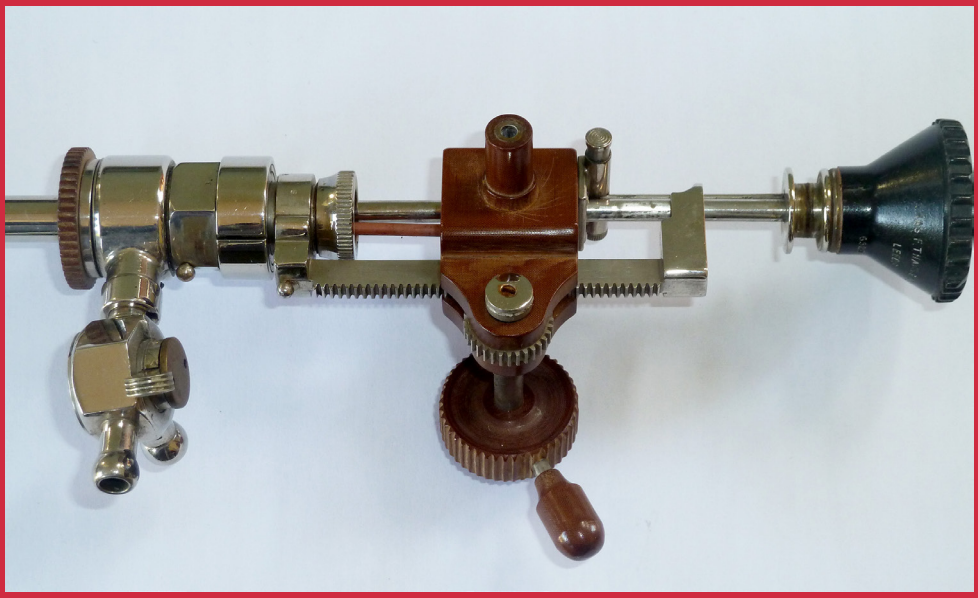
That Silly Operation!

The introduction of TURP into Great Britain



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The British Association of Urological Surgeons

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Acknowledgements

I'm very grateful to Mr Bernard Ferrie FRCS, retired Urological Surgeon, who acted as expert editor.

Thanks to Miss H.P.H. Goddard, Junior Curator, for photographing the instruments from the collection.

I'm extremely grateful to KARL STORZ Endoscopy (UK) Ltd. who generously published this booklet for the 2019 BAUS Annual Meeting in Glasgow.

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"That Silly Operation!"
The introduction of TURP into Great Britain

"We want you to give up that silly TURP operation John, it will bring St Peter's into disrepute".

This is what John Blandy, one of the icons of Twentieth Century British Urology, was told by his "greaters and betters" at St Peter's Hospital (the famous London urology centre) as late as the 1960's[1]. TURP even at that stage was still seen as a "silly" new and dangerous operation that should not replace open prostatectomy.

However, Transurethral Resection of the Prostate, TURP, is now seen as one of the operations that define Urology. Certain procedures, over time, have stood out as key indicators of Urology; lithotomy, lithotrity, cystoscopy, open prostatectomy, radical prostatectomy and now robotic prostatectomy. They are each surgeries of their age, their names associated with Urology and even certain urologists. A brief roll call of names are easily linked with each one; Cheselden (lithotomy), Civiale and Sir Henry Thompson (blind lithotrity), Nitze and Hurry Fenwick (Cystoscopy), Sir Peter Freyer (open prostatectomy), Patrick Walsh (Radical Retropubic Prostatectomy), Roger Kirby and Prokar Dasgupta (Robotic prostatectomy in the UK). Each operation was a medical and technological advance, typical of the place Urology takes at the forefront of medical innovation. Seeing its heyday in the later part of the Twentieth Century, TURP is still one of the most well known urological operations.

TURP however is by no means a British operation; it is a citizen of America and its immigration into Great Britain was a tortuous one. To understand the adoption of TURP into the British Isles one needs to understand how it came about. It was an inevitable consequence of the long history of blind transurethral surgery (that basis of minimally invasive urology) and the invention of cystoscopy. Once the lower urinary tract could be visualised, endoscopic therapeutic procedures quickly followed. Whilst the development of cystoscopy was dependant on the understanding and advancement of the physics of light, the invention of TURP was intimately linked with innovations in electrical current.

Early Transurethral Prostate Surgery

The passage of a tube (you would now call it a catheter) made perhaps of a reed or an onion stem, to relieve the painful retention caused by prostatic obstruction must surely have been one of the first urological interventions [Fig 1].

