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## **Abstract**

Medical Police, or policy, was the forerunner of the modern science of Public Health. It arose in mainland Europe in the late 18<sup>th</sup> Century, as part of the enlightenment goal of improving the human condition. The leader in the field was the German Johann Peter Frank, who wrote a major series of books on the subject. Andrew Duncan Senior, the Edinburgh physician, was influenced by Frank's work and he taught a course that included Medical Police and lobbied for a Chair of Medical Jurisprudence and Medical Police in the University of Edinburgh in the final decade of the 18<sup>th</sup> century. At around the same time the Lanarkshire-born physician John Roberton published a book on Medical Police which was very different to Duncan's conception, being a more interventional, with an army of medical inspectors enforcing new hygiene laws. Roberton dropped out of sight after moving to London but Duncan through his son's occupation of the first Chair of Medical Jurisprudence and Medical Police in Edinburgh University, had long term influence on Medical Police teaching in Edinburgh, leading to the development of the modern science of Public Health.

## **Background: The origins of medical police in Scotland**

Medical Police is the first iteration of the concept of Public Health and it arose initially in France and Germany. The most important figure in the advancement of the concept of Medical Police was Johann Peter Frank, a German whose 6 volume, 6,262 page work '*System Einer Vollstandigen Medicinischen Polizey*' or '*A complete system of Medical Police*' was published between 1779 and 1819 [1]. Within the UK, the idea of Medical Police was first championed in Scotland by Dr Andrew Duncan Senior in the University of Edinburgh [2]. Frank's book influenced Duncan and influenced Dr John Roberton and they both published on Medical Police in the Scottish and UK context in Edinburgh at the turn of the 18<sup>th</sup> /19<sup>th</sup> centuries. This paper compares the different concepts of Medical Police espoused by the these three authors. To the modern ear the term 'police' used in this medical context is misleading and in fact policy is a more appropriate term than police in this setting.



Figure 1 Johann Peter Frank (Stipple engraving by Ambroise Tardieu. Credit: Obtained Free for use from Wikipedia under Creative Commons Attribution (CC BY 4.0)).

### **Johan Peter Frank and ‘A complete system of Medical Police’**

Johann Peter Frank (1745-1821) (Figure 1) was born in Rotalben in what was then known as the Rhineland on the French German border [3]. He obtained a PhD from the Jesuit University at Pont-a-Mousson in France and a medical degree from the University of Heidelberg in 1766 and eventually became personal physician to Prince-Bishop of the ecclesiastical principality of Speyer in the Rhineland in 1775. Based on his experiences, Frank wrote the first volume of ‘Medical Police’ in 1784, following this with a further 5 volumes and 3 supplements over the next 41 years. Table 1 provides an overview of the main topics Frank addressed and shows the considerable breadth covered in Frank’s work; the Table also compares the relative coverage of these topics by the other two authors considered here. In Frank’s model the regulatory control of the citizen is almost total, from the choice of marriage partners, clothing and house design to the total control of the medical care system.

### **Dr Andrew Duncan Senior and *Institutiones Medicinae Legalis***

Dr Andrew Duncan Senior (1744–1828) was born near St Andrews in the East Neuk of Fife, and he obtained an MA from St Andrew University in 1762 and enrolled in Edinburgh University as a Medical Student in the same year. He was appointed to the Chair of the Institutes of Medicine, equivalent to physiology, at the University of Edinburgh in 1790 [4]. Duncan first delivered a lecture course in Edinburgh University in 1801, entitled ‘Medical Jurisprudence or the *Institutiones Medicinae Legalis*’ [5]. This ground-breaking course played a significant role in instigating Medicine in the legal context as a formal subject to be taught to Medical Students and contained a section on Medical Police. The ‘Heads of Lectures’ for this course (See Table 2), published in Edinburgh in 1792, contained the first published mention of Medical Police in the UK context and in the English language where it is described as :-

