CHAPTER TWO: DESCRIBING THE SINGLE TRANSFERABLE VOTE

New Zealand has a proportional representation voting system for its House of Representatives that is now cemented firmly and permanently in place, as described below. It is called Mixed Member Proportional and its MMP system is (roughly speaking) the German system. The installation and continuation of MMP across the Tasman came about because it was approved by the people at three referendums which were held on each of three Saturdays. The first was held on 19 September 1992 and held separately from a general election. The second and third referendums were held in conjunction with general elections held on 6 November 1993 and on 26 November 2011.

At all three referendums I advocated for the Single Transferable Vote (PR-STV) system which is the form of proportional representation we have in Australia. At all three I opposed MMP. Since STV was not on the ballot paper for the November 1993 referendum I advocated a vote for the then-existing first-past-the-post system for reasons which are made clear below. The vote in that middle referendum was quite close. In a total valid vote of 1,917,883 MMP received 1,032,919 votes (53.9 per cent) while 884,964 votes were recorded to retain first-past-the-post. That was 46.1 per cent of the valid vote.

When I say that PR-STV is the form of proportional representation we have in Australia I should note in passing that, during my lifetime, party list systems have been seriously advocated and sometimes even experimented with. I have in mind the operation of PR for the Legislative Council of South Australia (in 1975), the Legislative Council of New South Wales (in 1978) and the ACT Legislative Assembly (in 1989 and 1992). These became discredited Labor proposals and/or experiments which took the shine off Labor's claims always to stand on the moral high ground in matters of this kind.

My experience with New Zealand campaigning was that STV was (and is) impossible to sell in New Zealand, essentially because Australian politicians have mucked it up so badly for our Senate with their incessant placing of the short-term interests of their parties ahead of democratic principles. That has resulted in politicians concocting stasiocratic contrivances, three in the first unconstitutional camel and four in the present system. When I get the book *It's Not the Voting that's Democracy* published I shall explain my comprehensive failure in New Zealand along with my success in helping to persuade the people of the ACT to vote for Hare-Clark. As I explain on the first page of my *Introduction* to this book, the ACT chapter will be called *Miracle at Canberra*.

The Proportional Representation Society of Australia insists that all seven of our parliamentary PR systems are of the STV type which in the past they used to describe as "quota preferential". They are correct in that the *counting* of votes under all seven types is done as though the system is candidate-based. However, I insist on describing the two Hare-Clark systems as *democratic* whereas the five upper house PR systems are *stasiocratic*. The PRSA has no problems with me on that but they insist on the regular use of "quota preferential" as terminology except when they are dealing with an overseas audience accustomed only to the term "single transferable vote". Part of their reasoning for insisting on "quota preferential" is to distinguish Australian PR-STV from our mainland lower house systems, which are the world's largest use of STV counting in single vacancy elections and where that use has operated continuously for over a hundred years.

The PRSA and I agree that all forms of above-the-line contrivance should be eliminated and we are not much impressed by the claim that voters retain the option of voting explicitly for candidates when the much greater ease of voting for parties results in at least nine-tenths of voters choosing the party option. For reasons explained in this book I am willing to tolerate above-the-line voting only in New South Wales, South Australia and Western Australia for their upper houses.

There are only two countries in the world that use PR-STV for the election of their lower houses at the national level. They are Ireland and Malta, of which Ireland is by far the more important. PR-STV was introduced to Malta after Sir Gerald Strickland moved from being Governor of Tasmania to being Governor of Malta. He was very impressed by the Tasmanian system and became a great advocate for its use. Nevertheless, when international academics write about STV it is Ireland they take as the case for explanation. Hare-Clark in Australia is described as being more-or-less similar to STV in Ireland but there are only 50 Australian politicians elected under Hare-Clark compared with the 216 who get their seats under stasiocratic upper house systems.