Figure 1: *Squire's Vertebrated Catheter, to negotiate the tortuous obstructing prostate.*

Later, catheters and bougies (some sharpened) were forcibly pushed through the prostate to drain the bladder. Some surgeons probably purposely used bladed instruments to shave off tissue obstructing the urethra at the bladder neck. Experience in treating urethral strictures and the invention of the blind lithotrite (in 1824), passed urethrally to crush bladder stones, encouraged surgeons to experiment with similar technology to treat bladder outflow obstruction.

Reed Nesbit (1898-1979), himself a pioneer of TURP, writing in 1943, believed that R.A. Stafford reported the first case of surgical transurethral treatment of the obstructing prostate in 1831[2]. Richard Anthony Stafford (1801-1854) [Fig 2] trained at St Batholomew's Hospital in London and was surgeon to the Marylebone Infirmary.

Figure 2: *Richard Anthony Stafford, the first BPH surgeon? Oil painting by William Salter. Credit: Wellcome Collection. CC BY*

He wrote on the use of the *lanceted styllette*, basically a sharpened sound, to treat urethral strictures [Fig 3]. In his 1831 paper he described the use of his *stylette* to puncture through the obstructing median lobe of the prostate[3]. After the publication of his subsequent 1840 book the anonymous reviewer pointed out that the technique of puncturing the prostatic obstruction was not new[4]; indeed there was a similar account as early as 1726 by La Faye[5]. Stafford did however document this as a surgical option using a specialised instrument rather than forcing a catheter through.

Figure 3: *Lancetted Stylette. Leicester Royal Infirmary Medical Museum.*

George Guthrie (1785-1856) described the transurethral (if blind) cutting open of a tight bladder neck in 1834[6]. Guthrie was a very competent military surgeon of the Peninsular War who later became Assistant Surgeon to the Westminster Hospital and three times President of the Royal College of Surgeons. His instrument was an adaptation of Stafford's Perforator and held a spring-loaded knife, which could be released once in position near the tight bladder neck and used to cut it open. Although some authors have guessed at its appearance, there are no contemporary images of Guthrie's instrument.

In France, Louis Auguste Mercier (1811-1882) also presented a bladder neck *incisor* (it looked like a sharpened lithtotrite) and like Guthrie's was used to open a tight bladder neck. He also made an *excisor*, which actually removed tissue from the obstructing prostate [Fig 4], a small advance towards TURP[5].

Figure 4: *Mercier's Excisor. From the Tieman & Co. catalogue 1889.*

The two major obstacles to progression with the techniques of Guthrie and Mercier were lack of vision and inability to control bleeding. The former was achieved in the 1880's with the introduction of the practical cystoscope and urethroscope. The latter was first addressed by Enrico Bottini (1837-1903) of Pavia, Italy in 1874. Bottini was the first to use an electrical current to surgically treat the obstructing prostate. His instrument, the *'galvanocautery'* once again looked similar to a blind lithotrite [Fig 5]. The inner (male) blade was heated by a direct electrical current and used to burn 'V' shaped channels into the prostate. This of course was used blindly, positioned by feel. Nevertheless, Bottini reported 57 cases with only two deaths[7]. Very much like the original operation of lithotrity, the galvanocautery was applied without anaesthetic, sparingly and in repeated sittings until the obstruction was relived. One patient, a Dr Musati wrote, "The pain is so easily born I would advise everyone against the use of chloroform"[5].

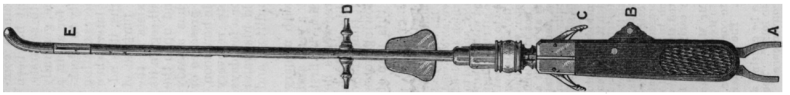

Figure 5: *Bottini's Galvanocautery.*

In England, William Bruce Clarke (1850-1914) of St Bartholomew's tried Bottini's method and presented a series of four cases to the International Medical Congress in Berlin in 1890 and to the Medical Society of London in 1891. He was very clear that it was a procedure only for the small prostate[8].

The idea was also taken up by Hurry Fenwick (1856-1944) of The London Hospital, who had his own model of a Prostatic Thermo-Galvanic Cautery made [Fig 6]. Interestingly Fenwick also had Joseph Leiter (1830-1892), the cystoscope pioneer of Vienna, make him a galvanic (i.e. electrified) ecraseur[9]. This was based on an idea by Francis R. Tobin (1843-1919) of Dublin who looped a wire over the median lobe passed per urethrally but guided by a hand in the bladder[10]. Fenwick presumably cut through the lobe with his heated wire loop. It's an unusual idea sitting between open prostatectomy and TURP [Fig 7].

