

# **Damp, Noxious Vapours or Other Unforeseen Causes, with Respect to the ‘Health and Safety’, the Recovery of Long Lost Secrets and the Birth of Modern Freemasonry.**

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E. Comp. Professor Charles Lawrence PPGSN came into Freemasonry fifty years ago and has been a member of the Edward the Confessor Chapter No 3782 (EC) for over forty years and has researched into the history of the Holy Royal Arch for the whole of that time. He is an emeritus professor at the University of East London and is internationally recognised for his work in polymer engineering, notably in the service industries and nuclear power. He also internationally recognised for his work on the ‘science of Freemasonry’, particularly that of the Holy Royal Arch, in the course of which he has written and delivered many papers at the highest level and has recently published a book, inspired by the ritual of the Royal Arch.

## **Synopsis:**

The objective of this paper is to add further to the contention: that from the beginning, or immediately after; the actual founders of Modern Grand Lodge type Freemasonry in the early years of the 1720s chose that science should become a central feature of their Craft ritual and its Holy Royal Arch extension. That its form and content supports the notion that the original intent of the Holy Royal Arch was to provide a ceremony that was original and would thereby uniquely characterise this, the now finally settled, centrally administered Premier Grand Lodge. Further that it was not necessarily until later that the Sojourner’s tale was adapted to incorporate the consequences of the Hiram Legend and thereby add further purpose and substance to its pseudo validity.<sup>1</sup> In the realisation that this interpretation is almost certainly not a view shared by most freemasons and likely repudiated completely by others, it is necessary continually to research into the matter: either to authenticate, corroborate and/or otherwise reinforce this thesis, or conceivably disprove it. In this instance to demonstrate further the latent influence of Desaguliers on the ritual adopted by the very nature of his everyday occupation as a consultant in civil engineering and mining.

## **Preamble.**

That Freemasonry in one form or another predated 1700 is of course without doubt, but Lawrence argues that when in 1723 a small group of Masons in London introduced a highly formalised, centrally administered rigidly prescribed form it was to become that which the world now accepts as ‘regularised’ grand lodge type Freemasonry,<sup>2</sup> universally acknowledged

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1. Lawrence, C.C., *The Key to Modern Freemasonry – the Hidden Mysteries of Nature and Science* (Hamilton House Publishing Ltd. Rochester, Kent. 2011).

2. *Ibid.*

as Premier Grand Lodge and in that sense ‘Modern’. Further that whilst it has undergone certain textual changes by those who have felt they could do better, in all its essential and absolutely fundamental precepts it has remained intact. Outside of Masonry these men (Founders) were intimately concerned with and were leaders in, the frenetic developments in science and technology of that time, but coincidentally were committed theologians and as such were determined that within the prevailing religious component of Masonry it was imperative that in the minds of its members it should be compatible with, what some dissenters were now regarding as the conflicting (anti-God) revelations of the new science. The Founders were committed Newtonians and as such were biased towards Deism and consequently averse to the Trinitarian Faith and so for their ritual they adopted the concept of an all purveying Creative Being. Thus their ritual demanded of its members the central importance of ‘Nature’, ‘Science’ and ‘Learning’ in their belief and to distinguish it from the ad hoc Masonic gatherings which had preceded it they introduced an additional form of ritual which would develop into that, which in essence is now recognised as the Holy Royal Arch. In the intervening years zealots, ‘contemplative’ academics and theologians have attempted to impose their understanding of Freemasonry, even to the extent of introduced additional orders to address, what in their minds were its limitations. However, fortunately either through ignorance or lack of interest the huge number that have interfered in this way have chosen to ignore the all important ‘Nature and Science’ that was absolutely central to thinking of the Founders of Premier Grand Lodge and so until the Changes made to the Symbolical Lecture of the English Holy Royal Arch in 2002 there is hardly a scintilla of evidence that the scientific connotations so important to the Founders had changed at all.<sup>3,4</sup> Within these same references there is further substantive evidence that supports the contention that ‘Modern’ grand lodge type **Freemasonry remains in all essential detail that which was inculcated by the Founders of Premier Grand Lodge.**

It was only shortly afterwards that influential and, dare one say, ambitious, senior Scottish Masons recognised the ‘advantages’ of this centralised form and by the early to mid 1730s Scotland had its own form of Premier Grand Lodge. However, unlike their English counterparts they were not averse to the Trinitarian Faith, even tending towards it and so no religious constraint was imposed for very many years and hence the Regularised Grand Lodge ‘Scottish Rite’ type Freemasonry evolved

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3. Lawrence, C.C., ‘The God of Premier Grand Lodge and the Holy Trinity’. Offered for publication.

4. Lawrence, C.C., ‘The Questions of Why, Where, What, Who, How Etc., but More Especially When the Inception of the Now Holy Royal Arch Took Place’. Offered for publication.

uncluttered by the imposition of a science imperative or subtle religious constraint and it must be considered a significant element in the seemingly preferred adoption on the Continent and in America. They adopted/adapted/integrated a considerably modified version of the Royal Arch ritual, which whilst absorbing most of the English Ritual, it was now in various guises in the thirty-three Degrees of their equivalent Craft Ritual. The findings of the research into this claim are set-out elsewhere in Lawrence's findings and the objective of this paper is to provide further hard evidence of the claimed strong linkage.

