

# ENDOUROLOGICAL SOCIETY

## Timeline of Innovations Leading to the Development and Evolution of PCNL

1941

### ACCESS/TECHNIQUE

**Ernest Rupel & Robert Brown**

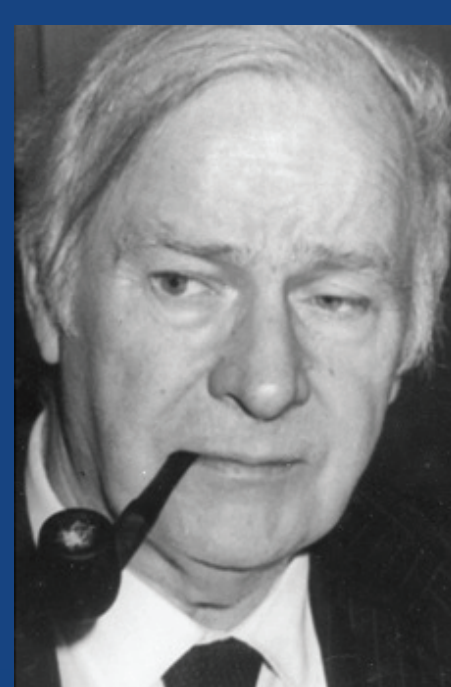
First nephroscopy performed by placing a rigid cystoscope so stones could be removed during open surgery.

1950

### LITHOTRIPSY

Yutkin patent for electrohydraulic shock wave application.

1950s



### OPTICS

**Harold Hopkins**

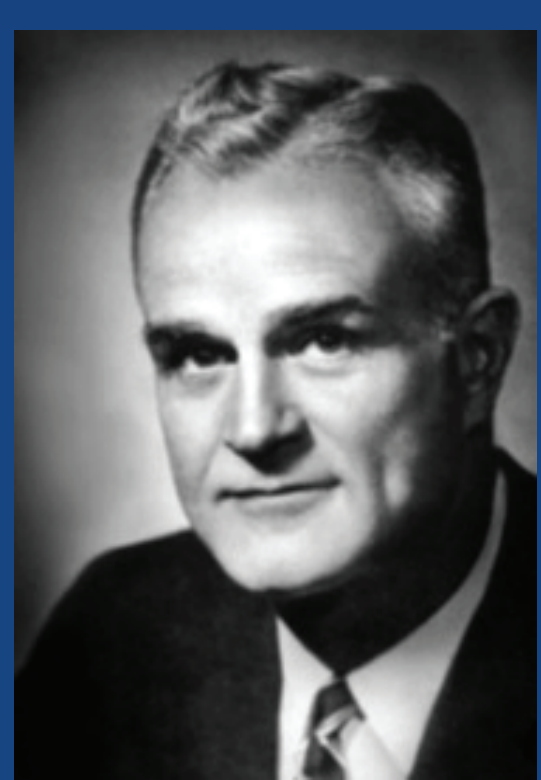
Invented the rod-lens system, which reduced the air space in between lenses with long rods of glass thereby improving the clarity and resolution of the image. The advances in optics led to better cystoscopes which were in turn used as the early nephroscopes.

### RADIOLOGY

Modern fluoroscopy developed.

1960

### ACCESS/TECHNIQUE



**Victor Fray Marshall**

Performed the first antegrade nephroscopy and ureteroscopy using a fiberscope during an open exploration to visualize the pelvis and distal ureter.

