



**University of Melbourne**  
Department of Civil Engineering.

Parkville, N.2, Victoria  
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AJF:PMD

Rec. 7/2/62.

Mr. Robin Boyd,  
340 Albert Street,  
MELBOURNE..C.2.

Dear Robin,

I greatly enjoyed your article. From every point of view I think it is excellent. Even on technical questions I am sorry to say that I can find very little to criticise: your statements of structural action are very clear. You should have been an engineer!

I made a few comments as I went along and give you them for what they are worth.

p.1 - last para. Zeiss's 1924 (?) Planetarium roof was I think one of the very earliest modern shells.

p.2 - midway down. Not all conventional structures have some tension e.g. Pont du Gard (dry joints) is entirely in compression.

p.3 - 2nd. para. The earlier suspension bridge builders (e.g. Roebling on Brooklyn Bridge) used inclined cables to improve dynamic properties. Unfortunately engineers do not learn from their predecessor's successes.

p.3 - last para. The Raliegth pavilion is  $\frac{1}{2}$  tension and  $\frac{1}{2}$  compression (cables against arches).

p.6 - last para. We engineers call this arrangement one of anticlastic curvature, as you will know anyway.

p.6 - 2nd. para. I think the sloping members are at more like  $35^{\circ}$ .

p.7 - 2nd. para. This structure (The Benjamin Franklin Congress Hall) is know to Berliners as the Reluctant Oyster.

p.7 - 3rd. para. Not a good example of tension structure in my opinion (or in yours, evidently). All tension structures create compression somewhere, either in the ground or in restraining elements. A planar spine rearing up in mid-air is subject to lateral instability and ~~is~~ not a good structural element. I bet the lateral guys were an after thought.

p.8 - 1st. para. I don't think you have made it quite clear that the tension in the spokes derives from an inner tension ring and an outer compression ring.

p.8 - last para. This principle is probably attributable to Brunel: certainly he used it on the grandest scale (Saltash Bridge, Devon (1859) Span 455'). (See Rolt's excellent biography if you haven't already).

I should very much like to see Otto's book and also order it (or them) for our library. Do you have more details of it?

With kind regards,

Yours sincerely,

*Arthur*