### **Introduction.**

All Lawrence's writings that relate to the above contention have been based on the premise that whole enterprise was centred upon the actions of Dr John Desaguliers and whilst good fortune was to play a vital part, it was his direct intervention which holds the key to its eventual form. In particular it was Desaguliers' intimate involvement in and passion for science and technology outside of Freemasonry which would inevitably influence the very essence, content and intrinsic philosophy of future Masonry. A goodly number of these interconnections have been discussed elsewhere,<sup>5</sup> but to reiterate: because of the extremely contentious nature of the argument and likely reaction, the following example makes a substantial addition to the supportive data.

Any significance which may be attached to this paper's rather gimmicky title is only meaningful within Society's present (c2013), quite jaundiced perception of officialdom's overzealous application of this particular piece of United Kingdom/European Union legislation. This pejorative mood is unlikely to endure for long before the much maligned *Health and Safety Act* is applied more judiciously, reformed or another, more serious, socially irritant takes its place. Nonetheless the following will show that in terms of this paper it is fortuitous that 'public safety' or 'their good' has to some extent, always been, or at least proclaimed to be, a matter of great concern to those in authority; with a raft of factors determining the level of action deemed necessary to address that perceived need. Whilst it is vaguely possible that this current sociological fetish may be of some passing interest to future historians, it begs the question of what relevance it has with respect to the *Health and Safety* of the emerging (Premier Grand Lodge type - centrally administered) Freemasonry in the early 1720s, or its present day legacy?

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5. *The Key to Modern Freemasonry etc., op. cit.*, pp. 119-135.

Elaborating further, Lawrence in his writings on the many factors affecting the birth of Premier Grand Lodge<sup>6,7,8,9</sup> predicates much of his findings on the singularity of the science currently found in the, still permissible versions, of the (English) *Symbolical Lecture* in today's Holy Royal Arch ritual. Similarly the significance of science with respect to the repeated injunctions currently within Craft Masonry; namely that each member must '*study more especially*', contemplate the '*hidden mysteries*' of '*Nature*', study the '*Liberal Arts and Sciences*', '*make a daily advancement in Masonic knowledge*' etc. etc. Thereby enabling them to understand how and why the science extant in the few years of the early 1720s proved to be so critical; especially if they then relate that to the actions of one person, or at most the very few others who was/were instrumental in that initiative.

In this paper factors quite outside of Freemasonry are shown to been transferred into the 'new' Masonic ritual in a way which demonstrates that there is a high probability that these factors (some well documented – see Footnotes) were within the 'mind-set' of those formulating their adopted and then adapted ritual. It adds significant meaning to what may otherwise be seen as a strange allusion, or inconsistency in Sojourner's tale. But more importantly it is yet another factor in the construction of a realistic model of the eventual form of the Premier Grand Lodge which evolved out of that critical period, adding to the already high level of confidence. It adds weight to the contention that the original basic tenets and precepts have remained intact and that Nature and Science still remains an essential and conditional element of the ritual practiced in the constitutions of all of today's (worldwide 'regularly constituted' grand lodge type) Freemasonry.

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6. *Op cit.*, pp. 369-389.

7. Lawrence, C.C., 'Within and Without: the Hidden Mysteries of Nature and Science', *AQC* 118 (2005).

8. Lawrence, C.C., 'A Brick-by-Brick Account of the Metamorphosis of Operative to Speculative Masonry', *AQC* 122 (2009).

9. Lawrence, C.C., 'Hell-Fire or Applied Science: the Origins and Personalities of Two Men and Their Impact on the Hierarchical Structure and Ethos of Premier Grand Lodge and its Present Day Legacy', Lodge of Research No 2429, England, *Transactions*, (2010-2011). pp 31-64.

## Setting the scene.

There can scarcely be an historically significant sociological event whose origins cannot be traced back to the actions of an individual or small pressure group. Given Premier Grand Lodge's astounding development over the last three hundred years, its present status and the fact that it may be regarded as having spawned effectively all the other globally 'regularised' grand lodge administered Masonic constitutions, shows it to be within that special category. However, that said, there also appears to be a general consensus amongst the pundits that, of the many scenarios that have been proposed, there have been *circa* nine significant, uniquely different, attempts which have in a meaningful way claimed to rationalise the circumstances which gave rise to this quite amazing organisation. In effect all these attempts have proffered a deeply philosophical or esoteric account of its antecedence and formation, but this paper adds further support to what may perhaps be considered a mundane tenth. Unlike these previous attempts, this model presents a more pragmatic, quite prosaic, explanation, which is reasoned in much greater detail within Lawrence's references cited throughout. Numerous factors are shown to combine and thereby influence the final form of Premier Grand Lodge during those formative years in the early 1720s and considers further the role that science and technology played in this process during that narrow period; illustrating especially the marked influence it had on the people concerned and its profound influence on the very nature of the protocols and resulting ethos of the model they put in place.

Organisations at an embryonic stage, that lack precedent, are the result of either a special person, or people, who because of their dynamism are usually very complex, which renders any simple analysis of their behaviour most unlikely. Unfortunately from a historical aspect this analysis becomes very much more difficult to rationalise if the people within this category are, for whatever reason, amongst those who entertain intense sociological ambition, since expediency invariably masks true disposition; especially when surrounded by people of equal intent. A second factor is that such actions and their degree of success, is strongly influenced by the antecedents of those involved. This in turn is particularly dependent on whether or not their ambition is in sympathy, or at variance, with the prevailing mood, or an underlying need, within that community.

The society in London at that time was markedly split between '*the and the have-nots*' and those with whom we are concerned were decidedly among the 'haves'. Whilst with a very few exceptions this more fortunate few (such as the artist Hogarth, who whilst selling his painting at the 'going rate', did at least appear, albeit in a detached way, to recognise the extremes

of poverty, squalor and social degradation present within the greater community) pursued their everyday lives in a seemingly detached manner, able to somehow distance themselves from the squalid conditions that surrounded them. Thus we enter upon the society shortly after the death of Queen Anne in 1714 with its competing political factions endeavouring to readjust to the uniquely different sociological environment which had resulted from the Hanoverian accession and these individuals were busily 'setting out their stall' within it.

