur not only in the cusps, but also in the aortic wall. This calcification of the aortic wall can make reoperation extremely difficult if a change of valve is necessary.

Secondly, this technique avoids an additional anastomosis between the xenograft and the Dacron tube. If the prosthesis of the ascending aorta is even slightly too long, then a kink stenosis can form. Such a complication appears not to be infrequent. In recent weeks, I have re-operated two patients with replacement of the ascending aorta who exhibited such kinks (Fig. 2). In order to avoid stenosed kinking of the Dacron prosthesis, it must be cut so that it just fits and must be anastomosed under a certain degree of tension. This in turn leads to the potential risk of increased bleeding and even to tissue dehiscence at the xenograft, which we have already seen on one occasion [2,4]. The use of a biological adhesive to strengthen the sutures, as Byrne does, can reduce risk, but does not facilitate reoperation, an option that the surgeon should always bear in mind, especially when using a biological conduit. In Byrne’s group of patients, of whom almost 40% were under 65 years of age, this may be an important aspect.

Apart from one patient with acute aortic dissection, I have not used any biological adhesives in any other case (46). The rethoracotomy rate was 2.1% (1/47) vs. 25% (2/8) as reported by Byrne.

In our series of 47 consecutive patients there were two
(4.3%) acute dissections, three (6.4%) re-operations and 14 (30%) concomitant operations (11 × CABG and 3 × mitral valve repair or replacement). During the follow-up period of up to three years, 45 survivors (there were two non-cardiac and non-valve-related deaths) had very good hemodynamic results with normal motility of the aortic cusps showing no contact with the Dacron tube, low gradient across the valve and no regurgitation.

I agree that the method I described is technically demand-
ing, although this is not obvious from the cross-clamp time (median 108 vs 150 min). For surgeons who are practised in valve-sparing aortic replacement, however, it should not present any problems. I find this surgical challenge, nevertheless, worthwhile as in the long run it is beneficial to patients.

References