

Forty Years On

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Resum. Amb motiu de la celebració del quarantè aniversari de la creació de l'Oficina d'Assessorament en Tecnologia del Congrés dels Estats Units, aquest article examina què és l'assessorament científic i tecnològic als parlaments (PTA). Primer fa una revisió d'exemples de protoassessorament parlamentari que es remunten cent cinquanta anys enrere i, a continuació, examina alguns dels èxits de l'actual PTA, així com alguns dels desafiaments que continua afrontant. L'article conclou amb diverses recomanacions sobre cap a on convindria que evolucionés el PTA els propers anys.

Paraules clau: assessorament tecnològic · Xarxa Europea d'Assessorament Tecnològic als Parlaments (EPTA) · Oficina d'Assessorament Tecnològic (OTA) · Oficina Parlamentària de Ciència i Tecnologia (POST) · Consell Assessor del Parlament sobre Ciència i Tecnologia (CAPCIT)

Summary. Motivated by the fact that 2013–2014 sees the 40th anniversary of the creation of the Office of Technology Assessment at the US Congress, this paper looks at what has come to be called Parliamentary Technology Assessment (PTA). It reviews some examples of proto-technology assessments with parliamentary links, going back 150 years, before examining some of the successes of contemporary PTA as well as some of the challenges that continue to face it. It concludes with several personal recommendations about how PTA might evolve in the coming years.

Keywords: technology assessment · European Parliamentary Technology Assessment (EPTA) · Office of Technology Assessment (OTA) · Parliamentary Office of Science and Technology (POST) · Advisory Board of the Parliament of Catalonia for Science and Technology (CAPCIT)

Introduction

The title of this paper is that of a famous English school song, itself actually written some 140 years ago. The song has a duality to its lyrics which is perhaps also appropriate to the theme of this paper—and indeed to the entire volume. It encourages the current schoolboys (and yes, it has been invariably boys) to look forward to where they might be in forty years' time, but it also urges those who are already that far on from their school-days to look back, and to nurture the prospects of their successors, the current generation of schoolboys.

Technology assessment: a retrospective

Just under forty years ago, in January 1974, the Office of Technology Assessment (OTA) at the US Congress began its work, having been established by the Technology Assessment Act of 1972 (Public Law 92-48). This Act was the culmination of at least five years of congressional discussion on the

desirability of establishing a technology assessment (TA) function to support congressional activity. Even after its passage, issues remained about its financing and it was only in November 1973 that funds were secured to enable actual operations to begin. The OTA published its first report, on Drug Bioequivalence, in July 1974.

Of course, the output of the US OTA was by no means the first manifestation of TA. In fact, before the OTA began its work, the British weekly journal *New Scientist* devoted a special supplement to the theme of 'Technology Assessment: a route through the chaos?' in May 1973. This was informed by the plans for the OTA but drew also on what at the time were recent explorations of TA in Europe and made reference to the then inchoate proposals for similar services at parliaments in Europe. Forty years on, it is well worth going back to the prognoses, expectations and admonitions contained in this supplement to appreciate what has subsequently occurred [50].

It is a matter for probably never-ending discussion as to what was the very first TA. I think strong candidates are some of the British Royal Commission studies conducted at the turn of the 19th and 20th centuries [1], or the mid 19th century pioneering work of Baptiste Alexis Victor Legrand, Director-General of the *Ponts et Chaussées* organisation in France, who investigated the feasibility of a national rail system and could be considered as the father of the French railways. Such studies

have all the characteristics of what nowadays might be seen as 'expert TA'. The British studies were conducted by a team of experts specially appointed for the purpose [2]. They assembled prodigious amounts of statistical information and issued general calls for submissions from outside organisations but proceeded mainly through the examination of witnesses, similar to the main method today used by the Office Parlementaire d'Evaluation des Choix Scientifiques et Technologiques (OPECST) in its work for the French Houses of Parliament. What is also interesting is that these early studies had parliamentary links. British Royal Commissions formally report to the 'monarch in Parliament', while Legrand's work was at the behest of the *Chambre des Députés* and the *Chambre des Pairs*, then the two Houses of the French Parliament. He himself became a member of the *Chambre des Députés*.

Looking at the USA, possibly not the first study that might be considered a TA, but certainly one of the most remarkable, was the 1937 report of the House of Representatives' National Resources Committee's Subcommittee on Technology, entitled *Technological Trends and National Policy, Including the Social Implications of the New Inventions*. This study obviously had parliamentary origins. Not once in its 388 pages does the word 'assessment' occur, but that it was indeed a TA is indicated by the letter that accompanied the report when it was submitted to the US President:

"This document is the first major attempt to show the kinds of new inventions which may affect living and working conditions in America in the next 10 to 25 years. It indicates some of the problems which the adoption and use of these inventions will inevitably bring in their train. It emphasizes the importance of national efforts to bring about prompt adjustment to these changing situations, with the least possible social suffering and loss, and sketches some of the lines of national policy directed to this end."

The antecedents of this gargantuan study are particularly interesting. The USA (and indeed Europe) was fitfully emerging from the Great Depression. The technological transformation that would accompany WWII was some years off, and essentially unanticipated [3]. At the height of the Great Depression, there was considerable Congressional discussion in the USA on the negative effects of technological developments (in particular, their impacts on employment) and even suggestions that all government investment in technological research and development be abandoned because of this [4].