The increasing affluence within the upper echelons of the society at that time had resulted in a very marked participation in a wide spectrum of peripheral activities, most essentially fickle; ranging from polite social intercourse to the wholly improper. As such they could be considered mere diversions, quite outside of any direct private or occupational necessity. This pejorative assessment could well be levelled at the small isolated groups within that sector, styling themselves Freemasons; examples of which could be found in most large conurbations or discrete communities, but especially so in London; primarily because such interaction between these influential factions was mutually beneficial and logistically possible. In the absence of verifiable data and gainsaying the nature of these groupings or the practices within them is another minefield and again Lawrence avoids engaging in that debate by simply accepting the fact that in London 'they were there', both in significant numbers and proximity. From the demographics and the reasonably authenticated Minutes, or perhaps more accurately attendance lists,<sup>10</sup> of the early 1720s it would seem that they functioned in much the same manner as the ROTARY, LIONS and PROBUS organisations of today, namely gatherings of the locally elite, that conformed to a general ethos, but otherwise each group enjoying complete autonomy, conveying to the outside community a sense laudable behaviour and intent, but in the case of Freemasonry with an additional (strongly perceived) aura of mysticism and pronounced social standing. From within some, but certainly four of these entities, an initiative to hold quarterly gatherings was decided upon. It would seem that a venue was decided upon and history informs us that there were four men who were to be the people who would act as the meetings chairman and quasi officials and their enterprise took upon itself the pretentiously name of Premier (there is uncertainty as to when this adjective came about) Grand Lodge.<sup>11</sup> However, it is the role which the 'hidden mysteries' of Nature, the Liberal Arts and Sciences and associated technology played in its eventual ethos and structure that is of such significance here.

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10. Anon. 'The Minutes of the Grand Lodge of Freemasons of England 1723-1725', *QCA* Vol. II. (1913).

11. 'Hell-Fire or Applied Science etc.', *op. cit.*

It is perhaps helpful at this point to reiterate the basic argument: that whilst it is most likely that the true nature of the 'Freemasonry' actually practiced in the various lodges in the years prior to the early 1720s will never be known, it cannot be disregarded. Therefore throughout all this study, prior history has been taken into consideration and its great importance realised both in terms of establishing some form of identity and continuity; whilst acknowledging that among the huge volume of writings on this aspect of Masonic history there may be gems which out of ignorance have been missed in the course of this study<sup>12</sup> – some consolation may be found from the degree of recycling of the precious few facts found in these sources. Nonetheless it seems reasonable to conclude, that no matter how one may yearn for a romantic connection to some ancient form, **that modern Freemasonry is based upon the structure and ethos of that adopted and then adapted by the Founders of the revised (1720-23) Premier Grand Lodge.** That this has remains true despite the interference of the many, who in the interim have been determined to impose their interpretation of the Ritual, that it has weathered their attacks and remained, in all essentials, unchanged. This underlying study first proposed and continues, to support the thesis that the science included in that ritual is precisely of that date and that it and the basic philosophy within the ritual is totally consistent with age and expertise of the scientists who introduced it.

In order to avoid repetition of the many issues raised by Lawrence in his earlier writings the following is presumed to apply:

1. that with just one notable exception those known to be principally involved in the formation of Premier Grand Lodge were especially interested in the emerging science and technology, even to the extent of deriving much of their living from its various applications. Their acceptance of this emerging science forcing them to challenge what had hitherto been man's dogmatised faith and were determined that henceforth a Mason's obligatory affirmation of faith must be in the full knowledge and acceptance of these new scientific revelations,
2. that incidentally, the Founders were also greatly influenced by their innate, long established religious, effectively Christian belief, again to the extent where several derived a goodly portion of their income and social credibility from it and were especially keen to avoid offending or in any way alienating the religious community. However they were, almost to a man,

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12. *Ibid.*

Newtonians and as such were far more disposed towards Deism than the prevailing Trinitarianism of the then governing body of the Church. It is important to note: Newton's beliefs are complex, but in essence they were that God having once created the Universe, left it to evolve and function under a set of physical (rational) laws; (*'at whose creative fiat all things first were made'* – interesting adjective, but is it significant or just another of the imponderables added to the list?). That these laws which God had handed down to Moses, were then lost due to the invading infidels. However, if a knowledge of these laws could be regained they would hold the answer to man's ultimate destiny and because God had now chosen Newton a Magi he was now able through his genius to comprehend these (quasi scientific – intricately related to the proportions of Solomon's temple) laws; implying that any mere mortal who accepted and was prepared to be suborn to his supreme status, could by determined education and the Magi's good grace be partakers of (thereby having earned) some portion of those previously hidden truths – totally delusional, but he was extremely charismatic and to some, almost messianic,

3. that shortly after the initial initiative in 1717 of what is now regarded by most as 'the' Premier Grand Lodge, it *de facto* underwent a massive and fundamental change in both ethos and structure in circa 1720.<sup>13</sup> Notable features of that process were the appointment of a very eminent member of the aristocracy as its Grand Master and the process towards laying down a more formalised operational structure – it is that metamorphosed derivative which is hereafter referred to as the Premier Grand Lodge in this paper.
4. that it was this aristocratically headed, hierarchal structure, both within, but more especially their interactions outside of Freemasonry which determined its intrinsic form and which has remained, in all essential detail, right up until the present day.
5. that because Freemasonry was their common activity, it allowed them to fraternise in a way that would have been far less easy otherwise, although with the caveat that the nature of that social intercourse was not necessarily consistent with the proclaimed ethos and protocols attributed to current Freemasonry,

