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PLANTS IN CARDIOLOGY

Cardiac glycosides
Foxglove, *Digitalis purpurea* (Scrophulariaceae), was a traditional English folk remedy for dropsy (right heart failure) and its use by an old woman in Shropshire and a carpenter in Oxford led Dr William Withering to undertake his fine scientific study of it from 1775 to 1785. But in spite of his advocacy, its use in dropsy lapsed in the next 100 years though it was used in other diseases such as delirium tremens, epilepsy, and tuberculosis.

Nerium oleander L.
Gerard J. *The Herball*.
London: 1633.

By contrast with its neglect in dropsy, its effect on the heart beat gained emphasis. J-B Bouillaud lauded it in 1835 as “le véritable opium du coeur” and gave it by blistering the precordium and covering the area with powdered digitalis. By 1873 F T Roberts had found that digitalis relieved the pulmonary symptoms of mitral disease “especially when there is great irregularity of the heart”. However, it was the work of James Mackenzie, a general practitioner in Lancashire that gave digitalis its established position in the treatment of heart failure. His 10 year analysis of the venous pulse in 500 patients led him in 1902 to identify the arrhythmia later shown to be atrial fibrillation and to show that digitalis was of particular value when “. . . heart failure was due to the excessive rate of the ventricle, the ventricle being exhausted for want of rest . . . the effect of the drug was at times phenomenal”. He recognised what Withering had not—that the relief of dropsy was directly due to the action of the heart.

A cardiac glycoside was first isolated in 1875 when digitoxin was prepared from *D purpurea*. Soon afterwards ouabain and strophanthin-K were isolated from the African trees *Acokanthera* and *Strophanthus* which were used as arrow poisons. American pioneers learnt from the Indians that *Apocynum*, dogbane, was a diuretic and it became known as the vegetable lancet because it worked as well as venesection. These three genera belong to the family Apocynaceae which has six other members containing glycosides and also includes the genera yielding resperine and the vinca alkaloids. Altogether in twelve plant families there are 37 genera with glycosides. One of these is the plant used longest as a diuretic, *Drimys maritima* (squill), which is mentioned in the Ebers papyrus of 1500 bc.

I sometimes wonder whether the eminence of digitalis has inhibited a thorough evaluation of the other glycosides such as the powerful oleandrin found in *Nerium oleander* (*British Heart Journal* 1985;54:258-61).

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