I do not think that associated with the 19th or early 20th century studies or the US 1937 report there was any sense of the need for 'permanent' bodies to be attached to, or associated with, the parliaments to conduct assessments, justified by the singular importance of scientific and technological issues. That would have to wait for the OTA. However, it could be argued that the OTA was closely 'pipped', at least in the field of environmental sciences, by the creation in the UK in 1970 of a standing (i.e. permanent) Royal Commission on Environmental Pollution (RCEP) [5]. This body was unfortunately abolished in a cost-saving move by the UK government in 2011.

Technology assessment: international to sub-national

One of the great strengths of European Parliamentary Technology Assessment (EPTA) is that it has, as members, parliament-serving organisations at three levels of democratic governance: *supra-national*, through the European Parliament and its Science and Technology Options Assessment (STOA), *national*, with various organisational forms, making up the majority of members and *sub-national*. This last, after the demise of the service at the Flemish Parliament, is represented solely (but forcibly) by the Advisory Board of the Parliament of Catalonia for Science and Technology (CAPCIT) in Catalonia. However, there are suggestions that the Wallonian Parliament in Belgium may step into the gap left by the ending of its Flemish sister institute [54].

The historical stimulus for the creation of sub-national TA offices has been that in some countries, responsibility for science and technology policy is devolved to sub-national regional assemblies. Interestingly, there was some discussion a decade or so ago about the creation of a mini-OTA to serve the California State Legislature in the USA, although nothing became of this. That legislature does, however, have a research office attached to its Senate (it is a bicameral legislature) that covers scientific and technological matters alongside others. This actually predates the OTA, having been created in 1969. Of course, with a population of 38 million, California might be seen as virtually a country in its own right, as only Germany, the UK, France, Italy and Poland (just), as EPTA member countries, have larger populations.

It is an interesting question whether sub-national democratic units, even if they do not have overarching responsibility for scrutinising science and technology policy, might create TA units. To be strictly analogous with the national, sub-national and EU units that constitute the membership of the EPTA, any such unit would need to serve the requirements of the 'elected democratic assembly', rather than the administration or, in common with several EPTA members, to do this at least to some extent while also serving an administrative entity (national government). Between 1965 and 1986, the then Greater London Council (GLC) in the UK had a Research and Intelligence Unit [6]. Interestingly, this was created specifically at the recommendation of a Royal Commission that looked at London government and noted the dearth of strategic intelligence and analysis for the metropolis as a whole. This unit was an agency of the administration but enjoyed support and patronage from some enthusiastic Council members. It disappeared when the GLC was disbanded in 1986. For 14 years, there was no strategic authority for the Greater London area. Although one was recreated in 2000 and does do some analytical work, there is no contemporary unit with the full characteristics of the 1965–1986 office. I have not been able systematically to explore whether there exist, anywhere else in the world, TA or quasi-TA units serving the 'elected representatives of sub-national democratic institutions'. For the moment it would seem that the California Senate unit mentioned above is the only example.

Closely linked to this matter of the geographic or compe-

tence scale of parliamentary TA units is the matter of the focus of their studies. Many issues that fall within the purview of TA have international, if not global, dimensions. STOA at the European Parliament naturally focuses its attention on matters over which the EU has (or aspires to have!) legislative competence. National parliamentary TA units in Europe also have to pay some attention to EU (or EEA) level considerations as the impacts of EU legislation can play out in quite distinctive ways in individual countries. Given the focus of concerns of national legislatures, the lion's share of the work of most national TA institutes will be on matters that are on the immediate and short-term agendas of their respective parliaments. These may be quite distinctive. For example, the Greek Permanent Committee of Technology Assessment has paid attention to the subject of gold-mining in Greece, a matter that has been, and remains, far higher up the national agenda there than in any other European country. Some years ago, the UK Parliament desperately sought advice from the Parliamentary Office on Science and Technology (POST) on the latest technologies for marine oil-spill clean-up—a subject that clearly is unlikely ever to be at the top of the agenda in sister countries such as Switzerland or Austria.

However, even where competence remains firmly at a national level, given the ineluctable forces of globalisation, individual national TA units are finding themselves focusing on similar or identical areas, including the common topics of energy security, impacts of information technology, biotechnology, and so on. The EPTA has been able, to some extent, to respond to this phenomenon by conducting joint research, such as on information technologies and privacy. Beyond this, there have been joint explorations of procedures and methodologies, above all the *Technology Assessment, Methods and Impacts* (TAMI) study [37], which to some extent are being taken forward through the current PACITA (Parliaments and Civil Society in Technology Assessment) project [45].

Much more could be done in this respect, and more systematically, through greater coordination between individual EPTA members. Not only would this respond to (or even better, anticipate) the manifestations of the globalisation processes mentioned above but it could also lead to economic efficiencies, which are much to be desired under the current circumstances. Thus, several EPTA members (for a host of reasons, it is unlikely that *all* EPTA members could ever, at any one time, universally collaborate in a project) might undertake to divide up the information-collection stages of a TA analysis, with common access to the resulting information bank for their individual use in preparing a national assessment.