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13. 'Questions of Why, Where, What, Who, How Etc.', *op. cit.*

6. that whilst in every age, the current emphasis within the governing strata of Freemasonry, or indeed any other such body will vary, it is argued that in those formative years of the early 1720s, albeit somewhat inadvertently, it was massively influenced by the emerging science, most of which would now be described as technology. However as that decade faded so did the stranglehold of Premier Grand Lodge's early (usurping) pioneers and with their departure so also did the predominant emphasis on science lose its imperative, but by this time 'the die had been cast' and that subsequently nobody has been sufficiently incentivised to change it.
7. that the tenor of the progressive changes in governance after the initial caucus was quite weak and largely ineffectual. Initially it was for the most part led by members of the aristocracy who had achieved high military status and if their reported attendance/involvement has been fairly recorded, it would seem that they had only marginal interest in Freemasonry. Since that time there has never been an equivalent of that initial (concentration of highly motivated prestigious science based individuals) caucus and what prevailing influence has remained within the upper echelons of Freemasonry has been from within those whose primary interest and position in society has been in royal patronage, military rank, commerce, politics and the arts. They appear to have had little interest in the sciences or technology in any concerted sense, which in terms of historical research has been most helpful, for whilst they have extemporised and tinkered *ad nauseam* with other aspects of the ritual and dabbled in its internal politics, they have left, essentially unaltered the plethora of allusions to the utter importance of Nature, science and the imperative of formal learning found in the earliest rituals and by their indifference these factors have retained their predominant place in Masonic ritual right up until the present day.

## **The role and interaction of Nature and Science, technology, learning with religion.**

Shortly after the above research was begun some forty years ago to determine the essence of the 'Nature and Science' etc. constantly referred to in Masonic ritual, it became clear that given the almost total absence of authenticated Masonic records, progress was not going to be possible without studying the confluence of the numerous streams of information, albeit that some might be unsubstantiated or seemingly unrelated tributaries, from whatever conceivable fount of knowledge and from that data employ an inductive, quasi 'probability theory', method to distil a feasible model. Whilst this turned out to be an enormous task, it also proved to be very rewarding, because the basic approach was found to follow Aristotle's philosophical reasoning that: '*The whole is [in this instance considerably] greater than the sum of its parts*'.

As with most research, if not all, unless tested in the wider community it becomes self-fulfilling and in order that this particular piece of research should progress, in 2004 these findings were offered for publication in a book.<sup>14</sup> Its purpose was to show the integrated result of this super-positioning of this seemingly disparate data; including individual summaries of the large number of 'data sets' involved, arrive at a basic conclusion, with a very high degree of probability. Unfortunately many external (business) factors were to impede its immediate publication, but the related research has otherwise continued unabated, as a result of which support papers have been written and in similar vein this particular paper considers the influence of applied (engineering) science with respect to the daily lives of certain of those closely involved in the early days of Premier Grand Lodge.

## **The innate influence of the 'Engineer' on the Royal Arch Ritual.**

Because of the nature of Dr John Desaguliers' and his heavy involvement within these formative years of Premier Grand Lodge, it is argued here that both it and the very basis of all subsequent Freemasonry, centre on his commercial and private interests, activities and associates; thus confirming the pivotal role he played in that process. Further that he and those in sympathy with his aims, in the early days of the 1720s adopted and then adapted all the relevant factors into their version of Premier Grand Lodge. It was to include a formal constitution, but of critical importance here, a rationalised version of existing rituals, but now with a markedly different emphasis and the introduction of a novel concept: now known as the Holy Royal Arch.

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14. *The Key to Modern Freemasonry* etc., *op. cit.*



**Figure 1a. Portrait of John Theophilus Desaguliers, during his most active years. Note the holding of the enquiring magnifying glass and highly elaborate prism lying on the table – items then sold as objects of great intellectual interest; clearly a man of science, but note his clerical attire lest one forget that he was equally a ‘man of the cloth’.**

**Courtesy of the San Marino Library, California USA.**

The ceremonial introduction in each successive step taken by all Masons as they progress within Craft Freemasonry and its many derivatives employ the vehicle of the candidate having to undertake a form of symbolical journey or have related to them a quasi (essentially completely fabricated and fanciful) historical account. All requiring them to embrace the need for

personal circumspection, laudable intent and above all a belief in a supreme being, which at the time under consideration here, was essentially the Christian faith. Unfortunately there is a complete absence of any verifiable evidence with respect to the precise content and nature of ritual practiced in those very first ceremonies and this has prompted an absolute plethora of scenarios as to their origin and content. Ironically the one source that virtually every historian makes reference to is contained in a publication by Prichard,<sup>15</sup> whose sole intent, other than making money, was to expose to the outside world the iniquities of Freemasonry, with the near consensus of those who quote him, that he neither was at that time, or had ever been, a Freemason and adding further to the irony, their suggestion that the *exposé* was in all likelihood unreliable. Again Lawrence gets round this dilemma by simply accepting that whatever was practised within these lodges must, out of necessity, have corresponded in all essential detail to that practised in the constituent lodges from which it was formed. The Hiram legend may, or perhaps more likely may not, have been included in the ritual at that initial stage. If one stands back and considers the yarn's function within the ritual, it is merely an embellishment and if another analogous allegorical tale were in its place, it would make little or no difference to the ceremony (i.e., the discovery, not necessarily the means by which to convey the word), nor for the same reason would it have prevented the formation and functioning of the Holy Royal Arch. This may be considered a reasonable assumption because if we accept that the Sojourner's tale was merely a device invented, or most likely borrowed<sup>16</sup> and modified from somewhere else, such as the French *Arche Royale*, in order that that the sojourners be allowed to show their fortitude, persistence, integrity (and the all important discovery) and thereby demonstrate their worthiness; the necessary prerequisite for the advancement of all Masonic candidates; in this instance that they had earned the exalted right to become, no less than a prince and ruler in the Grand Sanhedrin.