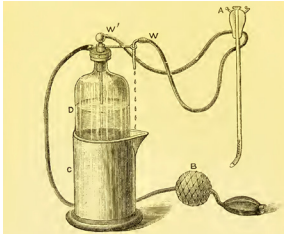

Figure 6: *Fenwick's water cooled Prostatic Thermo-Galvanic Cautery.*

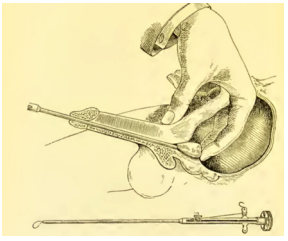

Figure 7: *Francis Tobin's unusual hybrid transurethral / open procedure.*

Unsurprisingly, Fenwick said it was seldom needed. Indeed, writing in 1874, he felt that even his own Thermo-Galvanic Cautery device would only prove useful in a limited number of cases and overall, urethral prostatectomy, he judged to be, in every way, unsatisfactory[9].

The Punch – a digression

These early transurethral attempts did however lead to another technique to remove tissue from around the obstructed bladder neck, the Punch. The first useable Punch was that designed by the Father of American Urology Hugh Hampton Young (1870-1945) in 1909 and the ultimate punch of Gersholm Thompson (1901-1975) was still in use in the 1980's. The punches however used a blade to cut tissue, the significant haemorrhage was then subsequently controlled by secondary diathermy. The Punch is an important part in the history and development of TURP, it preceded it and remained as a parallel technique for many years but it is not TURP. TURP is the removal of prostatic tissue using electricity (not a blade) as the cutting element. Earl Nation (1910-2008) felt that the Punch was too difficult for the average urologist and it was the introduction of the wire loop resectoscope that tipped the balance from open prostatectomy to endoscopic treatment[11].

The first true resectoscope was introduced by Maximillian Stern in 1926, it was innovative but not quite fit for purpose. To understand how, over the next few years this was changed, mainly in America, into a useful and long lasting instrument we will have to digress into the development of diathermy.

Medical Electricity

The earliest use of electricity in medicine appears to be from the Ancient Greeks and Romans who claimed that standing on an electric Torpedo fish whilst on a wet beach cured gout. Its miraculous properties were also recommended for headaches, intestinal ailments and anal prolapse![12] Following the development of apparatus that could generate electricity it was soon applied for a myriad of maladies. This type of electricity however stimulated nerves and muscles; excess of it would lead to muscular spasms, cardiac arrest and death.

In 1888 Heinrich Hertz (1857-1894) produced an oscillating current of very high frequency. In 1890 Jacques-Arsène d'Arsonval (1851-1940) discovered that although currents of less than 10,000 oscillations per second caused painful muscle contractions, higher frequency currents did not, but they did cause local burns if delivered via a point electrode[2].

These high frequency currents were created by Spark Gap Generators. The standard electrical supply (which has a frequency of 50-60 cycles per second (Hz)) is connected to the primary coil of a transformer. This alternating current then generates a high frequency current in a secondary coil. This is connected to a series of condensers, which store the charge until the voltage is sufficiently high to discharge through a spark gap. The condensers are then recharged and the process begins again[13]. Thus the high frequency current is delivered in bursts, this is called a damped current [Fig 8]. This damped diathermy current coagulates vessels and chars and destroys tissue; it does not however, give a clean surgical cut.

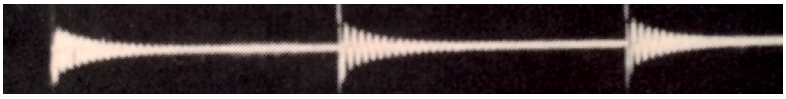

Figure 8: *Damped high frequency current.*

An electrical current that will neatly cut tissues needs a continuous un-damped sine wave [Fig 9]. In order to achieve this a new electrical innovation was required, the radio valve or vacuum tube. Sir John Ambrose Fleming FRS (1849-1945), an English electrical engineer and physicist, invented the first thermionic valve or vacuum tube in 1904. This was used in radios, television, radar and early computers as well as medical diathermy. The tube - valve was improved by the American inventor Lee de Forest (1873-1961).