One particular study that I would like to see pursued is methodological or procedural rather than addressing a specific policy area. The legislatures of many (although not all) of the EPTA countries are composed of members who have been elected by specific parts of their countries, i.e. geographical constituencies. Where this is the case, it is an oft-repeated truism that nothing captures the attentions of such members, if they are looking to be re-elected, more than matters that impinge specifically on those constituencies. Although involving considerable data-crunching, it should be possible, given modern infor-

mation technology techniques, to target some TA studies to specific features of particular constituencies, even across countries, at least within similar socio-geographical areas. This might most easily be done with environmentally-focussed studies. POST has already initiated some activity in this way, at the national level, within the UK. For example, a TA on invasive tree pests and diseases specifically targeted members of the House of Commons whose constituencies had above a certain proportion of their land area covered in woodland. Another study, on bio-digesters, was specifically aimed at the Members of Parliament in whose constituencies such facilities were either under construction or planned (a fact that POST came to suspect was actually not known by some of them!)

There is no reason why such targeting should be restricted to an individual country, as the features of a bio-digester facility will be much the same, whether in the UK or Finland. Furthermore, such characterisation could go well beyond purely environmental subjects. I think it could be hugely valuable to assemble information on jobs linked directly to various science- and technology-related sectors, because probably no single characteristic of a constituency engages parliamentary representatives looking to burnish their reputations more than employment. This could be done in sophisticated ways, for example, related to employment catchment areas instead of the often rather arbitrary geographical boundaries of constituencies. Furthermore, there could be all manner of other indicators related to other major themes of TA. For example, in the socio-medical area, studies on the characteristics of population ageing would have obviously greater specific relevance to those places within countries that are especially favoured by retirees. Even in those democratic assemblies in which members are not elected by a geographically-based electoral system (or indeed, are not elected at all, as with the UK's House of Lords) there may well be ways to link in other information that ties members' interests to specific areas.

Normative or informative

There is a rich diversity of institutional forms among the organisations that collaborate within EPTA [7] but also a fairly definitive dichotomy. As a general rule, those parliamentary TA units that are closer to, or actually within, a parliament, institutionally eschew recommendations, while those with an external locus often seek to make recommendations. This rule breaks down significantly, however, on one side of the dichotomy, in that OPECST, which is certainly an internal institution of the *Assemblée Nationale* and *Sénat* in France, not only makes recommendations but is unique among parliamentary TA institutions in being able directly to promulgate legislation in its parliament [8].

However, there is a general principle under which most TA units closely associated with their respective parliaments operate; namely, that it is for the 'elected representatives' and not the TA units to make and take forward recommendations. The understanding has come into being that TA institutions serve perhaps their highest purpose when they explore 'options' or 'choices'. The word 'options' is codified in the very title of the

European Parliament's office. It is true, as a reading of the previous paragraph forcibly demonstrates, that the French parliamentary office, although having the word '*Choix*' in its title, most definitely *does* make recommendations. It has been explained to me that this is because the French word emphasises the act of choosing, whereas the word in English carries more of a connotation of embracing the range of entities on which the choosing act is implemented. I think this helps to explain why, in English, the title 'Science and Technology *Options* Assessment' sounds correct, whereas the term 'Science and Technology *Choices* Assessment' sounds somewhat maladroit.

In fact, quite frequently, parliamentary TA institutions that are constrained from making recommendations—and whose mandate allows only the exploring of options—can make implicit recommendations. If they present an assessment saying, in effect, (*reductio ad absurdum*) "there is Option A, and if it is adopted, or comes into being, the four horsemen of the apocalypse will stalk our land for a century, but there is also Option B, which, if taken, will provide heavenly harmony and ambrosia for our population to dine on for the rest of their lives," it is fairly clear what the preference of the TA institution is!

There is the strongest obligation on parliamentary TA institutions to present to their parliamentary clients an exhaustive exploration of what the 'most complete' range of options actually is. An important point is that this applies even to those parliamentary TA institutions that have the 'luxury' of concluding their report with recommendations. Obviously, all must exercise discretion on ruling out what options are unrealistic. For example, many TA institutions recently have been concerned with various aspects of the consequences of an ageing society. I am relieved (*reductio ad absurdum*) that none has (at least not yet?) presented the 'option' of culling the national population of people over age 65! But, there is a huge range of economic, social, medical, biotechnological and other science and technology dimensions to that one issue for which they must provide an exegesis. TA institutions will always be under scrutiny from particular interests who will unfailingly argue that due recognition has not been given to an option favoured by those interests. Furthermore, any option invariably leads to second and higher order considerations [9]. TA institutions also have to explore these to their best endeavours, within the constraints of time and resources.

Those constraints, especially that of time, are probably the key characteristics that distinguish the products of parliamentary TA institutions from more conventional academic analyses. Parliamentarians are usually marching to a very rapid drumbeat. They want answers virtually as soon as they ask questions. To compound matters, those parliamentary TA units that conduct their own research are universally frugally provided with person-power, while those who contract-out research face the time constraints of that process.

A further consideration that impacts on the time of a TA production process is the critical consideration of peer review. Most [10] TA units subject their output to some form of external review. Certainly for POST, peer review at draft stage is a fundamental principle that is not compromised under any circumstance. Peer reviewers provide their services for free, and an inevitable consequence is that they must be allowed some time

to schedule their evaluations into their wider commitments.

In extremis, things can be fast-tracked as much as possible. At POST, in the oil-spill case mentioned above, it would clearly have been of little use to parliamentarians to provide advice on best possible practices after potential coastal contamination had already occurred. Rather, the mini-TA was produced in the space of a week, with peer reviewers lined up and ready to go beforehand [51]. However, this was a frenetic pace that obviously cannot be implemented in other than exceptional circumstances. Looking at the opposite extreme, the lengthiest study that POST has ever produced (lengthiest in time but also in size) was on the risks of sabotage and external assaults at UK nuclear facilities, conducted at the specific request of the influential House of Commons Defence Committee in July 2002 [11]. This involved about 18 months of calendar time and about two years of person-input. In this case, the primary aim was to produce a fundamentally authoritative report exhaustively assessing the wide-ranging dimensions of this very profound subject. Depth of analysis was felt to trump the needs of expedition.