 New Zealand's first referendum in 1992 was the critical one which rejected STV and supported MMP as the alternative to the old first-past-the-post British system which operated at every election up to (and including) 1993. I use the word "referendum" because that was the word used in New Zealand. It was decisive but, technically speaking, not binding. We in Australia might easily have called it a "plebiscite" or "indicative poll". There have now been nine MMP elections in New Zealand, in October 1996, November 1999, July 2002, September 2005, November 2008, November 2011, September 2014, September 2017 and September 2020. Note that the first election in that list came virtually ten years later than the report discussed below.

There were (reasonably) good official education campaigns for all three years when New Zealand held ballots on its electoral system, but the first one was the most important. There was widespread distribution of *The Guide to the Electoral Referendum* which explained the issues tolerably well. However, in choosing which ballot paper format to show, it chose the stasiocratic Australian type (with its ugly party boxes above a ballot dividing line), not the democratic Irish type. My experience of that 1992 advisory poll was that when Irish politicians advocated for STV it produced a favourable response from voters but when the same voters thought of STV as Australian it produced a turn-off. That, in my judgement, was less due to kiwi hostility towards Australia than it was due to the appeal of Irish democracy as opposed to Australian stasiocracy.

About four weeks before the day for the 1992 advisory poll (called "referendum") the New Zealand High Commission in Canberra arranged a night of discussion on the referendum in which the two participants, both Canberra residents, were Professor Richard Mulgan and yours truly. Mulgan had been one of five members of the Royal Commission on the Electoral System. In December 1986 that commission published the document titled *Report of the Royal Commission on the Electoral System: Towards a Better Democracy* which is a mighty volume. It recommended MMP and that report ultimately caused the first referendum to be held, nearly six years later, after promises were made at two general elections, those of 1987 and 1990. Mulgan was a New Zealand academic at the University of Otago but became an Australian citizen with a prestigious academic job in Canberra. To an audience of about thirty

people he advocated MMP and I went for STV. Recently I asked the High Commission to tell me the date of that gathering but they had no record of it!

After we each had spoken, there were questions from the floor. A man with a marked New Zealand accent asked me about the STV option. He said: "Can you explain whether the STV option is for Irish STV or the Australian Senate system? The official literature seems to suggest Australian STV yet all the debate centres around Ireland. Please explain." He stumped me. I had to admit that I did not know the answer any better than he did. He then announced very loudly to the audience: "MMP will get my vote. If the STV option were clearly of the Irish type I would have voted for it. However, I prefer a clear-cut, honest, party list system like MMP to a party machine appointment system masquerading as an STV system." I do not know how many New Zealanders thought that way. All I can say is that when I heard him make that declaration I knew MMP would have a substantial win. So it turned out to be.

Prior to the 1992 advisory poll three academics produced a book titled *Voter's Choice* to which the sub title was *Electoral Change in New Zealand?* It sold well in the winter of 1992 and was published at Palmerston North by The Dunmore Press. The academics were Helena Catt, Paul Harris and Nigel S. Roberts. I know that in the 1992 advisory poll two of the three voted for MMP while one voted for STV. In their chapter on STV they have this passage which appears on page 50:

> The Single Transferable Vote system of proportional representation is used for elections for the lower house of parliament of the Republic of Ireland, for the parliament of the Mediterranean island of Malta, for the Australian Senate, and for the lower house of parliament in Tasmania, Australia's smallest state. It is significant that these countries have all had links with the United Kingdom. As a result, STV has often been characterised as the British form of proportional representation.

In 1998 there was published a book in Auckland by Waddington Press titled *Why MMP Must Go: The case for ditching the electoral disaster of the century*. It was by journalist Graeme Hunt and, among other things, noted my participation in the first two campaigns on the electoral system. On page 40 it describes me as "an eccentric Australian electoral analyst" and that "he argued the best proportional system was STV". Given the year of its publication that book could not have noted my participation in the third referendum in 2011. However, my records include a conversation with John Key in August 2008 and letters passing between me and his chief of staff, Wayne Eagleson, on the format the third referendum should take. Regrettably my advice was not taken which meant I knew MMP would prevail for the third time. Notwithstanding that I still visited New Zealand in November 2011 to watch the completion of the process. MMP has now been firmly accepted by the people of New Zealand and is permanent.