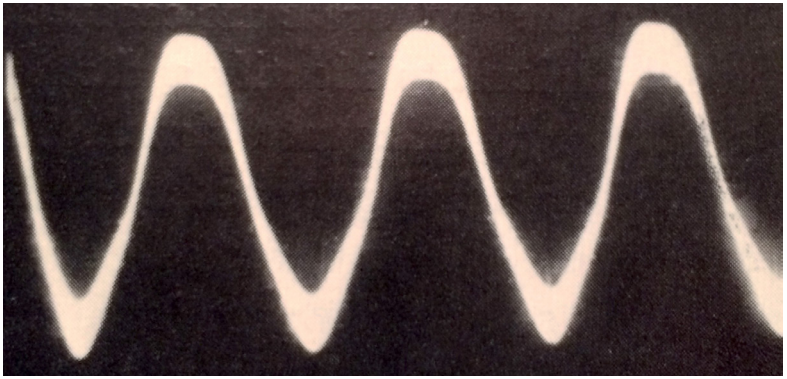

Figure 9: *Undamped continuous cutting current.*

The first practical sustained oscillating (undamped) current created with vacuum tube generators to cut prostatic tissue was made in 1923. The Radiotherm cutting current (also known as a Radio tube oscillator) was made by the engineer Reinhold Wappler (1870-1932) in the USA[14]. The undamped high frequency radio-valve current cut well through tissue, but it did not coagulate well. In 1932 Frederick Wappler (1901-1944), Reinhold's son, developed a valve diathermy machine with reduced damping that cut well and coagulated called the Comprex Oscillator[15].

This distinction between the coagulating current of the Spark Gap machines and the cutting current of the Radio valve machines is vital in the understanding of how TURP developed. The spark gap machines cauterised and coagulated, the later more powerful ones could cut but left more of a slough. The radio valve machines produced an undamped current which cut cleanly but with less coagulation.

The burning of the prostate

Although Bottini introduced electo-dissection of the prostate it was a discovery in 1910 by Edwin Beer (1876-1938) that moved things forward. Beer showed that it was possible to fulgurate (char and destroy) bladder tumours via a cystoscope under water[16]. He used an Oudin monopolar current, an improvement of the d'Arsonval's generator by Frenchman Paul Marie Oudin (1851-1923). The *Oudin monopolar current* caused surface desiccation of the tissues and the *d'Arsonval bipolar current*, which needed a second broad electrode placed elsewhere on the body, caused tissue coagulation[2]. Beer was subsequently awarded a Gold Medal for his discovery at the 3rd International Urology Congress (now the SIU) in Brussels in 1927.

This discovery soon led other urologists to apply Beer's technique to the bladder neck and prostate. In 1913, Raymond Stevens (1876-1968) of the Bellevue Hospital, New York and Henry G. Bugbee (1881-1945), also of New York, both independently reported the use of the Oudin current to burn away the bladder neck and parts of the prostate[14]. Over in France in 1914, George Luys described his, *forage de la*

prostate. Operating in air, he burned away areas of the prostate. The procedure was carried out in small amounts over many repeated sessions and took, in total, about three months[14]. These early attempts burned away prostatic tissue and the eschar subsequently sloughed away, sometimes accompanied by secondary infection and haemorrhage.

It was Clyde W. Collings (1892-1952) of New York and later California, who was the first to actively remove prostatic tissue transurethrally cutting the tissue with high-frequency current. In April 1923 he began using his *radiotherm*, a tube-valve machine developed by the Wappler Company, to cut grooves into the prostate. His procedure was similar to that of Bugbee and Luys, but instead of burning away the tissue he cut it. Soon he advanced his technique to remove small pieces of prostate using, what we now call, a Collings' knife [Fig 10]. The *radiotherm* generator worked poorly in water but better in a medium of oil. This was messy; he persuaded the Wappler electrical company to make a more powerful diathermy machine called the *electrotome*. This could be used in water and was based on the spark gap theory however, the frequency of the oscillations was increased by about fourteen times[17], this reduced the damping and allowed cutting, but at the expense of some coagulation.

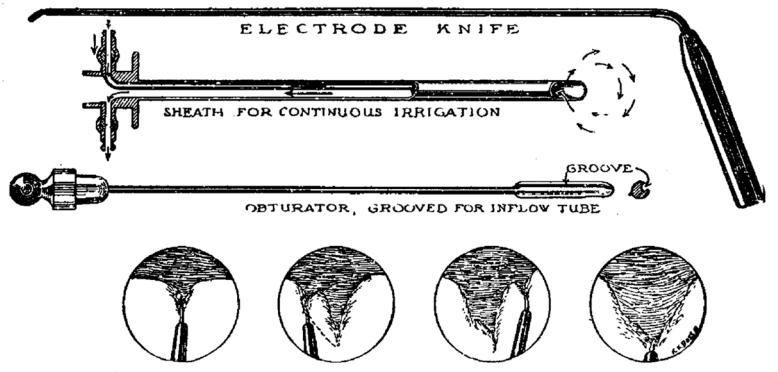

Figure 10: *The Collings' knife*

In January 1926, Maximilian Stern (1878-1946) [Fig 11] presented his resectoscope to the GU Section of the New York Academy of Medicine[18]. Stern's current was a radiofrequency type of low voltage he called a *'resectotherm'*. It was a continuous flow undamped current developed by the Western Electric Co. The resectoscope allowed him to cut spaghetti like slivers of prostate using a tungsten wire loop moved in and out with a rack and pinion device. This was the first resectoscope and the first true TURP. The current was monopolar.