Clearly, fast-moving, or emergency, circumstances can present a real challenge to systematic, comprehensive, TA. The serious 2001 foot-and-mouth disease outbreak in England and Wales caught most, including POST, by surprise give that the last serious outbreak occurred in 1967. POST was not able to produce any output on the subject, so fast-moving was the spread of the epidemic and the evolution of the official attempts to eradicate it. More recently, the April 2010 air travel ash cloud incident following the eruption of the Eyjafjallajökull volcano in Iceland was also a huge challenge, given the rapidity of its development. In the UK, the situation was compounded by the fact that it occurred exactly at the time when a general election campaign began and the UK parliament was not sitting. During such periods, POST does not publish any reports and, ironically, turns its attention to a systematic analysis of issues likely to be of concern to Parliament over the following five years (see below). In the end, the 'honour' of parliamentary TA institutions in addressing this amazing incident was salvaged by STOA in Brussels, which held an important workshop on the subject [12].

Of course, one way in which TA institutions can attempt to minimise the constraints of time is to attempt to identify potential subjects and circumstances that might emerge on parliamentary agendas in the future, and ideally to have a 'bank' of research and information collation that can be drawn on rapidly, should this become relevant. This is a major reason why parliamentary TA institutions have a profound engagement with foresight, scenario-building and similar exercises. As noted above, in the case of POST, in the roughly one-month period when a general election is called in the UK (occurring every 4–5 years), POST has, since 2001 immediately begun an intensive internal brain-storming process to identify subjects and issues to be featured in a special *Science in the New Parliament* publication that looks forward five years. Uniquely among POST publications, this is sent to *all* Members of Parliament (and members of the House of Lords) as soon as the new Parliament convenes [13].

In closing this discussion on matters of time, there is a final cautionary point to be made. This is that parliamentary TA institutions have to be careful not to become, unwittingly, agents

for attempts at procrastination. Interests opposed to a particular policy proposal quite frequently will call for further research on it before implementation. Such calls can be quite seductive, especially when the independence, integrity, etc. of the parliamentary TA institution that may be identified as the preferred analyser is invoked. The intention of the opponents is not necessarily, of course, to acclaim the outcome of any such further research, but often a hope that deferred implementation will lead to the proposal withering from neglect, or becoming inappropriate through changing circumstances [14].

Costs and the expansion of parliamentary TA

An aspiration that has driven the parliamentary TA community, certainly in Europe, since the earliest days has been the establishment of TA functions serving an increasing number of parliaments. Indeed, the period from the late 1990s to the late 2000s was remarkable for the success achieved on this front, from Norway to Catalunya. This has partly been due to the proselytising zeal of the community itself, but at least as much to a wave of realisation that swept through legislature after legislature that scientific and technological advancement, especially innovation, was critical to the well-being of all economies and societies.

Apart from the obvious exception of the recent creation of the Centre for Science, Technology and Engineering (CSTE) at the US Government [15] Accountability Office (GAO), which in some ways a reincarnation of the OTA and serves the US Congress, parliamentary TA has not been so successful in expansion outside Europe. In 2011, there was some excitement about the possible creation of an institution somewhat similar to the Finnish Parliament's Committee for the Future, at the Chilean Parliament, to mark the bicentenary of its foundation, but I for one have not heard so much about its progress subsequently [16]. For some years, there have been series of delegations from, or to, countries in East Asia, such as Japan, Korea and Taiwan. In that part of the world the greatest progress in this regard has been in Japan, when in March 2011 a new science and technology committee was established at its House of Representatives, which undertook to embrace a TA function. This was, however, disrupted by the earthquake and tsunami disaster that followed, although a small support unit has been created at the National Diet [17] Library, which hopefully, in liaison with the Diet, will be able to take things forward. Canada also has made preliminary explorations, but, disappointingly for such a politically progressive country, these have yet to reach fruition.

Within Europe (and indeed further afield) the economic and political climate is not currently very favourable to initiatives within other countries, especially as these tend to be countries outside of the relatively economically-favoured western European 'core' countries. This raises the immediate question of the costs of establishing a viable parliamentary TA function. These were examined by Vig and Paschen as early as 2000, but the figures they give are not truly comparable [53] and it is remarkably difficult to produce figures that are. For example, for services by units that are integral parts of a parliamentary

institution, many overheads may be met centrally and thus not attributed specifically to the unit's cost.

Some figures are, however, illustrative. Its annual report reveals that in 2012 the research budget of STOA at the European Parliament was € 684,806.24 [49]. If one adds the costs of administration and overheads this suggests something in the region of €1 million a year as the total cost of running STOA. The *Rathenau Instituut* in the Netherlands, which provides a service to the Dutch parliament and is the largest TA unit in Europe, reported a total 2011 budget of €5.8 million. However, this also includes its other function of Science Systems Assessment and a reasonable estimate for what it actually spent on TA is about €2.5 million [44]. A rough rule-of-thumb might be that to establish and run a basic, viable TA unit is likely to cost about €1 million a year.