In 1996 the prestigious British academic journal *Political Studies* published an article by David M. Farrell, Malcolm Mackerras and Ian McAllister titled *Designing Electoral Institutions: STV Systems and their Consequences*. The actual reference is Volume 44, Number 1 for March 1996. On Page 26 we quote with approval the opinion of Dutch-born American academic, Arend Lijphart, in 1987 writing that "we still have a perfect social

science law without any major exceptions – very rare in the social sciences – linking political culture with forms of PR. When Anglo-American countries use PR, they always choose STV; in other countries the choice is list PR." We go on:

> One reason for this 'law' is the Anglo-American tradition of direct election. Prior to New Zealand's referendums the members of the lower house in every Anglo-American country had been directly elected, rather than gaining their place as a result of ballot placement. In other words, voting is candidate-centred, rather than the party-centred system associated commonly with PR. As Sinnott observes, STV 'involves a notion of the connection between the individual representative and his or her constituency that is closer to the notion of representation implicit in the first past the post system than to the notion of the representation of parties underlying list systems'. In practice that has meant a system based primarily on candidates with parties being less central. Indeed, the party affiliation of candidates was not listed on ballot papers in Ireland until the 1965 election. For the Australian Senate, parties had been allowed to rank-order their candidates and group them together since the system began in 1949, but it was not until 1984 that party names were included on the ballot.

So, my reader can see why a supporter of STV might well advocate a vote for first-past-the-post in a contest with a party list system like MMP. I must confess, however, that of my STV-supporting academic friends in New Zealand, all four voted for MMP when given such a choice. New Zealand's then leading psephologist, the late Alan McRobie (1937-2017) told me that he held his nose while doing so! My own view is that I prefer *any* system of direct election to a party-list system of PR when it comes to a country of the Anglosphere making that choice. The big problem I have is not with STV or PR as an electoral concept. It is with the way our politicians have mucked up both concepts by their self-interested political manoeuvring, manipulating, contriving and deceiving.

The difference between Australia, on the one hand, and Ireland/Malta on the other hand is that we have compulsory voting where they have voluntary voting. That is why it is permissible for Australia to have the full preferential vote or, as in Tasmania's Hare-Clark system, for the ballot paper instruction to read on the bottom: "Your vote will not count unless you number at least 5 boxes". That aspect of Hare-Clark is known in Australia as "partial optional preferential voting" which contrasts with the full preferential voting system for our House of Representatives, the Victorian, Queensland and Western Australian Legislative Assemblies and the South Australian House of Assembly. (In South Australia a complex "savings" scheme may apply if voters mark just a single first preference – but that statement does not deny my inclusion of it with the other cases.). My arguments are elaborated in the chapter *Murder in the Cathedral* later in this book. (Delete that sentence if that chapter is deleted.)

In Ireland it would be unthinkable that a single first preference vote for a candidate would *not* count as a formal vote. Consequently, the instruction on the ballot paper for the February 2011 general election read: "Mark 1 in the box beside the photograph of the candidate of your first choice, mark 2 in the box beside the photograph of the candidate of your second choice, and so on." That a single first preference vote counts as a formal vote is not stated because in

a system of voluntary voting it is *assumed*. As is clear from this instruction there are photographs of the candidates on the ballot paper.

For the February 2016 and February 2020 general elections the instruction was changed to read: "Write 1 in the box beside the candidate of your first choice, write 2 in the box beside the candidate of your second choice, and so on." I cannot tell readers why the wording was changed slightly. Photographs were still on the ballot paper so there was no need to make that trivial change. Anyway, the important point is that the ballot paper makes clear that a single first preference counts as a formal vote.

The only Australian jurisdiction to use photographs of candidates on ballot papers is the Northern Territory and it does so in a system of single member electoral divisions for its Legislative Assembly. The ballot paper instruction reads: "Place the number 1 in the box next to the photograph of your first preference candidate and then increasing whole numbers (2, 3, etc) in as many other boxes as you wish in order to indicate your order of preferences for the other candidates. You do not have to number every box to make your vote count." In other words, the full preferential vote at the federal level created the need to make EXPLICIT the fact that optional preferential voting applies for the election of members of the Northern Territory Legislative Assembly.