Figure 11: *Maximilian Stern*

Theodore M. Davies (1889-1973) found that Stern's resectoscope didn't coagulate well so he redesigned it. Recognising the need for both an undamped cutting current and a damped coagulating current he used a machine that delivered both, changing between the two via a foot pedal switch. He also increased the diameter and thickness of the tungsten cutting loops. Incidentally, Davies' resectoscope cut away from

the user. Davies presented a series of 246 TURPs on 10th June 1931 at the American Medical Association meeting in Philadelphia and inspired many US urologists to rush out and buy a resectoscope[19].

It was Joseph McCarthy (1874-1965) who put all these elements together, Stern's resectoscope, Davies' current, a Bakelite insulating sheath designed by Kenneth Walker of London and his own excellent panendoscope (another invention of Frederick Wappler). His resectoscope cut towards the operator in a way familiar to us now. The McCarthy resectoscope [Fig 12] formed the basis of all future models and continued in use until at least the 1960's[14]. With their Stern-McCarthy resectoscope the Americans quickly embraced the new TURP.

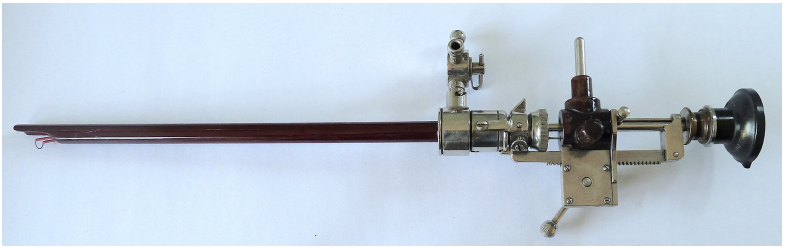

Figure 12: *The McCarthy Resectoscope.*

The British Approach

The advances in electro surgery in American urology did not go unnoticed in Great Britain and Ireland. Edwin Canny Ryall (1865-1934) [Fig 13] an Irish urologist operating in his own hospital, All Saints in London, was an early advocate of endoscopic urology[20]. Ryall began coagulating the prostate in 1913[21] after he had read Beer's 1910 report on fulgurating bladder tumours [Fig 14]. In 1926 he introduced his own *'visual prostatic coagulator'*[22].

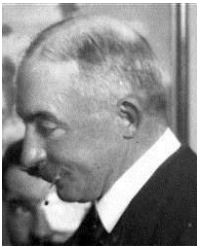

Figure 13: *Edward Canny Ryall*

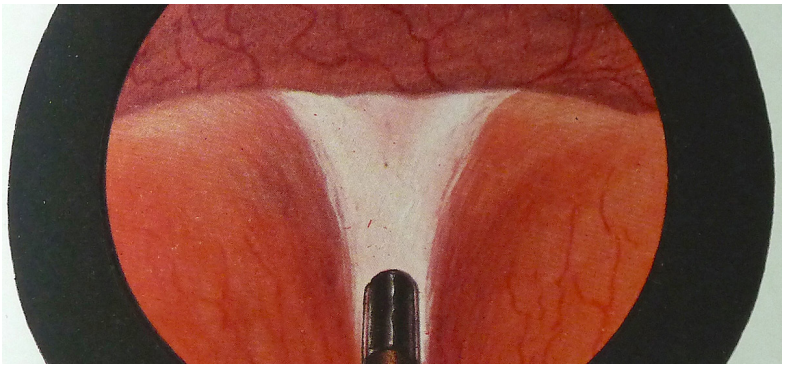

Figure 14: *Coagulating the bladder neck. From Canny Ryall's 1925 book, Operative Cystoscopy.*

Kenneth Walker (1882-1966) urologist at the Northern Hospital and St Bartholomew's used Luy's *forage de la prostate* sometimes under local anaesthetic and also tried the American punches. Unsatisfied with these he then designed his own prostatic punch in 1925, the first to use an insulating Bakelite sheath, an idea as we've seen used by McCarthy in his resectoscope[23].

In October 1931 the American urologist Clyde Collings presented his technique at a meeting of the Urology Section of the Royal Society of Medicine (RSM). It was clear in the discussion that followed, that although some British urologists were not using endoscopic methods to treat bladder outflow obstruction many were; Kenneth Walker had used a similar method to Collings in 300 cases. Winsbury-White (1889-1962) was using the American Kirwin punch and John Everidge (1884-1955) of King's, was trying to devise his own prostatic punch. At this meeting the discussion was mainly on cautery of the prostate, which at that time was more in vogue in Great Britain and France[24], and Collings was just introducing the American idea of cutting away tissue.