*‘necessary and salutary measures, for the preservation of health and the prevention of disease’ ... ‘and not unfrequently, their (i.e. medical Doctor’s\*) advice becomes requisite for authorising the effective government, to adopt necessary and salutary measures, for the preservation of health and the prevention of disease’.* [5]

*\*Author’s brackets*

Duncan was instrumental in lobbying for the first Chair of Medical Jurisprudence and Medical Police in the University of Edinburgh in 1798, the first Chair of its kind in the English-speaking world. In fact the University was not prepared to initiate a Chair of Medical Jurisprudence and Medical Police, despite Duncan's plea [2] but he continued to lobby. A Regius Chair of Medical Jurisprudence and Medical Police was duly established for Edinburgh in 1807 [6] and his son Dr Andrew Duncan Junior was the first incumbent of the Chair.

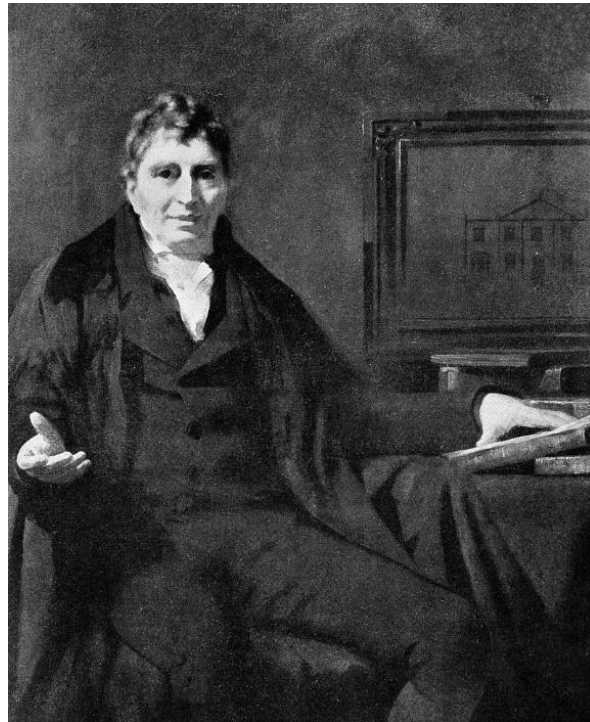


Figure 2 Dr Andrew Duncan Senior. (This image was obtained from the Wellcome Collection. Creative Commons Attribution (CC BY 4.0) terms and conditions <https://creativecommons.org/licenses/by/4.0>)

### **Medicine and Society in post-enlightenment Scotland; fertile ground for medical policy**

Duncan's thinking on how the state might intervene in disease at the population level coincided with a rapidly changing milieu of social adjustment, coupled with developments in the medical profession in Scotland. Improvements in the health of the public in general was a goal of the enlightenment [5], which had also given rise to empirical and scientific explanations for disease which were replacing religious/ metaphysical ones. Society was rapidly changing, with growing industrialisation, urbanisation and population growth, all three of which were clearly linked to the rise of new diseases and increases in old diseases. This was a result of new and increasing occupational/ environmental exposures and more

crowded living. The clear connection between these societal changes and increases in disease must have suggested that this was a tractable problem where the state might intervene with some sort of policy to benefit the health of the citizenry. In addition the medical profession was witnessing changes that promised more effective interventions in disease, as its members became better taught, more professional and enlightened e.g. the theory of the humours was being replaced by the rise of anatomical pathology [6]. Growing urbanisation and attendant overcrowding led to an increasing problem of epidemics of infectious disease and the Medical Police for all 3 authors frequently address miasma/contagion theory, which eventually evolved into the germ theory of infection that pertains today. At the end of the 18<sup>th</sup> century patchy medical policy was in place regarding miasma/contagion. For example, inoculation against smallpox was available in the UK including Scotland from the early 18<sup>th</sup> century [7] and cities could enforce steps to fight miasma/contagion as described during the plague epidemic in Aberdeen in 1647-48 [8].