The earliest written and hence authenticated Holy Royal Arch ritual is that of Claret (1845),<sup>17</sup> but it is an illustration of how the scientific/technological element, apart from minor grammatical changes, has been left unchanged:

‘... purpose we removed two of the cape stones, when a vault of considerable magnitude appeared to view, and we determined on decent, all being desirous, we cast lots and who should, the lot M. E. fell on me, **and**

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15. Prichard, S., *Masonry Dissected* (1730).

16. Jones, B.E., *Freemason's book of the Royal Arch* (George Harrap, London, 1969), pp. 133-137.

17. Claret, G., *The Ceremonies etc. of the Holy Royal Arch* (Claret Printers, London. 1845).

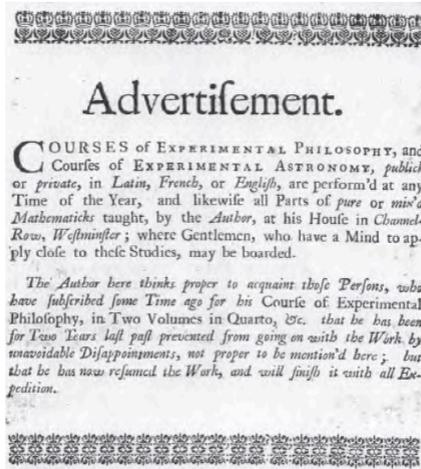
**lest any noxious vapours or other causes should render my position unsafe**, my companions fastened this cord or lifeline round my waist, by which to lower me into the vault, or raise me out according to the signal I gave to my r...t or l...t hand companion ...’

Borrowed or otherwise to enhance the adventurous spirit of the tale and add a sense of danger and hence bravery, what better to exemplify their fortitude than to introduce a traditional life threatening possibility such as snakes, building collapse or perhaps the then contemporary understanding the more deadly ‘firedamp’. Although such conditions were highly unlikely to be found in the arid conditions of a Middle Eastern vault, firedamp had by the early 1700s become widely publicised in Northern Europe as having deadly potential (Davy’s lamp was not available until 1815) and so to be lowered into any underground space, fully aware of such impending danger was a demonstration of fortitude and courage. Who better to be conscious of this likelihood than a mining consultant? Similarly the Holy Royal Arch allowed Desaguliers, a professional tutor, to express another of his passions by including in the ceremony: the ethos of ‘learning’ in the form of the three lectures – *see* Figure 2.

The nature of the specific elements of the respective areas of science and to a lesser extent the involvement in the science and technology of the individuals involved have been discussed fully elsewhere<sup>18</sup> and will not be repeated here. In that instance the connection between the science of incorporated at the very beginning and the 1845 Royal Arch ritual, ‘light’ was used as a specific example of that claimed connection. A similar approach will be expanded upon here and to show further that there was an analogous connection between Desaguliers, his coincidental technological relationship with respect to the ritual and the usurpation of the original Premier Grand Lodge – again *see* Figure 2.

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18. *The Key to Modern Freemasonry etc., op. cit.*



**Figure 2. John Theophilus Desaguliers' advertisement taken from the front of his book,<sup>19</sup> which not only indicates his expertise as a teacher, but suggests that to maintain his association with the wealthy was probably financially testing.**

By the time Premier Grand Lodge came into being the demands of ship building, housing, smelting etc. had depleted Britain's timber reserves to such extent that it was effectively exhausted and coal was being employed wherever it was viable. Indeed it was the 'coal tax' that funded the building of St Paul's. The most favoured was the bituminous types found in the ever deepening mines in the north of the country. Not because it could not be mined elsewhere, but more because it could be transported by boat from ports close to where it was being mined. The unfortunate polluting side effects of its use in London had by the 1720s already become a problem, which was not totally defeated until ('*Clean Air Act*') well into the twentieth century. Of significant importance here was its use in steam engines, especially their use in raising water. Although the technology of steam used in this way had been ventured upon much earlier (first patent issued in the middle of the 1600s), it was not until the Savery and Newcomen systems patented either side of 1700 had gained favour and allowed Desaguliers to become an accredited, much sought after, engineering consultant and lecturer in that field. Indeed his much discussed Masonic involvement in Scottish Freemasonry was intimately linked with his visits to Scotland to discuss various aspect of the use of steam power in the supply of fresh water and of interest here: the raising of flood

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19. Desaguliers, J., *The Newtonian System of the World, the Best MODEL of Government &c.* (Roberts, J., London, 1728).

water from mines and it is reasonable to assume that it was those commercial interests which funded the actual visit.

