

**A TREATISE ON THE  
ORIGIN AND COMPONENT  
PARTS OF THE STONE  
IN THE URINARY BLADDER**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649545001

A Treatise on the Origin and Component Parts of the Stone in the Urinary Bladder by William Austin

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Edited by Trieste Publishing Pty Ltd.  
Cover @ 2017

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**WILLIAM AUSTIN**

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A  
TREATISE  
ON THE  
ORIGIN AND COMPONENT PARTS  
OF  
THE STONE  
IN THE URINARY BLADDER.

BEING THE SUBSTANCE OF THE GULSTONIAN LECTURES,  
READ AT THE COLLEGE OF PHYSICIANS  
IN THE YEAR 1790.

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BY WILLIAM AUSTIN, M. D.  
FELLOW OF THE COLLEGE OF PHYSICIANS,  
AND PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL.

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LONDON:  
PRINTED BY W. BULMER AND CO.  
FOR G. NICOL, BOOKSELLER TO HIS MAJESTY,  
PALL-MALL.  
MDCXCJ.

TO THE  
PRESIDENT AND FELLOWS  
OF  
THE COLLEGE OF PHYSICIANS,  
THIS TREATISE  
*IS VERY RESPECTFULLY INSCRIBED,*  
BY THEIR MOST OBEDIENT SERVANT,  
WILLIAM AUSTIN.

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## PART I.

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*On the Formation, Appearance, and Situation,  
of the STONE.*

IT has generally been understood, that the stone in the urinary bladder is produced from something secreted with the urine. Though it is well known, that the sides of the cavities destined to receive the urine, and convey it out of the body, are constantly lubricated with mucus; yet, so far have we been from applying this knowledge to the explanation of this disease, that the mixed fluid, consisting of urine secreted by the kidneys, and of mucus discharged from the vessels through which it passes, is most commonly considered simply



as urine. When the opinion prevailed that the stone was composed of earthy particles, an opinion which has not till lately been rejected, it was conceived that the urine often abounded with these particles, sometimes to such a degree that they spontaneously precipitated, and collecting together, formed a stone; at other times, that some foreign body afforded them a nucleus upon which they crystallized; or that they were cemented together by mucus. Later experiments have shewn, that only a very small portion, not exceeding one two-hundredth part of the stone is earthy; and that it consists in a great measure of matters which are volatile in a moderate heat. A sublimate of a peculiar nature has been found to arise during the application of heat to the stone. No sooner was this discovery made, than the urine was explored, and the sublimate was supposed to be found there. It was concluded, from experiments made on a few calculi, that they all contained this sublimate; and the operation

of remedies as solvents was accounted for by the action of alkaline substances upon it.

The inquiries and observations, which I have been able to make upon this subject, have led in many points to very different conclusions. The main result of these inquiries has been, that the stone is formed generally in very small part, and often in no degree whatever from the urine as secreted by the kidneys, but chiefly from mucus produced from the sides of the different cavities through which the urine passes: that certain stimuli applied to the whole or part of the bladder, give occasion to the production of calculi from the whole or part affected: that the proximate cause of the (disease or) stone is a morbid state of those membranes, and consequently of their secreted juices: that the operation of various remedies for the stone depends on their immediate action on those membranes, by correcting their secretion, or diminishing their irritability: that the sublimate of Scheele is not found in many

calculi: that the urine in general does not contain it: that this sublimate may be resolved into prussic acid, phlogisticated air, and volatile alkali, or by particular treatment may be in a great measure converted into heavy inflammable air: that solvents have different effects on different calculi; and that this difference in their operation depends chiefly on the presence or absence of the calculous sublimate.

It is scarce necessary to premise, that any hard body found in the bladder, kidneys, or ureters, is considered as a stone. Its hardness is in practice its only character. Any substance which jars or sounds against his instruments, a surgeon determines to be a stone. This appellation is universally applied to hard substances found in glands, or in their excretory ducts. They were called calculi, from a mistaken idea of their being calcareous earth. This is so far from truth, that not only the urinary calculi, but all other indurated substances of a morbid kind, as stones in the gall-bladder, bezoars,