Duncan's decision to champion Medical Police, lobby for a Chair and deliver a systematic course can therefore be contextualised to the above complex situation in late 18<sup>th</sup> century Scotland. Piecemeal public health policy was already patchily applied and evolving confidence in the interventions that could be offered and the diversification in medical subjects provided fertile ground for the challenging new medical specialty of Medical Police, indispensable to a specialty that would supervise the health of an entire nation.

### **John Robertson and 'A treatise on Medical Police and on diet, regimen etc'**

An alternative view of Medical Police to Duncan's appeared in Edinburgh around the same time, in the form of John Robertson's book with its lengthy title 'Treatise on medical police, and on diet, regimen, &c: in which the permanent and regularly recurring causes of disease in general, and those of Edinburgh and London in particular, are described; with a general plan of medical police to obviate them, and a particular one adapted to the local circumstances of these cities', published in 1809 [9]. This represents the first published textbook dedicated to the subject of Medical Police in the English language [10]. John Robertson (1776 – 1840) was born in Hamilton, Lanarkshire of humble parents. He came to Edinburgh at the age of twenty two with the aim of becoming a surgeon, although he never gained any formal medical credentials [11]. Robertson's career constantly courted scandal and notoriety through his publications on genito-urinary physiology, venereal disease and female beauty and his

acrimonious disputes with other members of the Medical fraternity in and around Edinburgh, then in London [11].

‘A treatise on Medical Police and on diet, regimen etc’ is a long and at times rambling exposition containing the thoughts of the author, poetry, arcane history, folklore and anecdote, all peppered with quotations from Shakespeare and others. It is as florid and overblown a prospectus of Medical Police as Duncan’s ‘Heads of Lectures’ and ‘Memorial’ are austere and precise. Set against this, it contains much that is relevant especially with regard to miasma/infection and its relation to poverty, and overcrowding. As regards causes of disease, Robertson was a convinced miasmatisist, believing that ‘bad air’ was responsible for causing most disease. Robertson described specific police/policy for Edinburgh and London, although there is much overlap and repetition for the two situations. Robertson was also an early advocate of preventive medicine which, through his medical policy, he believed had the power to eradicate the need for hospitals:-

*‘There can be no doubt that were the legislature to give that attention to the removal of the causes of disease which they ought, to the necessity of hospitals, fever houses etc would easily be dispensed with.’ [9]*

He shows considerable foresight in championing prevention and highlighting the great cost of treatment and cure of diseases in hospitals and fever houses compared to costs of prevention. In any case he had a plan to offset the cost to the public purse via a tax that would support his Medical Policy. Robertson’s vision of Medical Police had, at its core, the establishment, in each City, of a panel of magistrates and medical attendants who would appoint inspectors from the medical profession to enforce rules regarding public health. Thus Robertson clearly believed that legislation was a necessary and positive step towards the effective functioning of his version of Medical Police.



Figure 3 Dr John Roberton (This image is freely available from the Wellcome Collection Image Number M001453) under Creative Commons Attribution (CC BY 4.0))

### **Contrasts in the Medical police of Frank, Duncan and Roberton**

Table 1 compares the main elements of the versions of Medical Police advanced by the 3 authors. In comparing the Medical Police of Frank with that of Duncan and Roberton, the first thing to note is that Frank wrote a book of 7 volumes and so covered any topic in hugely more detail than either Duncan or Roberton. However if Duncan or Roberton touched on a topic it is recorded in Table 1. Although the term eugenics was not coined at this time, Frank was aware of the principle. He therefore promotes regulation to endorse ‘good marriage’ between persons of similar age and similar good traits and a bar on ‘bad marriages’ between people of very different age or with ‘bad traits’; neither Duncan nor Roberton address this area of policy. In other matters relating to sexuality such as celibacy, pregnancy and unmarried mothers, Frank was comprehensive whilst Roberton discussed this in very general terms; Duncan does not mention this aspect of policy at all. Neither Duncan nor Roberton discuss education to any significant degree but Frank views the oversight of education, both school and adult education as a key part of Medical Policy. All parties identify the need for healthy air, water and food and all devote space to the benefits of ‘moderation’ in food intake and alcohol consumption. Given the timing of these publications, when the miasma theory still predominated, much of the advice given by all 3 authors relates to living and siting new