By 1720 deep seam coal mining was already an established commercial undertaking in northern Europe and as industry developed Britain in the later part of the 1600s both mining expertise and manpower were imported from those regions. They were already painfully aware of the fact that dangerous build-up of gases could occur and which could be extremely hazardous as the following source records: 'Gases (other than air) in coal mines in England were collectively known as "damps". This comes from the German word *Dampf* (meaning "vapour"), and was probably introduced when German miners and mine engineers were brought to England in the 17th century to help in the development of deep mining. This is not certain, however, as the technical term for gases (air and others) among German miners is *Wetter* (literally "weather"). Other damps included blackdamp (carbon dioxide and other gases), and the insidiously lethal afterdamp (carbon monoxide and other gases) produced following explosions of firedamp or [even] coal dust [by itself if the powder is extremely fine it behaves as a gas]'.<sup>20</sup>

Desaguliers would have been sufficiently close to those in the early deep mining industry to have understood the significance of German immigrants' use of the word *dampf* [there may of course be confusion at some point with the old English use of an elongated 's' as in this instance could have been easily mistakenly read for the German *f*] to be analogous to the English 'vapour' or 'air/gas'. He would therefore have simply been content to use the word 'noxious' to convey its contemporary meaning of 'deadly', as opposed to foul smelling or otherwise unpleasant environment of say an abandoned tomb or vault of long standing, which of itself would not have impose any particular bodily threat. It therefore represents another classic example<sup>20</sup> of where during the seemingly compulsive need to rewrite Masonic ritual, the person making the change had failed to understand or research the true significance of the original. It would be reasonable to assume that the new author of the 1931 edition<sup>21</sup> had left unchanged an amendment added somewhere between the 1906 edition of the ritual and the one he was updating, for he had, again without appreciating its original industrial meaning, been persuaded to accept the by then popularly accepted understanding of that condition and in order to be consistent with modern understanding of the its deadly nature he added the adjective 'damp'. There were by then other written rituals and they too may well have been 'improved' upon at some earlier date and consequently this remains an area that requires further research.

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20. *The Key to Modern Freemasonry, etc., op. cit.*, pp. 362-365.

21. Anon. *The Perfect Ceremonies of the Holy Royal Arch* (Privately Printed for A Lewis, London 1931).

Date	dictionary	words	definition
1738	Bailey's	ds	The fulminating Damps, these are found frequently in coal-mines, but very seldom, if at all, found in lead mines. If these sort of Damps is touched by a flame of a candle, it immediately catches fire and has all the effects of lightning or fired Gun-powder. [There is another derivative defined, but that deals with a medical condition which miners can encounter].
		fd	No entry
		ns	Hurtful, offensive, mischievous
1728	Chamber's	ds	Damps, [generally] in natural history, are noxious streams, or exhalations, frequently found in close, subterraneous places, particularly mines, pits, cellars etc. [However it the goes on (half a page) to deal with Damps in mines, in great detail, particularly the potential dangers]
		fd	No entry
		ns	No entry [but note its use in the actual definition above]
1753	Chamber's	ds	[In the 1752 supplement the original general definition had been include, but in the Supplement it is omitted.] Damps is no longer considered as an adjective other than that associated with mining. [This begins thus but now extends over the best part of a page describing not just the effects, but its effects on humans etc:] Damps. The pernicious damps in mines, show abundantly that the nature affords inflammable air in some cases; and we have found by experiment ... [etc].
		fd	No entry
		ns	No entry [but again it was used in the actual definition]
1788	Chamber's	df	[reverts to the original] Damps, in natural history, are noxious streams, or exhalations frequently found in close, subterraneous places, particularly mines, pits, cellars etc. [However it the goes on (well) over half a page) to deal with Damps in mines, in great detail, particularly the potential dangers, but of special interest starts:] In the German and Saxon languages the word damp signifies vapour and exhalation. [then another effectively unchanged definition]
		ns	No entry
1843	Johnson's	ds	Damp, moisture, dejection
		ns	Noxious, hurtful, baneful, offensive

**Table 1** Because up to that time the word firedamp appeared not to be in general use (perhaps restricted to actual workers?). The above definitions are extracted from various dictionaries. N.B. in dictionaries used<sup>22,23,24,25,26</sup> (a) Bailey begins with a general definition, but specifically allocates the section above. (b) Johnson, although now much later, makes absolutely no mention of Damps (mining) and only defines the word's (damp) common usage.

Key: Damps; ds, Firedamp; fd, Noxious; ns

22. Bailey N., *A Universal Etymological English Dictionary* (E. Bell *et al.*, London, 1738).

23. Chambers, E., *Chambers Encyclopaedia: or universal dictionary of Arts and Sciences*, 2 Vols (James and John Knapton *et al.*, London, 1728).

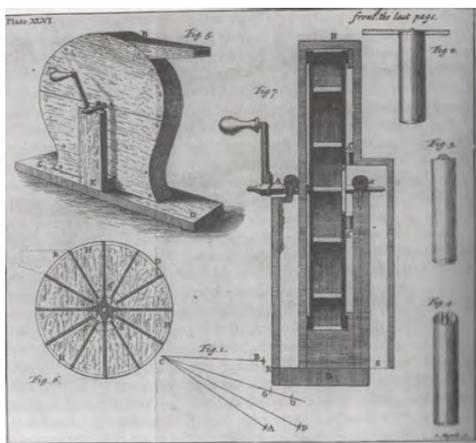
24. *Chambers Encyclopaedia, op. cit.* (1753).

25. *Ibid.* (1788).

26. Johnson, S., *Abridged Dictionary* (1843).

By 1818 Sir Humphrey Davey's derivative of the pragmatic version of William Reid Clanny's safety lamp had become available and when Claret wrote his ritual in 1845, it would seem that he, like all those before him and up until the very recent intervention, retained the scientific allusions in the ritual in their earlier form, likely bolstered by the constant reports of serious mining accidents, especially in view of an extremely serious one that had occurred in the North East only a few years earlier, then fully exemplified by the solitary adjective 'noxious' – see Table 1.

