THE EARLY HISTORY OF DIGITALIS[1]

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Digitalis, which at present is looked upon as one of the most important vegetable drugs—the most important in the group of cardiac drugs—does not enjoy the reputation of being one of the oldest drugs. It was not known to the ancients; at least there seems to be no record. The rhizotomists and herbalists such as Theophrastus (370-285 B. C.), Dioscorides (40-90 A. D.), and others of the period which marked the beginning of the Christian era, did not know the plant; there have been several attempts to establish relationship between the "foxes glofe" of the fifteenth century and plants described by the earlier herbalists, but the differences have always been too great for such a conclusion to be accepted.[2]

"Foxes Glofe" occurs in the Saxon Herbarium of 1000 A. D. It was known to the Welsh physicians—the Physicians of Myddrai—as early as 1233 A. D., who recommended its use as a decoction and as an ointment for an external remedy. In the 14th century it is encountered under the name of "Cerotheca vulpis" in a manuscript entitled "Sinonama Bartholimei." The literal translation for this name, fox's hand case, recalls in part the German name "hand schuh."[3]

The name "digitalis" was coined by Leonard Fuchs, a Bavarian physician and botanist, who was more celebrated as a botanist than as a physician. In looking about for a Latin title, he was unable to find one, so he coined the name digitalis[4] by translating the German name "Fingerhuth" into Latin with a slight modification, and called the plant *Digitalis purpurea,* which he described in his *De Historia Stirpium* of 1542.[5] This description carries a block print with it as well as block prints of a few other species of Digitalis. In speaking of its use, Fuchs says that it may be used like gentian. About this same time, in 1552, Tragus (as Hieronymus Bock was known in literature) published his *De Historia Stirpium* which carried a description as well as a figure of Digitalis. Tragus has been given credit by some as having coined the name of digitalis instead of Fuchs.[6]

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[1]Read before the Tennessee Academy of Science at the Nashville meeting, November 26, 1933.
[2]Schweiz, 1915, *Apoth. Ztg.,* vol. 53: 1915, 233.
[3]*Chem. and Drug.,* 77: 861, 1910.
[4]*Pharm. Jour.,* 79: 667, 1908.
[5]Fuchs, L., 1542, *De Hist. Stirp.,* p. 892.
[6]*Amer Jour. Pharm.,* 1913, 85: 216.

H. Boerhauve, in his *Historia plantarum* (1727), considered digitalis too acrid or poisonous for internal use, while C. Alston of Edinburgh in his *Index plantarum* (1740), states it to be "as efficacious as any drug the Indies produce."[7] Kaspar Schwenckfelt, in his *Stirpium et fossilium Silesiæ catalogus* (1600), describes digitalis as a drug in which the decoction of the flower serves as a gargle and subdues inflammation and fever, while the leaves relieve bowel trouble. John Gerard's *Herball or Generall Historie of Plants* (1597)[8] describes its use "to cut and consume flegme and humours, and to scour and cleanse the breast."

Between 1600 and the latter part of the eighteenth century, the works on domestic medicine as well as the English dispensatories gave passing attention to digitalis, the comments being largely repetitions of each other and copied from the earlier publications. The following is a list of some herbals that described digitalis as having no medicinal value or as a tonic:[9]

Lonitzer, A., 1630. Kreuterbuch, 11th ed.
Parkinson, J., 1640. Theatrum Botanicum. Comments on the abundant use of the drug by the Italians as it "selveth all sores."
Fischer, L., 1648. Neues Kreuterbuch.
Tabernaemontanus, J. T., 1687. Neuvollkommen Kreuterbuch.
Zwinger, T., 1696. Theatrum Botanicum.
Valentini, M. B., 1719. Viridarium reformatum.