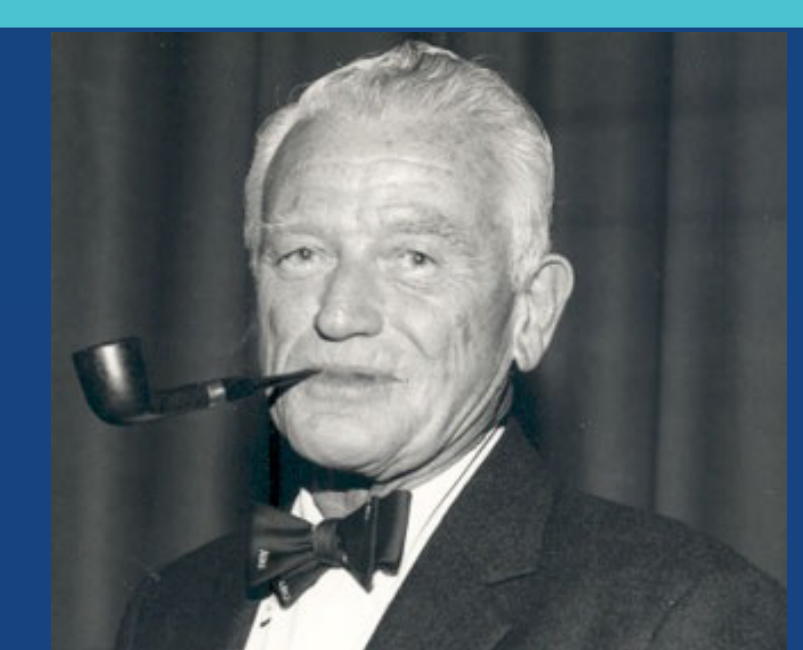
1960s

### OPTICS

Modern fiberoptics, introduced in the 1960s, coincided with the development of flexible endoscopy/nephroscopy, and aided in less invasive stone clearance.

1955

### ACCESS/TECHNIQUE



**Willard Goodwin**

First Chair of the Department of Urology at UCLA, was the first to place a percutaneous nephrostomy tube and first antegrade nephrostogram. Dr. Goodwin's percutaneous approach would lead to the realization that a percutaneous tract could be used to access the kidney.

1961

### LITHOTRIPSY

Development of Nd:YAG solid state laser.

1969



### OPTICS

**George Smith & Willard Boyle**

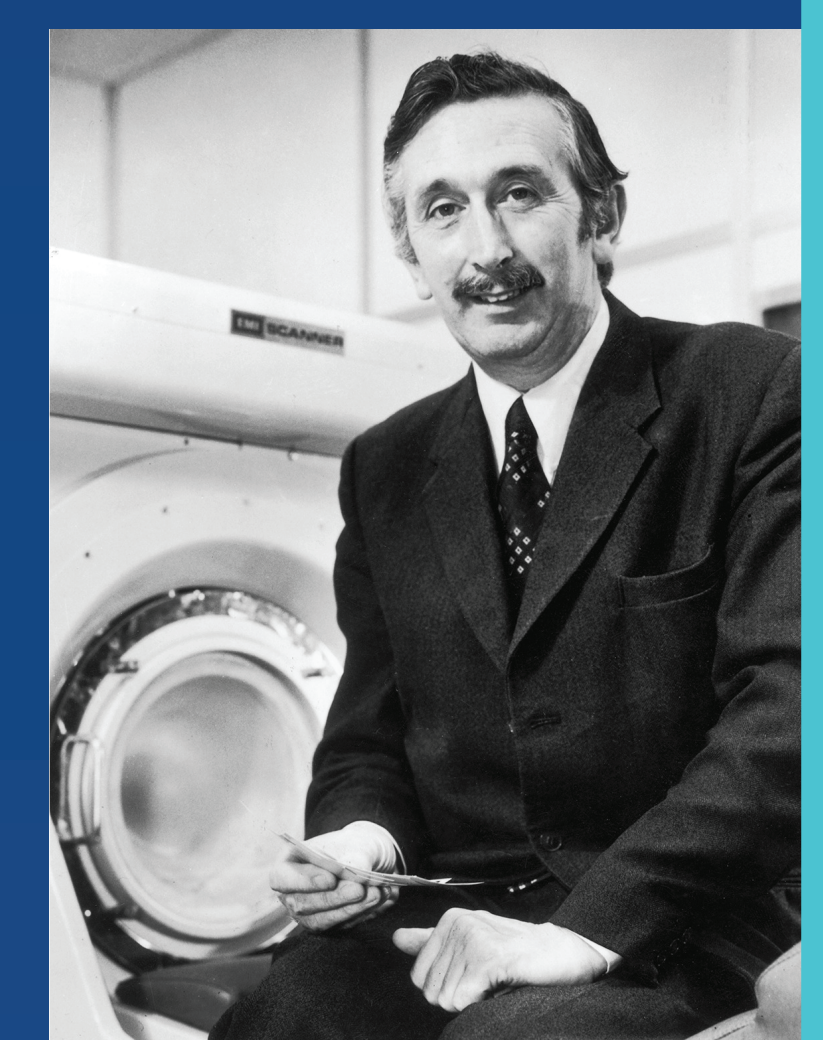
Improvements in imaging culminated with the development of the charged couple device (CCD) for electronic video recording.