Such a figure may well be beyond the means of the legislatures of smaller countries, especially, as noted, when they are under pressure not just to support general adjustments to economic austerity, but are also under public scrutiny to be seen to be tightening their own belts (something which affects established units at other parliaments as well). One mooted response to these circumstances is the creation of institutions that would serve more than one parliamentary institution, on a joint basis. This could have merit in situations where, as in the Baltic States, there is geographical contiguity and roughly similar circumstances (although Lithuania has the population of Estonia and Latvia combined). It is more difficult to envisage, for example, Iceland and Slovenia, both countries which have expressed interest in parliamentary TA, being able to operate in this way. Another possible route to the expansion of the parliamentary TA family might be for (a) charitable foundation(s), of *impeccable status*, to agree to support a service for a parliament or parliaments. There have been some suggestions of the Gulbenkian Foundation taking on such a role in Portugal, another country that has flirted with the prospect of parliamentary TA, although nothing has come of this to date.

It is perhaps not widely known that for the first three years of its life, POST itself was a charitable foundation, receiving funding from prestigious UK charities such as the Wellcome Trust and Nuffield Foundation. It was also supported by various blue-chip companies, but that is something that would probably not be acceptable today. Even support from the national science and engineering academies or the like, which POST also received, might be regarded as undermining impartiality and independence. It was, in truth, a relief when the UK Parliament embraced POST as an internal institution, not just because of these considerations of independence but also because reliance on charitable donations is not a very secure basis for long-term survival, something which is probably true everywhere outside the USA.

Nailing the coffin lid on 'technology arrestment'

Looking back over the past forty years, I think one of the more interesting developments in TA has been that it has, essentially, been able to shake off an interpretation and an epithet that plagued it in the formative years before, and early after, the

OTA came into being. This was that TA actually stood for ‘technology *arrestment*’ [18] and that its application, explicitly or implicitly, would be a brake on entrepreneurship and innovation. In truth, when one reads some of the early writing on TA, it was somewhat replete with an emphasis, explicit or implicit on control or regulation. For example, the *New Scientist* introduced the special supplement of May 1973 [36] thus:

“One result of the growth of consumer and environmentalist movements in recent years has been to show that new science and technology does not necessarily make life more comfortable or enjoyable. Technological innovation can just as easily impair “the quality of life” as promote it. As an increasing number of people question the idea that ‘science is good for you’, it is inevitable that there will be growing demands for controls on science and technology.”

I would dispute that excerpt’s assertion that it was the growth of ‘consumer and environmentalist movements’ that were the first to ‘show’ anything. Rather, at that time, such organisations frequently latched onto the output of proto-TAs, and by dint of their media-savvy inclinations often took them in directions that differed from those that the original research suggested. It is perhaps not surprising that reading that excerpt, and similar statements of the time, might have caused apprehension not only among entrepreneurs but, considering in particular the last line above, also among the science and technology research community. It conjures up visions of controls on even early-stage research, and of course, there are voices still raised in that cause today, in fields such as stem cell research, geoengineering or the development of hydraulic enhancement techniques for liquid and gaseous hydrocarbon extraction.

‘Arrestment’ accusations are rarely, if ever, made today against the outputs and institutions of TA. There are several reasons for this welcome evolution, all rather complexly intertwined. First, the entire socio-political context of policy discourse has moved on from the rather ‘statist’ dominance of the 1960s and 1970s. Second, some of the national institutions created to carry out TA have also had a complementary, or even dominant, remit, namely to explore innovation [20]. Obviously linked to that, but with a life of its own, has been the entire emergence of innovation as a subject of research and exhortation. TA institutions have sought to justify their activities by being incorporated into the push for innovation but have also, I would assert, never lost sight of the fact that they must explore in its shadows as well as following its light. In fact, it could be said that one reason why the ‘arrestment’ accusation is rarely made today—and the enthusiasm for innovation is generally so ubiquitous—is precisely because of the successful application of TA in the early identification of things that create the shadows, so that the light can penetrate there as well [21].

Engagement, participation and all that

The ‘embrace of innovation’ process I consider above was a somewhat gradual process, perhaps like the fog in Sandburg’s

famous poem that “comes on little cat feet”. It came silently to embrace most, if not all, parliamentary TA units. However, if one looks at the evolution of TA in Europe over the past 40 years, something that certainly did not come as silently has been the embrace of participation, to the point that when the acronym PTA is used, there frequently has to be an explanation of whether the author is referring to ‘Parliamentary Technology Assessment’, or to ‘Participatory Technology Assessment’. In fact, in writing this section on participation or engagement, nothing comes to my mind more than G. F. Handel’s famous *sinfonia* from his opera *Solomon, The Arrival of the Queen of Sheba*, which so wonderfully captures in music a celerity infused with impetuosity. Few, including POST, have been able to resist the seduction of Sheba’s fluttering eyelids. And, in truth, she was apparently a thing of beauty.

However, POST did not, for good reasons, embrace the queen from the south as fully as some [22]. POST collaborated with two ‘consensus conferences’ in the UK, in 1994 on genetically modified foods [42] and in 1998–1999 on radioactive waste management [39]. I use the word ‘collaborate’ carefully here because POST did not play a central role in the organisation, and dissemination of the results of, the citizen engagements. POST is an internal institution of a body (the UK Parliament) that is intensely proud of its tradition of representative democracy. The members of the House of Commons see themselves as the two-way link to and from the citizenry through their attachment to their constituencies but not necessarily bound by any momentary capturing of what is claimed to be the will of those citizens. Indeed, in the famous *Speech to the Electors of Bristol* the English politician/philosopher Edmund Burke forcibly set out these principles as early as 1774 [23]. He observed that while an elected representative will always strive to nurture the well-being of his [24] electorate his premier duty to them was to exercise his judgement and discretion and to be prepared, where he thought a higher, national, interest trumped local circumstances, to go against his electorate’s will. This principle has subsequently become extended from a purely geographical basis (Bristol being a major port, Burke’s electorate were particularly keen to preserve trade interests) to one which embraces all special interests, even if not geographically expressed.