New South Wales also has optional preferential voting in a system of single member electoral districts for its Legislative Assembly. The directions for voting read: "Write the number 1 in the square next to the candidate of your choice. You can show more choices, if you want to, by writing numbers in other squares, starting with the number 2." That is less explicit, but it is clear enough that the system is optional preferential.

Hare-Clark in the ACT has it this way: "Number five boxes from 1 to 5 in the order of your choice. You may then show as many further preferences as you wish by writing numbers from 6 onwards in other boxes." At the very bottom of the ballot paper it reads: "Remember, number at least five boxes from 1 to 5 in the order of your choice." That creates the impression that your vote is informal if you do *not* mark 1, 2, 3, 4 and 5 in consecutive order but such is not the case. The ACT formality provision is exactly the same as STV in Ireland and Malta. A single first preference counts as a formal vote.

At the time, and ever since, I did not/do not like that feature of ACT Hare-Clark. In campaigning for Hare-Clark I would tell voters that ACT Hare-Clark would copy Tasmania to the extent possible. However, the contrary view of the PRSA prevailed. The ACT Legislative Assembly voted to make as many votes formal as possible while minimising exhausted votes through a sensible definition of the transfer value. When debating the Electoral Act, a Labor member raised the matter of what would happen if voters marked a first preference which did not comply with the ballot paper instructions. However, Gary Humphries of the Liberal Party was attracted to the proposition that as many voters' wishes as possible be respected to the extent that they might be capable of implementation.

The man to whom the greatest credit should be given for the ACT having Hare-Clark is the late Bogey Musidlak (1953-2017), leader of the local PRSA. When I raised this matter with him a few days before his unexpected death he reminded me that the Australian Electoral Commission actually conducted the referendum and, in a letter to me in August 2017 he

wrote: "The ballot paper instructions faithfully reproduced what the AEC had put into the official Hare-Clark description without making any specific statement about what would constitute a formal vote."

Consequently, I do not consider that to be deceitful. It is the result of a genuine "savings" provision. By contrast I *do* consider the Senate ballot paper to be deceitful and I show how it reads on my next page. The man with the most to gain from this "Senate reform" was Nick Xenophon and his defence for it so angered me that I created a newspaper clash with him about this matter. It really annoyed me that he would claim (as he did frequently) that this Senate system (of which he expected to be the most beneficial owner) "is broadly based on the ACT voting system which has proved to be robust and fair". So, the fact of the ACT system being Hare-Clark was not mentioned by Xenophon. He did not want that known because he did not want to reveal that Tasmanian Hare-Clark (the original and the best form of STV) has never had it!

The way in which the Xenophon-Mackerras falling out occurred is worth noting. Angered by his commentary but realising that he had found a way to get the parliamentary numbers for a "reform" aimed at increasing his own power I decided to launch a personal attack on him through a syndicated newspaper article in December 2015. He responded with an article to which different headings were given by different newspapers. The passage below is quoted from his *Canberra Times* article titled "Let's empower Senate voters to make it fair". It was published on New Year's Day, being Friday 1 January 2016 with this passage towards the end:

> The solution I propose, that Mackerras is so implacably opposed to, is to get rid of group voting tickets by giving the power back to voters. My proposal calls for voters to number at least three consecutive numbers above the line, or at least 12 below – their choice – not that of party machines or preference whisperers. This proposal is broadly based on the ACT voting system, which has proved to be robust and fair.

A more dishonest proposal could scarcely be imagined. The only thing about the ACT system he could have had in mind is the "savings" provision, disliked by Labor in the ACT and not found in Tasmanian Hare-Clark. It is described above. Anyway, here is the *dishonest* Senate ballot paper for New South Wales in 2016 with its *deceitful* instructions which apply both above the line and below the line. In fact, a single first preference vote is formal above the line. Below the line a vote 1, 2, 3, 4, 5 and 6 is also formal.