1971

### RADIOLOGY

**Sir Godfrey Hounsfield**

First computed tomography machine developed.



### LITHOTRIPSY

Ultrasonic lithotrite developed.

1978

### ACCESS/TECHNIQUE

**Arthur Smith**

Introduced a Gibbons stent through a percutaneous nephrostomy in a patient with a reimplanted ureter with a urine leak to allow the urinary leak to seal. Coined the term "endourology" to describe a closed, controlled manipulation of the genitourinary tract.



1977

### LITHOTRIPSY

Kurth uses ultrasonic lithotrite for PCNL of staghorn calculus.

1976

### ACCESS/TECHNIQUE

**Fernström and Johansson**

First stone extraction through nephrostomy tract.

1982

### ACCESS/TECHNIQUE

**Ralph Clayman**

Develops porcine model for nephroscopy and PCNL.

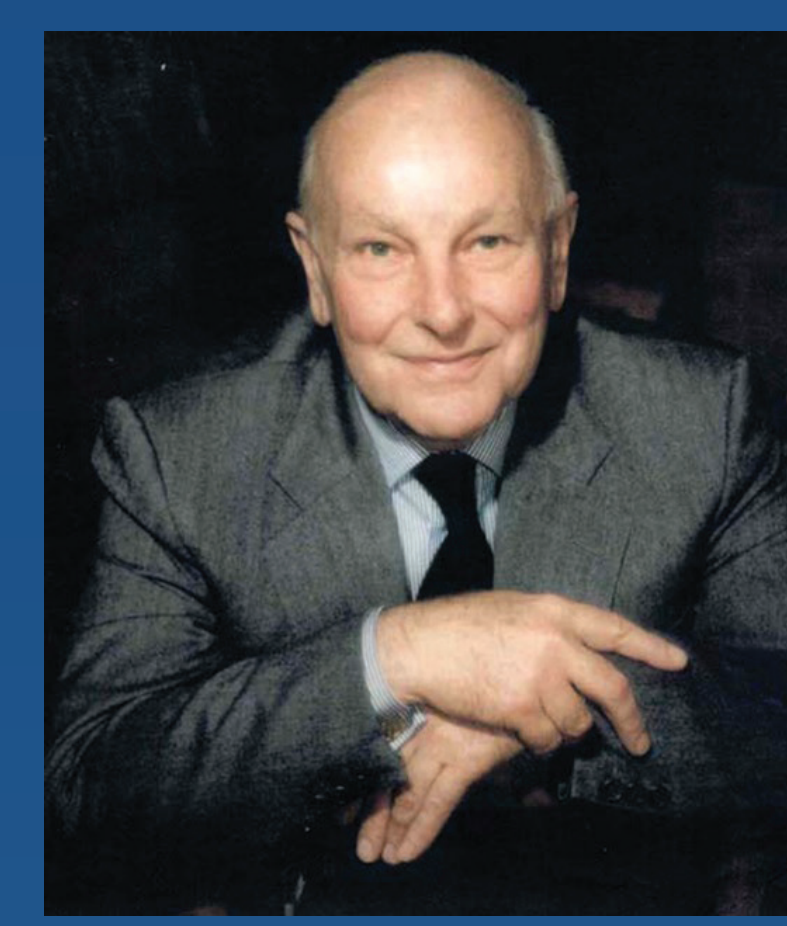


1983

### ACCESS/TECHNIQUE

**John Wickham**

Organized first World Congress of Percutaneous Renal Surgery, the precursor to the WCE.