By 1929 Canny Ryall was using a cutting current on the bladder neck but found the Collings' electrotome to be unsuitable to deal with true prostatic hypertrophy and unfortunately also found the Stern resectoscope of little practical use. In 1930 he introduced his own resectoscope, an improvement of Stern's. Also working with Canny Ryall at All Saints was Terence Millin (1903-1980). Another Irish surgeon in London he became a strong UK advocate for TURP. Writing in 1937, after Canny Ryall's sudden and unexpected death in 1934, Millin clearly stated that it was he who had introduced the wire loop resectoscope into England in 1930. Canny Ryall and Millin together had published an enthusiastic paper in the Lancet in 1932 on the TURP and it is unclear whether the pioneer Canny Ryall was the force behind the British TURP or whether Millin had persuaded Ryall to abandon his prostatic cautery in favour of the American wire loop.

By 1935 All Saints' published their series of over 150 TURPs[25]. The first resection was in October 1931 and the McCarthy resectoscope or the later Millin-Ryall modification was used throughout [Fig 15]. They initially used a Wappler Comprex Oscillator but found the coagulation was poor and in 1932 changed to a Spark Gap Generator. Writing in 1932 Millin felt confident any amount of prostatic tissue could be removed and that 75-80% of all prostatic obstruction could be treated by TURP, "a minor operation"[26].

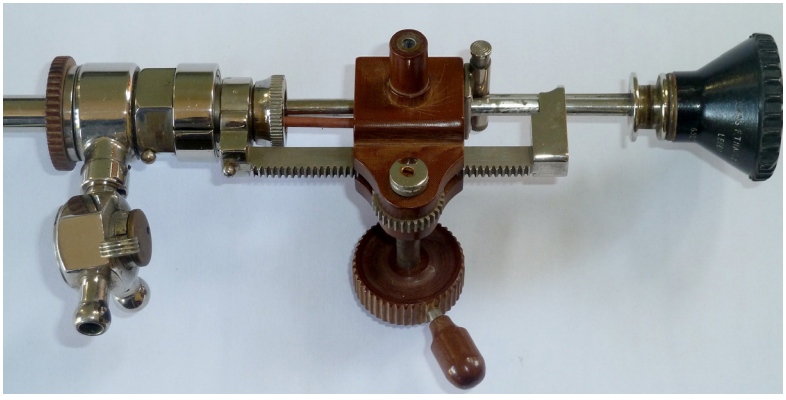

Figure 15: *Millin's Resectoscope, detail showing the rack and pinion movement.*

In Scotland both Arthur Jacobs (1899-1974) and Walter Galbraith (1889-1960) were quick to note the new technology, they both presented their early reports at the same meeting of the Medico-Chirurgical Society of Glasgow in 1933[27 28]. By 1936 both were carefully selecting their cases with Jacobs considering 35-40% of his prostates suitable for TURP and Galbraith 31.5%. Compare this with Gersholm Thompson's series from the Mayo Clinic in America, 93% of his cases were dealt with using his punch.

By 1933 when the RSM Urology Section had a meeting devoted to per urethral treatment of the enlarged prostate, TURP was a major part of that discussion. John Everidge felt it only suitable for 10% of his cases, he had abandoned the punch but more of his cases were treated by simple prostatic cautery than TURP. T.E. Hammond (1888-1943) of Cardiff had also given up the punch. Eric Riches (later Sir Eric) felt the future was the TURP and not the punch, but it was an operation for small glands[29]. Overall, TURP remained less popular in Britain, it didn't seem to take off while in America it continued apace, why?

A Cold British Reception for TURP

Millin in 1932 wrote there was a 'strong feeling of distrust' in the UK regarding any transurethral prostatic surgery[26]. Farquhar McGillivray Loughnane (1885-1948), also of All Saints, said the initial enthusiasm waned after increasing reports of catastrophes following TURP[24]. Although Millin was also worried about the overzealous resector and hoped their judgement would not be warped by their enthusiasm. Millin had been carrying out resection for three and a half years (since 1928/9); he had done 73 cases, using a standardised technique in over 60[26]. John Everidge agreed that by 1933 these methods had remained in the background in the UK. He later championed TURP but by 1933 he had only carried 15 cases out of a total of 75, others being cauterised or punched[29]. By 1937 Millin was already becoming a little more cautious. TURP was better for the smaller gland, open prostatectomy was better for the large gland. His TURP rate had fallen from 90% in 1933 to 32% by January 1937[30].