W. Salmon, who was editor of the *Pharmacopœia Bateana* or *Bates' Dispensatory* (1706), gives a formula for Aqua Digitalis which, he claimed, possessed anti-asthmatic and expectorant properties.[10] The London *Pharmacopœia* of 1650 and 1720 listed digitalis with the simples; it was dropped from the 1775 edition but was readmitted to the 1788 edition. The *Edinburgh Pharmacopœia* of 1735 made mention of digitalis, although it is reported not to have been in the *Edinburgh Pharmacopœia* before 1783.[11]

While the drug was not receiving a great deal of attention from the physicians, nevertheless, it was found in the "volk's-medizin." M. de l'Obel, in 1618,[12] mentioned that the country people of Somersetshire employed a decoction for the cure of fever, but that its operation was exceedingly violent and that it was being employed chiefly in the treatment of epilepsy and external applications for scrofula and ulcers of the leg. In 1761, digitalis was rated as safe only for external use in the treatment of scrofulous sores; internally the action was too violent by stool and by vomit to be in favor with the physicians.[13]

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[7] *Chem. and Drug.*, 1910, 77: 861.
[8] Gerard, J., 1597, *Gen. Hist. of Plants*, 789.
[9] Schweiz, 1915, *Apoth. Ztg.*, 53: 233.
[10] Salmon, W., 1706, *Pharm. Bateana*, p. 14.
[11] Wooton, A., 1910, *Chronicles of Pharmacy*, v. 2, p. 109.
[12] Thompson, C. J., 1929, *Myst. and Art of the Apoth.*, p. 243.
[13] Lewis, W., 1761, *Exper. Hist. of Materia Medica*, p. 248.

Digitalis was introduced to the modern medical world by Dr. William Withering, a noted physician of Birmingham, England, about 1785, after having made clinical observations on its use over a ten-year period. Withering was a painstaking botanist and mineralogist as well as a physician, and was intimately associated with such scientists as Priestly and Watt. In botany, his name lives in the genus *Witheringia* of the *Solanaceæ;* in mineralogy he is perpetuated by having had native barium carbonate named Witherite after him.[14]

It was brought to Withering's attention that a woman in Shropshire was curing people suffering from dropsy. He called on this woman and found that she had one of those secret family remedies which had been handed down through several generations. With it, this woman was effecting cures where many of the physicians had given up the case as hopeless. Withering obtained some of the powder from her, and upon examination found it to consist of some twenty or more herbs. He relates in his *An Account of the Foxglove* that it was not very difficult to reach the conclusion that of this mixture, the only merited herb was foxglove.[15]

Withering, in his studies, used the infusion made from the leaves; petioles and heavy midribs were not used. The leaves were collected and rapidly dried either in direct sunlight or by a hearth-fire. The infusion as he used it does not conform to the present day conception of an infusion but rather a mild or weak tincture, since it was prepared by macerating the leaf and adding an aromatic spirit to the water.[16] Withering was the first to note the diuretic action of the drug as well as its action upon the heart.

Shortly after the Shropshire incident, a lady from west of Yorkshire brought Withering another family recipe which also contained foxglove and which was used by the country people as a tea for the cure of dropsy.

Originally the root and leaves were used. The roots proved useful in the treatment of dropsy as was indicated in the case of Dr. Cawley, principal of Brazen Nose College, Oxford, who was a close friend to Withering.[17] The use of the root, however, was soon dropped, owing to its variability.[18] It is believed that the early usage of the root was a factor in formulating the definition of the drug in the various earlier pharmacopœias in which the leaves of the second-year plant are recognized. The root of the first-year plant is very small and sappy, while the root of the second-year plant is much larger and heavier, and has a more pronounced quality. Withering confined himself to the use of the leaf only, and commented on the variability of the quality of leaves gathered at different seasons of the year.

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[14]Wootton, A., 1910, *Chronicles of Pharmacy,* v. 2, p. 109.
[15]Withering, W., 1785, *An Account of the Foxglove.*
[16]Monroe, D., 1788, *Treat on Med. and Pharm. Chym.,* p. 91.
[17]Withering, W., 1785, *An Account of the Foxglove.*
[18]*Amer. Jour. Pharm.,* 85: 218, 1913.

Withering's success with digitalis therapy received much publicity and soon the physicians throughout the land were using this newly discovered drug in all sorts of cases. This fact led Withering to remark that in spite of the good qualities of this drug, the indiscriminate use by practitioners and the administration of dangerous doses would result in dropping the drug from the Edinburgh Pharmacopœia.

Dr. Justus Anderson of Christiania, in a literature study which he published in Tidskrift for Kemi, Farmaci, og Terapi,[19] states that digitalis was used only rarely in the earlier times and then for entirely different indications than at the present time.

[19]Schweiz, 1915, *Apoth. Ztg.*, 53: 233.

EDITORIAL

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