buildings in positions in ways which will minimise miasma. All 3 authors promote personal hygiene, exercise and cleanliness and while Frank overtly supports cleansing of streets and public places of filth and rubbish, the other authors imply this by promoting overall cleanliness. All 3 authors describe risk from dangerous trades. Frank discusses public safety at length in the form of fires, floods etc as he has the space, whilst the two Scottish authors do not deal with these. The same is true for Frank's policy on insane persons, poisoning, brawls, duels and suicide, although Duncan does mention that there should be 'Hospitals for maniacs' amongst a list of types of hospital he considered desirable. As shown in Table 1 Frank advances a fulsome and systematic policy for the whole of the medical profession from top to bottom, including policy for medical teaching, hospitals, licensing of practitioners, the medical curriculum *etc.* Duncan on the other hand merely lists the types of hospitals that should be available and suggests that they should be under public administration. Robertson is highly critical of the medical profession in many regards, such as the lack of a rational approach to medical practice, the use of 'quack drugs', over-prescription and a tendency to prescribe drugs when a cure may be obtained more simply from exercise, diet etc. Both Frank and Duncan have something to say on the issues surrounding death and burial, but Robertson does not address this area. Though all 3 parties hold miasmatic beliefs, Robertson addresses the topic in great detail and it pervades much of his thinking. Frank has little to say about prisons but both Duncan and Robertson pick them out as places where miasma /contagion can develop due to overcrowding and lack of hygiene. Robertson also devotes many pages to specific therapeutic policy, recommending which treatments should be used for each type of disease, an area not addressed by either Frank or Duncan.

Table 1 Topics covered by Duncan and Robertson compared with Frank. Note that the first column shows subjects covered in the various volumes of Frank’s System Einer Vollständigen Medicinischen Polizey [1] in detail.. The second and third columns show the relative coverage of these topics in the publications of Duncan [2, 5] and Robertson [9].

Frank	Duncan	Robertson
Undesirability of marriage between people of very different age, people that are too young, people that are very sick (epileptics, TB, faulty pelvis etc). Encouragement of marriage between beautiful and perfect people; marriage banned between ‘crippled, stunted, dwarfish’ persons.	No	No
Sexuality, celibacy, pregnancy, unmarried mothers, extramarital procreation, abortion, prostitution and venereal disease, etc	No	Yes
Education, schools, child protection, the nature and content of education, public education.	No	No
Need for balanced healthy nutrition, food hygiene, safe drinking water; moderate alcohol intake	Yes	Yes
Contagious diseases arise from miasma and effluvia from people and organic putrefaction. Planning and construction of healthy dwellings, in dry places avoiding the above to produce healthy air	Yes	Yes
Standards for behaviour, personal hygiene, moderation and temperance, regular exercise, appropriate clean clothing,	Yes	Yes
Public cleansing of streets rivers etc., collection of rubbish.	Implied	Implied
Avoidance of unhealthy trades and crafts.	Yes	Yes
Public safety and its infringement, accidental injury e.g. water and fire, dangerous games.	No	No
Insane persons, poisoning, brawls, duels, suicide.	No	No
Medical affairs, medical practice, quacks, medical schools and medical curriculum, examination and licensing of physicians.	No	Yes
Oversight of medicine by a Supreme Board, building and equipping hospitals, admission, care and release from hospital, hospital administration, suicide,	Yes	Yes
Death and dying, burial	Yes	No
Measures against miasma/contagion etc quarantine, vaccination etc.	Yes	Yes
No	Prisons and health of prisoners	Yes
No	No	Policy for therapeutics in different diseases