The implications of this long-established principle for POST were that it might have been extremely inadvisable for it, as an internal institution of the Parliament, to be seen to be opening up an alternative, direct, route to the national will that in any way might be construed as bypassing the role of the elected representative. The outcome was that POST observed and assisted these early UK experiments in public engagement and reported back to Parliament on them [48]. In 2000, when POST was made a permanent institution of both Houses of the UK Parliament (it had until then existed on a five-yearly renewable basis), it was given a specific remit to report to Parliament on the development of public consultation activities in the field of science and technology policy in the UK, but not specifically to conduct them itself. POST largely took this remit forward through developing already existing initiatives in the use of on-line consultation activities. The first of these had involved a survey of the career development of female scientists [25] and was followed by some ex-

tensive work on consultation on the consequences of inland flooding, following some severe incidents in the UK in 2001. This capitalised, if that is the right word, on the intense public concern on the subject. In the following years, the use of online consultations by UK parliamentary committees expanded considerably (and has extended to many other policy areas besides science and technology) such that it became unnecessary to demonstrate further its potential applications. It is my impression that in recent years, however, this use of online consultations has reached its peak, though I have not explored this systematically. Online consultations had a very specific attraction for POST, namely that they are relatively cheap to conduct. The same cannot be said for consultations involving the real-life engagement of people, especially those of a deliberative nature that need to bring a sample of the public together on multiple occasions. The radioactive waste consultation in 1997–1998, discussed above, cost €185,000 at current prices [26].

There is also a fundamental ‘catch-22’ in attempting to address a methodological criticism of real-life deliberative exercises. This is that the citizen sample assembled to engage is often said to be too small to be representative [27]. To address this claim, the pressure rises to increase the number of citizens involved; but that inevitably raises costs. This will apply *a fortiori* to international exercises. The King Baudouin Foundation funded EU-level consultation on brain research in 2005–2006, called *The Meeting of Minds*, engaged 126 citizens from across the EU and is reported to have had a total budget in excess of €2.3 million [47].

I suggest that a consequence of the likely extended period of economic stringency in Europe and elsewhere will be that relatively few such exercises will be conducted in the near future. The experimentation that has occurred over the past 20 or so years has been very valuable, but I would argue that the use of such expensive consultation approaches is not the most cost-effective means of advancing TA under current circumstances.

The restoration of expertise: ‘traditional’ technology assessment

Instead, I would assert that the advancement of parliamentary TA (and TA more generally) in the future will better, and more likely, come from what I have encapsulated in the title of this section. While expert analysis TA may in some respects be traditional, at least in the sense that it can claim a long history, some of which I have adumbrated in the earlier sections of this paper, it has in this time been through a formative process of ‘the refiner’s fire’ [28]. One could argue that a great deal of expert analysis could be assembled with €2.3 million! However, my argument is not, by any means, solely based on cost-effectiveness. According to the *New Scientist* 1973 special supplement, [29] the development of TA “may lead to the creation of new professions, such as that of the technology assessment analyst”. I think that this has indeed occurred over the past 40 years. Furthermore, the development of expert-originating TA is likely to be given a major boost by the re-establishment of the Congressional TA

function in the USA, which I understand to be firmly wedded to the application and further refinement of this approach.

I am not in any way arguing that a new ‘deferment to expertise’ will, or should, emerge. If that ever existed, its days are long over. Instead, I foresee real challenges to the profession. Of these, I think the most demanding will be the nurturing and extension of ‘trust’. A decade ago, Baroness Onora O’Neill, probably the UK’s leading living moral philosopher said that there was a “need to free professionals and the public service to serve the public...[and] to rethink a media culture in which spreading suspicion has become a routine activity”. She has explored the dialectic between trust and ‘trustworthiness’, something that I think would handsomely repay deeper exploration by EPTA and the wider TA community [43]. This could be seen as a specific dimension of the wider issue of ‘impact’, which has much concerned the parliamentary TA community. The extent to which we are trusted, by whom, how we can enhance and fortify our trustworthiness and how we can extend the field of those who place their trust in us should, I repeat, be a continual *leitmotif*, running through all parliamentary TA activity and questions to be perpetually asked by all its institutions in a constant critical self-examination.

I do not have space to elaborate on this idea in this paper but hope to return to it in more detail in the future. I should say that I am well aware that some point to ways in which the dilemmas of expertise and the concerns of the citizenry (which relate to this matter of trust, although conceptually separate) can be reconciled, or more positively, can actively interact with synergistic outcomes. The perspective, or approach, that has come to be called Constructive Technology Assessment (CTA), associated in particular with the Dutch leading social studies of science specialist Arie Rip, is perhaps the most highly developed, although CTA may have political and philosophical dimensions that are perhaps above the station of workaday parliamentary TA units. A recent Japanese study at the University of Tokyo, which has been highly influential in the progress towards institutionalising parliamentary TA in that country, was, I believe, the first to use the term ‘third generation TA’, also with a sense of some form of synergistic unification of different TA methodologies, again especially those expert-based and those more consultative [41]. Although this was not made explicit, that study was perhaps infused by a sense of the ‘advantages of backwardness’ [30], or ‘late mover advantages’. It is an interesting idea that those countries coming later to the parliamentary TA table might, by the very virtue of that, become the vanguard in the development of its practices. I include the CSTE at the US GAO in this category; although the USA, through the OTA, was the original setter of the feast on the table, it subsequently disappeared like the prodigal son, only recently returning to join the family [31].