Kenneth Walker summarising his 14 years of prostatic surgery, thought that Loop TURP, using cutting current, led to more tissue damage and preferred the cold punch with targeted coagulation of bleeding vessels. He concluded that British surgeons were increasingly reverting to the punch method[31]. In Glasgow Walter Galbraith soon changed from the TURP to the punch.

There was a great leaning towards open prostatectomy in Britain. The transvesical prostatectomy popularised by Sir Peter Freyer, the flamboyant Irish surgeon working at St Peter's, was improved further by the Australian Harry Harris who sutured the bladder and dispensed with the prolonged suprapubic drainage. The British were comfortable with open surgery, Urology struggled as a separate speciality here, it was still rare for a surgeon to be a pure urologist. Some had 'an interest' in Urology but remained general surgeons. Many of those surgeons who were noted as urologists in the 1930's had learnt their practical skills in the Field Hospitals of the First World War. They were as happy with their hands in the abdomen and pelvis as around a cystoscope. The British were more cautions with the new American technique; it was not dismissed, it was just used more selectively. They certainly did not consider it a panacea neither did they see it as a minor procedure and definitely not a technique with a short learning curve.

Another War

With the outbreak of the Second World War in 1939 several things changed. Many young and middle-aged urologists joined or re-joined the forces and were either taken away overseas or their usual duties changed to more general wartime needs. The other significant change for the endourologist, indeed all surgeons during the War, was the requisition of surgical diathermy machines by the War Office for military use. Being an island, Great Britain was at greater threat from the Luftwaffe than from ground forces during the

early war and much thought was focussed on this. The Germans had a type of radar system used initially to help with accurate landing but of course equally useful for the more precise dropping of bombs. Radar, like wireless and indeed diathermy, uses electrical signals with the wavelength of radiowaves. The diathermy machines could be used to block the German radar! This has been proposed as a major reason why the UK emerged from the War with very little TURPs being done. It certainly may have played a part but I believe it was more complex than that.

Millin stayed in England during the War, although he was active in the Emergency Medical Service, he did not travel so he could continue to focus on the problem of the prostate. Just after the war ended he presented his new technique for open prostatectomty. Millin's retropubic technique was, compared to the old transvesical one, more straight forward. It could certainly be done by any competent general surgeon, no cystoscopic skill was required. So after the war, with a lack of diathermy machines, another generation of young surgeons trained and used to the open surgery of the battlefield and an easy operative solution, there remained little British enthusiasm for the TURP.

After the War

There was one group of British and Irish urologists who travelled to America to investigate transurethral prostatectomy, they brought back their skills and they used them extensively. However, this skill was not TURP, this group of enthusiasts used the Punch [Fig 16]. They acknowledged the lack of interest in the British Isles, so much so, they formed their own society to share ideas and techniques, the Punch Club was founded in 1949 by Tom Chapman (1903-1966), Henry Hamilton Stewart (1904-1970), John Swinney (1912-1988) and Tom Lane (1894-1967), its first meeting was at the Meath Hospital in Ireland, Lane's unit. These were the British and Irish urologists who promoted transurethral prostatic surgery but by doing so, maybe they had slowed down even more the introduction of the 'hot wire loop' of TURP?

Figure 16: *Thompson Prostatic Punch.*

In 1960 John Blandy (1927-2011), a senior registrar at the London Hospital, travelled to Chicago to get his 'American experience" with the hope of making himself a more attractive candidate for a consultant post in London [Fig 17]. He learned the technique of TURP from a senior resident. They used two separate diathermy machines, the valve for cutting and the spark gap for coagulating; little change from the 1930's! He also visited Reed Nesbit in Ann Arbor, at that time the major US proponent of TURP and inventor of the single handed resectoscope with a thumb loop more familiar to us now [Fig 18]. Convinced it was

Figure 17: *John Blandy*

the right way to go he not only practised but also taught TURP to his trainees back in England. He also began to write a textbook, at that time there was no British book and the two American texts by Nesbit and Roger Barnes were out of print. His book, Transurethral Resection was first published in 1971. Writing the forward for the 5th edition in 2005, he looked back and noted that when it was first published barely any TURPs were done in the UK[32].