1992

### LITHOTRIPSY

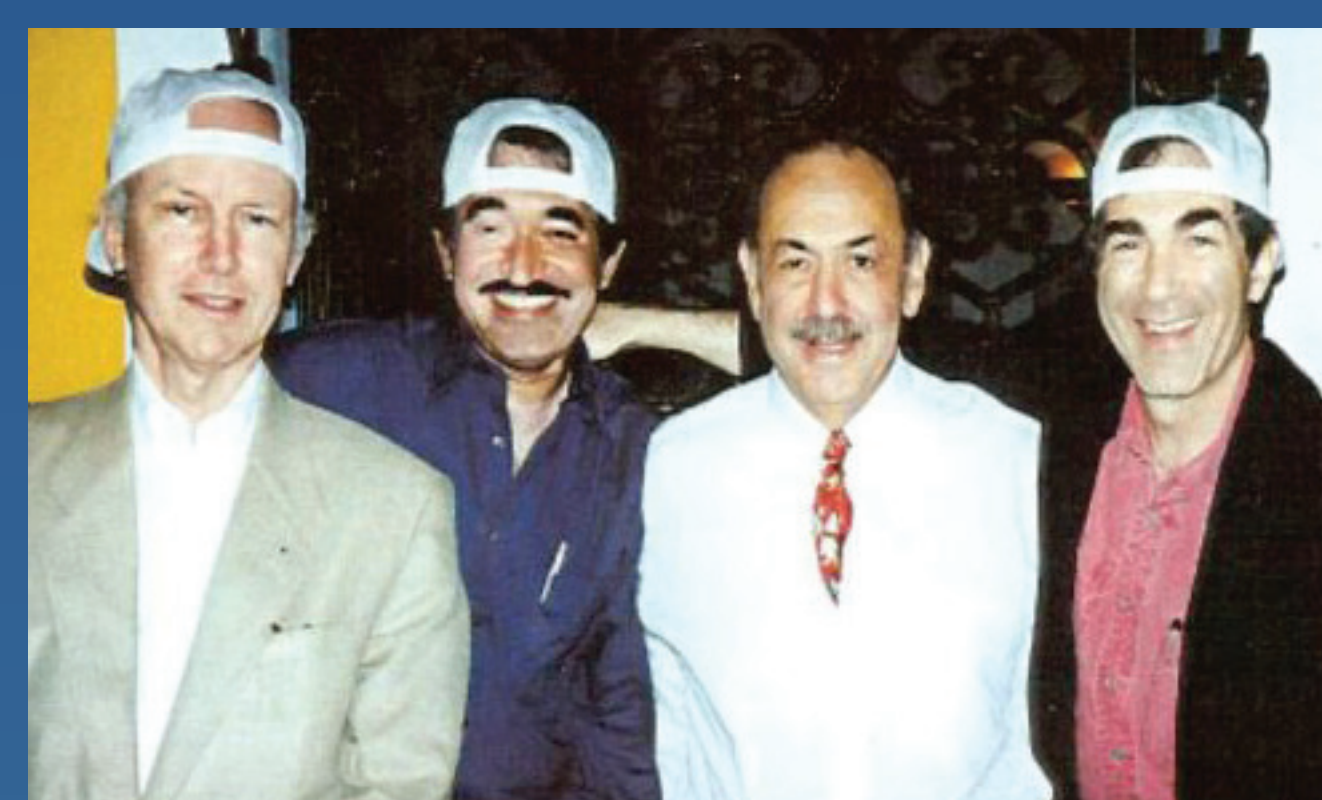
Pneumatic lithotripsy was developed.

1987

### ACCESS/TECHNIQUE

**Jose Gabriel Valdivia Uria**

First supine PCNL.



1984

### ACCESS/TECHNIQUE

Creation of the Endourological Society. Dr. Smith (President), Dr. Segura (Vice President), Dr. Clayman (Secretary) and Dr. Badlani (Treasurer).

### ACCESS/TECHNIQUE

**John Wickham**

First tubeless PCNL.

Learn more at [endourology.org](https://endourology.org)