The garnering and nurturing of parliamentary TA champions

I have been increasingly conscious as I have laboured over this paper that it is perhaps somewhat introspective. It is, in

truth, primarily addressed to my fellow TA professionals. Literature and indeed oral tradition is replete with stories of the critical role of champions: King Arthur and his Knights of the Round Table in English mythology, the fallen heroes gathered alongside the gods in Valhalla in Norse and Germanic tradition, are examples [32].

Parliamentary TA could not have progressed to where it is now without its early-day champions within the Parliaments that have successively embraced it. In the case of the UK, I think in particular of Lords Kennet and Flowers and Dr Ashok Kumar MP [33], (now all unfortunately deceased) but there were many others. I am sure each EPTA member country can point to its champions. But I also think of people like Claude Birraux (now retired), at the *Assemblée Nationale*, and in the USA the indefatigable Congressman Rush Holt, who, beginning in 1999 and continuing to the present has sometimes single-handedly championed the cause of TA in the US House of Representatives, [34] and of course, the 'second coming' champion, Congressman Bart Gordon, who greatly assisted in the establishment of the GAO's CSTE.

Perhaps I am writing these final paragraphs drawing on a UK experience that is not widespread; if so, that would be reassuring. It was a source of concern to me in my later days at POST that, with notable exceptions, such as the recruitment of the current Chairman of POST's Board, Adam Afriyie, it seemed to be becoming more difficult to engage UK parliamentarians. Indeed, for some periods the Board operated with unfilled places. Parliamentary TA is no longer a chubby, gurgling, heart-stealing new-born, to be 'coo-cooed' over by an adoring crowd of admirers, above all, its parents. It has grown up, with a succession of celebrations of adulthood over the past few years at STOA, OPECST, TAB, TA-Swiss and POST itself. Perhaps in that growing-up period, as teenagers, we have sometimes been seen as a bit spotty and tetchy!

We do, however, still need our champions and it is why I was so pleased that Leonhard Hennen and Armin Grunwald conceived of the session at the recent PACITA conference in Prague (which they gave me the honour of inviting to chair) on the relationship between TA practitioners and their parliamentary (and governmental, which is also a role for some units that serve parliaments) 'clients' [35]. The need for champions certainly extends well beyond those who specifically request studies but certainly includes them. I very much hope that this interaction, and the wider matter of champions, will be taken up in continuing dialogues within and beyond the PACITA framework.

A Personal Coda

I have plumbed the depths of my mind to find some way of ending this paper fittingly. As I have said, in no sense would I want it to have any eschatological overtones, quite the reverse. In that vein, I will end by quoting a few words from a wonderful poem by Arthur Hugh Clough (1819–1861), *Say Not the Struggle Nought Availeth*.

For while the tired waves, vainly breaking
Seem here no painful inch to gain,
Far back through creeks and inlets making,
Comes, silent, flooding in, the main [36].

Acknowledgements. I am grateful to the US Embassy, London, which in 1979 awarded me a research scholarship that enabled me to spend a study period at the US Congressional Office of Technology Assessment and also to interact with two giants in the evolution of TA: the late Professor Harvey Brooks of Harvard University, USA and the late Professor Alvin Weinberg, of Oak Ridge Associated Universities, USA, former Director of the Oak Ridge National Laboratory, Tennessee, USA. This opportunity kindled a lifelong interest in all aspects of TA. Naturally, I must also thank all colleagues from EPTA offices, or associated with EPTA, with whom I have interacted over the years.

Notes & References

Notes

- Such as the 1903–1906 *Royal Commission on London Traffic*, which produced an eight volume report, or the 1898–1915 *Royal Commission on Sewage Disposal* which during this exceptionally long time for the existence of a Royal Commission published nine reports, many of which laid the foundation for the UK's procedures for wastewater treatment until the mid-1970s.
- I apologise that I have not been able to establish the working methods of Legrand's inquiry and would be very grateful for any information about it.
- Some might dispute that observation, and there were, it is true, around the time, some remarkable publications, above all H. G. Wells' 1933 'future history' novel *The Shape of Things to Come*.
- As discussed in the writings of Carroll W. Pursell, especially *The Machine in America: A Social History of Technology*, 2007.
- Although as a Royal Commission, the RCEP reported (through the monarch) to the UK Parliament, it was not technically an office of the Parliament.
- See [40]. The unit gained a reputation in particular for its demographic analytical work.
- There are several taxonomies of the different institutional forms, but I stand by the one which my colleague Diana Malpede and I put forward in [52].
- The most significant example is probably its proposal for the subsequent "loi no 2006-739 du 28 juin 2006 de programme relative à la gestion durable des matières et déchets radioactifs". OPECST also appoints some members of the Board of the *Commission Nationale d'Evaluation des Recherches et Etudes Relatives à la Gestion des Matières et des Déchets Radioactifs* which was created by the law. Moreover, each year, the French Parliament commits to OPECST for examination the re-