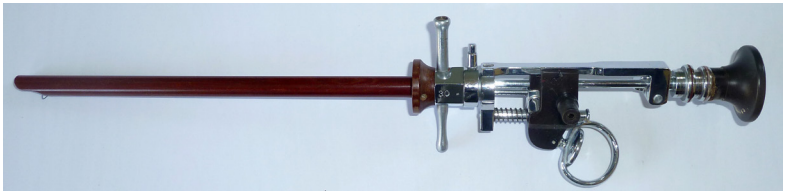

Figure 18: *The Nesbit Resectoscope.*

Urology registrars of Blandy's generation could only learn TURP by travelling to the US. His colleague at the London Gerald Tresidder (1912-1996) was taught by Nesbit in Ann Arbor[33], Geoffrey Chisholm (1931-1994), a New Zealand trainee in London who later became Professor of Surgery in Edinburgh, spent a year learning TURP from Roger Barnes (1897-1982) in Los Angeles[34]. Interestingly, at the Meath Hospital in Dublin it was the other way round, America came to them. Previously Tom Lane's punch unit, a visiting American surgeon had interested the urologists there in the hot wire loop TURP. Dermot O'Flynn (1920-2014) championed this new method and by the 1970s the Meath was a centre of excellence for TURP.

In Bristol the somewhat eccentric general surgeon Wilfred Adams (1892-1974) created a urology department in 1948. Adams was a member of the first BAUS council. He travelled to America to observe McCarthy's TURP and brought the technique back to Bristol. J.P. Mitchell (1917-2015) the first pure urologist in Bristol had learned the cold punch technique from Denis Poole-Wilson (1904 -1998) in Rome during the Second World War. When Mitchell subsequently came to Bristol, under the influence of Adams, he changed to TURP[35]. He subsequently began investigating the workings of the resectoscope and it's diathermy current and introduced his own model [Fig 19] and another TURP teaching unit[36].

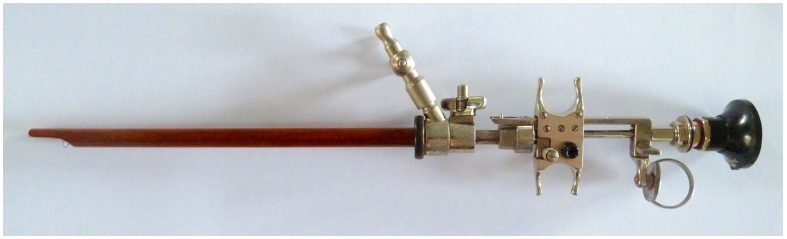

Figure 19: *The Mitchell Resectoscope.*

Probably the most important change in technology around this time however was the Hopkins Rod Lens. The invention of the brilliant optical scientist Harold Hopkins (1918-2001), it increased light and therefore vision into the bloody world of the TURP by a factor of 80 times. Despite his enthusiasm, John Blandy wrote that he felt he was operating almost blind using the old bulb-lit telescopes. Due to the persistence of James Gow (1917-2001) of Liverpool (another keen resectionist) Harold Hopkins, redesigned the cystoscopic telescope and with Karl Storz (1911-1996), the German instrument maker, introduced the fibre optic light source. With this endoscopic surgery received a major boost[37].

The TURP, in some centres, began to increase. In James Gow's 1973 series of 300 TURPs it was the treatment of choice in 80% of enlarged prostates[38]. At the London and St Peter's by 1978, 95% of prostatectomies were by TURP[39] Even so in a 1980 BMJ Editorial it was noted that 80% of prostatectomies were still being carried out by general surgeons not urologists and most of these were still open Millin's. Moreover, in hospitals who did not have a urologist (indicating that prostatectomy was likely open and not by TURP) the death rate was 11.2% versus the urologist's 2%[40].

The Urologist cometh

It really was nearing the end of the Twentieth Century before general surgeons gave up the prostate. The TURP can be a difficult operation to perform well, it is a difficult operation to learn and one needs to be well versed in the skills of cystoscopy before wielding an electrified loop within the lower urinary tract. TURP is an operation for a specialist. The improved light sources, optic and video systems allowed better training of urologists and led to better outcomes and TURP displaced the open Millin's prostatectomy; it is rarely seen by today's trainees.

It was not just technology that dictated the lack of British enthusiasm for the American TURP. It was partly caution (suspicion even) that a panacea for the prostate existed in TURP. British surgeons from a very early time were extremely selective in their use of endoscopic surgery, choosing what they felt were the right glands for the right operation. Bruce Clarke way back in 1890 set the tone by saying Bottini's electro cautery should be reserved for the small prostate, even the early champions like Terence Millin were tempering their enthusiasm by the late 1930's. Secondly, and I believe the major factor was Britain's reluctance to specialise, especially in urology, very different from the American system. Even after the Second World War many well-known urologists were still general surgeons with an interest and many general surgeons simply included urology in their wide repertoire, especially in private practise! The lack of specialisation held TURP back but strangely, it was TURP that finally forced the non-specialist to give the prostate back to the urologist.

Now in 2019 the TURP is under fire once again, this time from even more minimal treatments as Urology continues to pursue the path of least invasion. TURP however, still clings on and it is still, for the moment, the Gold Standard to which these new usurpers are compared.

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