Even by the time Desaguliers became involved the extremely hazardous nature of these gases was already widely recognised as a serious problem and not unsurprisingly he was to turn his fertile mind to addressing that mining problem. That it was at the forefront of his mind can be seen from Stewart's reference to Desaguliers' involvement in the mining industry, in his book *The Rise of Public Science*<sup>27</sup> where he expanded upon Desaguliers' engineering interests. He describes the large (2.8m/8ft diameter) experimental centrifugal bellows that he built in his own home – see Figure 4, suggesting its use for this purpose, but typically his suggestion that the device could be used to evacuating gases and fumes etc. from any closed area, including ship's holds and sick rooms, and which given even the normal sanitary conditions of those days, can be readily understood.



**Figure 3. A drawing of Desaguliers eight foot (2.34m) diameter experimental air/gas extractor he had installed in his home in Channel Row, Westminster<sup>28</sup>. Just a few doors away from the Rummer and Grapes Tavern also in Channel Row – the meeting place of one of the four founding lodges.**

27. Stewart, L., *The Rise of Public Science* (CUPress, 1992), pp. 225-226.

28. *Ibid.*

However convincing the above account may be, to rely on just this piece of evidence would be a 'step too far' without putting it into context with other supporting evidence. Such evidence exists, but it is too wide ranging to make any attempt at repeat it here and again the reader is referred to the endnotes. As with most research into early Freemasonry it is blighted by the paucity of documentary evidence and what little data there is depends upon the reliance one may choose to place on anecdotal/peripheral evidence and because of the frailties associated with 'trench whispers' questions the accuracy of transference through the spoken word. It would seem that in many respects a number of Masonic 'scholars' treat Knight and Lomas's book *The Hiram Key* in the same way as Prichard's *Masonry Dissected* and whilst not wishing to enter into that debate, Knight and Lomas in their book make an exceedingly interesting analogy between the faithful transfer of social verse and the transference of early Masonic ritual. In particular they cite nursery rhymes which, like ritual, are repeated over and over and unlike 'trench whispers' are spoken freely and out loud and where necessary with parental (dare one suggest 'preceptor' type) correction, as one would expect to be the case within early lodges, which in the absence of written word, they would have wished the ceremony to be maintained in a consistent form. This transference, does not have to rely upon understanding, as is evidenced in the manner in which today's children sing out these old rhymes such as '*Ring a Ring of roses ...*' (ring of sores which form around the mouth of those afflicted with the Black Death) and '*Little Jack Horner sat in a corner ...*' (Richard Whiting (1461-1539) steward to the Bishop of Glastonbury – with reference to his draconian methods of collecting taxes). Learning ritual by rote did not require a Mason to actually understand the important need to continue their learning, or understand the nuances of the emerging science, or indeed any other aspect, but merely to repeat the whole thing *verbatim* and by dint of established custom, perpetuate its continued and precise presence; which is equally true of today.

### **Discussion and Conclusions.**

The Symbolical Lecture found in the ritual of Holy Royal Arch ceremonies, prior to its recent mauling by those who believed they knew best how Masonic ritual should be transmitted to those less gifted, is once more resuming its rightful place as the only part of current ritual that in any way defines the science alluded to *throughout* Masonic ritual. It is important because it relates directly to the intrinsic concepts of the eventual 'regularised' grand lodge type Freemasonry adopted in the early 1720s, which had at its heart a reconciled, as opposed to dogmatised, belief in a supreme being. The Founders claimed that for those who were seeking truly profound belief, the only way forward was to confront the most serious challenge, namely: the latest revelation of science. A Freemason's belief

therefore would have to be in the full knowledge of the contemporary understanding of science and through learning and contemplation reconcile these challenging scientific concepts with what would otherwise be construed as their far reaching irreligious implications. A quite understandable position given the momentous nature of these challenging concepts would have had upon those, who until then, had relied upon unquestioning faith, but perhaps more poignant is that the magnitude of those revelations is minuscule compared with those confronting today's Freemasons. The inclusion of 'damp noxious vapours' into the ritual is a graphic example of the prevailing technological concerns of that time, which not only shows an awareness of the problem, but other factors; such as identifying those who were likely to have been involved, the time and place and on deeper analysis much else besides.

## **Appendix 1**

To reiterate: the salient feature of 'Regularised' Grand Lodge type Freemasonry practiced throughout the world today demands of its members that they have a belief in a Supreme Being, to whom they are ultimately accountable, both in this life and beyond the grave. What precisely that commitment was in the lodges which pre-existed the formation of Premier Grand Lodge is not known, but Lawrence in his book and other work has shown that its Founders were not only men of God, but also deeply committed and knowledgeable scientists, who were patently aware that armed with such knowledge a man's faith could no longer be one of blind acceptance, but had to be consistent with revelations and challengers of the physical world opening up before their eyes. It is not surprising therefore that the form of Craft ritual which they adopted is laced with an insistence that a Mason must, through education have an informed understanding of that science and thereby be able to reconcile their faith with it. Lawrence argues further that they introduced an additional concept of the Royal Arch which had within its make-up, elements that were consistent with their imperative that a Mason must continually seek to enhance his education and that in one of its three Lectures, it incorporated elements of that all important science. Shortly after, an analogous Grand Lodge was formed within Scottish Freemasonry and whilst each embraced much that was within the other's version they were not carbon copies. The Scottish version was more overtly Christian and choosing not to place the same level of emphasis on science; typified by that found in the Symbolic Lecture of the English Royal Arch. For historical reasons it was this Scottish version of Freemasonry that gained most favour in the United States. Sadly in exactly the same way as described in Lawrence's paper: *'The Questions of Why, Where, What, Who, How Etc., but More Especially When the Inception of the Now Holy Royal Arch Took Place'*, it would seem that those responsible

for the communication of the fundamental ethos of Craft Freemasonry in the United States, adopted the same disregard of the science emphasised throughout their ritual as their English counterparts, making no effort to truly interpret the implications of the ceremonies they were enacting.

