Sunday Times Teaser 3083 – Village Signposts

by Colin Vout

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Inside a shed I saw where the council was preparing signposts for seven neighbouring villages. Between any two villages there is at most one direct road, and the roads don't meet except at village centres, where the signposts are to stand. The arms were all affixed, and labelled except for one name to be completed on each. The names in clockwise order on each were as follows:

> Barton, Aston, ?;
>
> Barton, Grafton, ?;
>
> Carlton, Forton, Eaton, ?;
>
> Grafton, Aston, ?;
>
> Dalton, Grafton, Eaton, ?;
>
> Barton, Forton, Carlton, ?;
>
> Dalton, Aston, ?

Starting at Dalton, I walked along roads, taking the road furthest rightwards at each village and returning to Dalton. I chose the first road so that I visited as many other villages as possible with this method.

In order, what were the other villages I visited?

Solution by Brian Gladman

I don't have much to say about this solution since I obtained it by programming to obtain the connectivity between the villages and then manually found an arrangement of the villages that resulted in roads that don't cross each other and only meet at villages. Here is the layout I found.
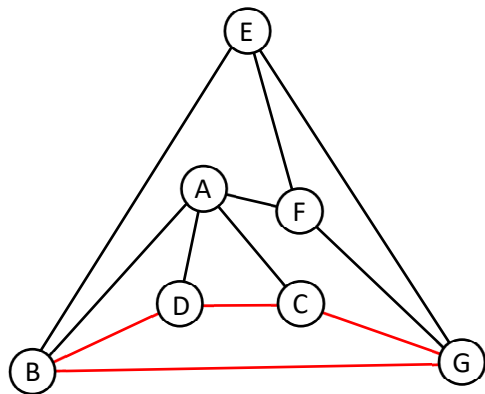
Once the layout is known it is easy to find the longest circuit starting at D:

$$D \rightarrow C \rightarrow G \rightarrow B \rightarrow D$$