- port which the National Commission submits to it.
9. Which was delightfully encapsulated by the English satirical poet, Jonathan Swift, in 1733, "So, naturalists observe, a flea / Has smaller fleas that on him prey; / And these have smaller still to bite 'em, / And so proceed ad infinitum."
 10. I use the word 'most' without having had the chance to check this fact systematically with EPTA members, and will take the first opportunity to do so.
 11. See [46]. I would like to record here my profound gratitude to my colleague, Dr. Chandrika Nath, who was the lead researcher on this study.
 12. The contribution of this workshop to the development of policy in this area has not been recognised as much as it deserves. It was at the STOA event that aircraft engine manufacturers first publicly discussed agreeing on ash concentration levels below which they could guarantee the integrity of their engines.
 13. In general, POST sends its publications only to parliamentarians who have actively signed up to receive them. This is to avoid any risk of accusations of 'bombarding' parliamentarians with unwanted material. These special publications also do not go through POST's usual axiomatic processes of external peer review, because of time constraints, although there is informal consultation with external experts.
 14. Readers will realise that I have written this last paragraph based on some degree of actual experience of such circumstances, although confidentiality prevents me from giving specific references. For completeness, I should also add another caution, not associated with matters of time. This is that, fortunately on very few occasions in my own experience, TA institutions may receive encouragement to conduct an analysis from sources which, further investigation shows, have a pecuniary interest in the matter in some way.
 15. For those not familiar with the US situation, the title of this institution can be rather misleading. It is *not* a government (i.e. executive) office, but rather an office of the legislature that is concerned with *government accountability*.
 16. If any reader has further information, I would be interested to receive it.
 17. That is, Parliament, which is composed of two Houses – the House of Representatives and the House of Councilors
 18. I have been unable to establish authoritatively the etymology of this epithet. The term is referred to in a 1972 *Business Week* article called 'The Debate Over Assessing Technology: Congress wants to set up an office to evaluate the impact of new developments' [http://www.princeton.edu/~ota/ns20/ota72_f.html]. Here it is attributed to Joe Coates of the US National Science Foundation. But, whether Coates was himself quoting, or originated the expression is unclear. There is also some discussion of the concept in: Dickson D (1988) *The New Politics of Science*, University of Chicago Press.
 19. See [9]. Excerpt taken from page 466.
 20. This applies to CAPCIT itself, of course; the Norwegian Board of Technology is perhaps another good example. However, I would argue that *all* parliamentary TA units are now suffused by this perspective.
 21. In writing this section, I clearly have had in mind the seminal book by Collingridge D (1980) *The Social Control of Technology*, St. Martin's Press. It is indicative, however, that he uses the word 'control' in its title, rather than 'assessment'.
 22. Actually, a better analogy might be a queen from the north, but Sheba definitely came from the south (of Israel).
 23. See [38]. The irony is that the electors of Bristol showed what they thought of Burke's ringing declaration by declining to elect him at the subsequent general election!
 24. Of course, in those days, it was only 'hes' in the House of Commons.
 25. This had fed into the above referenced House of Lords committee report. Interestingly, in 2013, the House of Commons Science and Technology Committee has returned to this theme and is conducting a similar consultation. This might reveal the progress that has been made in this area in the intervening years.
 26. The costs were met by the government body that funds environmental research in the UK, the agency then responsible for low and intermediate level radioactive waste management and a charitable foundation.
 27. It is, of course, very difficult to establish what is the necessary minimum size to be representative. A further uncertainty arises because, especially with exercises involving citizens convening on multiple occasions, those who volunteer to do so (and of course they cannot be compelled) are hardly likely to be truly representative. The very act of volunteering shows that they are, in perhaps critical respects, atypical. I am well aware of assertions that the aim of such exercises is *not* to obtain a representative opinion but to explore ranges of opinion, and similar arguments, but these are often a rather weak rationalisation in face of a *de facto* situation.
 28. In the sense in which this phrase, or those similar to it, is used in various places in both the Old and New Testaments, perhaps most particularly in Malachi 3:2
 29. See [49]. The specific quotation in the following sentence in the main text above is on page 466
 30. I hasten to say that I use the word 'backwardness' solely in the sense that it was first codified in: Gerschenkron A (1962) *Economic Backwardness in Historical Perspective*, Harvard University Press. There was nothing 'backward' about the study!
 31. The Biblical prodigal son is not, I admit, perhaps the best analogy. Unlike him, the US OTA did not leave the household of its own free will but was forced out, in some senses by its own father, the US Congress. Also, the return of the prodigal son was not, at least initially, greeted with untrammelled enthusiasm by his siblings who had stayed, the complete reverse of the response of the EPTA 'family' to the return of the USA. If any reader can suggest a bet-

ter analogy, I would welcome it.

32. Again, these analogies are not, perhaps, ideal, in that they have central eschatological dimensions. I am not, in any way, suggesting that I fear that TA faces its 'End of Days'!
33. Dr. Kumar would frequently say to me, "You know, David, I do not win any votes through my work for POST!". He was meaning constituency votes because his seat was quite marginal at times.
34. And who is now seeking nomination for a seat in the US Senate.
35. See the conference book of Abstracts to be found at [http://www.pacitaproject.eu/?ai1ec_event=technology-assessment-and-policy-areas-of-great-transitions&instance_id] and in particular the description of *II. Parallel event: Politicians and Researchers – Respective Views on Joint Projects*, 14 March 2013.
36. For the benefit of my non-native English speaker colleagues, I should explain that the 'main' is the deep sea.

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