Whether or not after considering the importance of science claimed here it will be considered by those of influence within American Freemasonry to be of similar importance is questionable, but at least it is reasonable to suggest that it should be discussed. The following is taken from the paper cited above and includes a copy of the relevant section of the oldest authenticated English Royal Arch Symbolical Lecture ritual and the appended sketch is to illustrate those items within the related Chapter furniture and iconography etc. related to the scientific content of the Symbolical Lecture within the English Ritual:

‘The forms, symbols and ornaments of Royal Arch Masonry, as well as the rites and ceremonies at present in use, amongst us were adopted by our predecessors at the building of the second Temple, as well as to preserve in our minds the providential means by which the grand discovery was affected, as in our hearts the lessons of that exalted morality, which as members of this supreme degree are bound to practice. The form in which the companions of every R A Chapter are arranged, approaches as near as circumstances will admit that of the true catenarian arch; Thus we preserve a memorial of the vaulted Shrine in which the sacred word was deposited; which from the impenetrable nature of the strongest of all architectural forms, we learn the necessity of guarding our mysteries from profanation by the most inviolable secrecy. It also strongly typifies that adherence to order, and spirit of fraternal union [which] has given energy and permanency to the constitution of Freemasonry, enabling it to survive the wreck of mighty empires, and resist the destroying hand of time. And as the subordinate members of the catenarian arch naturally gravitate towards the centre or keystone, which compress or cement the whole structure together, so we are taught to look up with reverence, and submit with cheerfulness to every lawfully constituted authority, whether Masonic or civil regulation. The cape stones are represented by the three principals of the Chapter; for as the secrets contained in the vaulted chamber could only be obtain by drawing forth the three first of the series of stones, therefore the complete knowledge of this supreme order can only be obtained by passing thro’ those several offices.

In this degree we acknowledge six l....s three lesser together represent the light of the law and the prophets, and by their number allude to the patriarchial, mosaical and prophetic dispensation. The three greater representing the S.V. itself; these l....s are placed in the form of an equilateral t.....e, each of the lesser intersecting a line formed by two of the greater, thus geometrically dividing the greater t.....e into three lesser t.....s on the extremities, which by their union form a forth t.....e in the centre, all of them equal and equilateral; this symbolic arrangement corresponds to the mysterious T.H. or triple Tau, which forms two right angle on each of the exterior lines, and two others at their centre, by their union; for the three

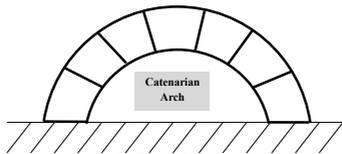
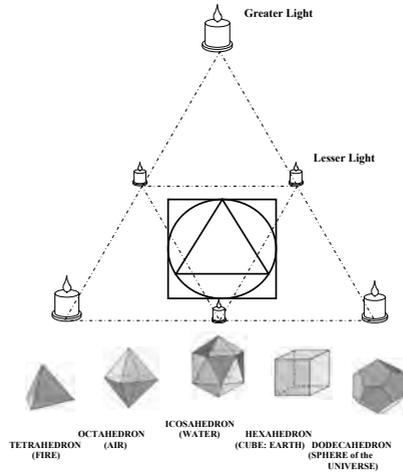
angles of each t.....e, are equal to two right angles; this illustrates the Jewel worn by the companions of the order, which forms by its intersections a given number of angles; these may be taken in five several combinations, and when reduced into their amount in right angle will be found equal to the five platonic bodies which represent the four elements, and the sphere of the universe.

The Ribbon worn by the companions of the order is a sacred emblem, denoting light, being composed of its two principal colours, with which the veil of the Temple was also interwoven; the same is further signified by its irradiated form, and in both these respects it has ever been considered as an emblem of royal power and dignity.<sup>29</sup>

To understand its importance requires each of us, as rational yet not necessarily expertly informed folk, to understand our own need to reconcile the scientific discoveries which rain down upon us today within one's own belief. In relative terms as the significance of such successive element of scientific discovery came to light, to the Founders it must have been just as dramatic as that confronting us today, except that 300 years of constant revelation has to a large degree inured us into a resigned acceptance, if not complacency and the inevitable 'it will all change in tomorrow's bulletin', but in truth such ambiguity does not diminish a Mason's obligation. Thus as they were obliged to face up to the scientific revelation of their day, so must a present day Freemason do the same and by understanding the relative commitment they were obliged to make vis-à-vis science and their faith, we can assess the depth of our own.

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29. *The Ceremonies etc. of the Holy Royal Arch, op.cit.*



1 (equilateral) Triangle = 2 right angles = 1/4 'tau' (a stylised T).



Sketch. Shows related items: Jewel, regalia and Chapter furniture that are of scientific significance to the Royal Arch, the latter in somewhat similar form to that in the English Ritual and Chapter room. The Latin inscriptions on the Jewel are too extensive to explain fully here, except for one: *'Si talia jungere possis sit tibi scire satis'* which broadly translates to 'If you can understand what follows, you know enough'.