### The different approaches of Frank, Duncan and Robertson

Frank’s German model grew from the enlightenment vision, specifically applied to public health. Turning his assertion that *‘the greatest wealth of a state lies in its people who should be numerous, healthy and productive as possible’* into reality utilised ‘administrative

absolutism' [6], the political doctrine and practice of unchallenged and unlimited, centralized authority as conferred by a monarch or dictator. Thus Frank's German model relied on and was underpinned by regulation because it required large-scale intervention into the lives of the populace. Duncan openly acknowledged his debt to the work of Frank in the Memorial [2] but administrative absolutism was not to be found in 19<sup>th</sup> century Scotland, nor indeed at any other time. Presaging his Scottish version of Medical Police in the Memorial, Duncan states forthrightly that Medical Police that suits one country will not necessarily suit another, and that each country must tailor such laws to its requirements. Subsequently Andrew Duncan's Scottish version of Medical Police is more in keeping with the general lack of state intervention into the lives of the Scottish populace and the broadly *laissez faire* environment of post-enlightenment Scotland. In contrast, central to Robertson's Medical Police is his plan for an 'army' of medical inspectors and councils of health to be appointed in cities, whose number could implement sanitary regulations. He was thus firmly of the opinion that a legal framework for regulating the policy was absolutely necessary, since the state-appointed inspectors would necessarily need to enter homes and premises and interfere with domestic activities. He had attended Duncan's course on Medical Police in Edinburgh [12], although there is little evidence of it in 'A treatise on Medical Police...'. Robertson's model sits somewhere between Duncan and Frank as regards the need for legislation, implying much more than Duncan but still much less than Frank

### **Conclusion**

From these beginnings in Edinburgh, outlining their respective forms of Medical Police and taking inspiration from Frank, Duncan and Robertson left very different legacies for the future of Public Health in the UK. By championing the Regius Chair of Medical Jurisprudence and Medical Police in Edinburgh University, and effectively installing his son, along with teaching his course on '*Institutiones Medicinae Legalis*', Duncan Senior's legacy was secure. His form Medical Police depended on education and self-interest and was in keeping with social attitudes in post-enlightenment Scotland. The Chair of Jurisprudence and Medical Police in Edinburgh led to the Chair of Public Health in Edinburgh and to the modern subjects of Forensic Medicine and Public Health. Robertson had some novel and creative approaches to the problem of medical police such as 'armies' of inspectors and a tax to pay for it. In the end however his approach was too interventional for 19<sup>th</sup> century Scotland. Despite the ground-breaking nature of his book, the first to address the nature of Medical Police in the English language, he has faded from view, becoming only a footnote in the

history of Public Health. This is reflected in major contemporary texts on Medical Police [13, 14, 15] published in first half of the 19<sup>th</sup> century and a recent historical review of that topic [16]. In these publications Roberton's work is not described, or merely noted, whilst Duncan's work is described at length. However, more recently Roberton's contribution to Medical Police has been re-evaluated more favourably, while not escaping criticism [11].

What is known already:-

- Medical Police/policy was the forerunner of Public Health and originated in Europe around 1779, with the German physician Johann Peter Frank.
- It was championed in the UK by Professor Andrew Duncan Senior in Edinburgh who wrote the first outline of the subject in English in 1792.
- Dr John Roberton published the first book with 'Medical Police' in the title, in Edinburgh in 1809.

What this study adds

- This study describes the changing social scene and the changes in medical education that favoured the development of Medical Police in Scotland in the early 19th century.
- We directly compare the different forms of Medical Police championed by Frank, Duncan and Roberton.
- We highlight the reasons for the adoption of Duncan's less interventional and less legalistic form of Medical police, compared to that of Frank or Roberton that led to it becoming the forerunner of Public Health in the UK.

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