Senate Ballot Paper 2016
New South Wales – Election of 12 Senators

The disgraceful extent to which the Senate system is rigged is best illustrated by considering the following vote in New South Wales at the 2016 Senate general election. The voter believed that the above-the-line instructions meant what they seemed to say. Consequently, she placed the number 1 in the box for the Greens, 2 for the Socialist Alliance, 3 for the

Science Party/Cyclists Party, 4 for Labor, 5 for Liberal and Nationals and 6 for the Christian Democratic Party. The number of candidates was 12 for the party of first preference, four for the party of second preference, four for the party of third preference, 12 for the party of fourth preference, 12 for the party of fifth preference and 12 for the party of sixth preference. Consequently, that vote was counted as though the voter had expressed 56 preferences between candidates! That cannot truly be said to be a candidate-based system, yet the votes are counted as though it is candidate-based under this dishonest system with its deceitful instructions on each ballot paper.

In the case of the ballot paper on my previous page a "donkey vote" would give a first preference to the Health Australia Party, a second preference to the Seniors United Party of Australia, a third preference to Family First, a fourth preference to the Liberal Democrats, a fifth preference to the Voteflux.org I Upgrade Democracy! and a sixth preference to Liberal and the Nationals. That would be read as a first preference for Andrew James Patterson of the Health Australia Party, a ninth preference for Senator David Leyonhjelm, a 13th preference for Senator Marise Payne and a 24th preference to Victoria McGahey of the Liberal Party.

I note the position of Jim Molan of the Liberal Party. He was Retired Major-General Molan AO DSC, the man who stopped the boats. He received 10,182 first preference votes at that election. That was nowhere remotely close to getting him elected from the unwinnable 7th position. Even if he received ten times that vote (very likely under my reform) he would still not have come close to winning a Senate seat. It is true that Molan did become a senator, being elected on a recount in November 2017 for a term expiring on 30 June 2019. However, his position was similar to that of Richard Colbeck in Tasmania. Both men were given unwinnable positions by the machines of the Liberal Party in 2016 but both became senators by the purest of flukes imaginable. In 2019 Colbeck was given a guaranteed position so was re-elected. Molan was placed in the unwinnable fourth position and so was defeated. He would easily have been re-elected on a decent ballot paper of the kind designed by me. Only as a consolation prize he did later become a senator again for a short term.

The main point to note is that the counting of votes is done as though the system were candidate-based and, generally speaking, a quota must be gained to be elected. The quota for election is ascertained by the following formula:

$$\frac{\text{Number of valid ballot papers}}{\text{Number to be elected} + 1} + 1 = \text{Quota}$$

Any remainder is ignored

Any candidate who has received a number of first preference votes equal to or greater than the quota is declared elected. Where an elected candidate has received votes in excess of the quota, a number of votes equal to the surplus will be transferred to the other candidates remaining in the count as described in the next paragraph.

All of the ballot papers of the first elected candidate are sorted into parcels according to each voter's next preference to determine the proportions in which the surplus votes are to be transferred. Those surplus votes are then transferred in their correct proportions to candidates remaining in the count. There are differences between STV jurisdictions in how non-

transferable votes are treated. In the ACT they are taken as much as possible to be fully within the elected candidate's quota and the transfer value to be the surplus divided by the number of transferable papers (with, of course, the proviso that this must not result in an increase in declared value). In that way, the ACT minimises exhausted votes while respecting individual voters' wishes to the degree possible.

After the surplus votes have been distributed, any candidate who has reached the quota is deemed to be elected and his or her surplus votes are distributed to the remaining candidates in the order of the voters' preferences. If, after the distribution of the surplus votes of all elected candidates, fewer candidates than the number of vacancies to be filled have been elected, the candidate with the least number of votes in the count at that stage is excluded and the ballot papers which have been sorted to him or her are transferred, in accordance with their next preferences, to the candidates still remaining in the count (i.e. to those candidates who have not been elected or excluded up to that stage).

If no candidate is then elected, or fewer than the required number have been elected, the process of excluding candidates is continued until a further candidate is elected, in which case (unless all vacancies have been filled) the surplus votes of that elected candidate are then transferred. If necessary, the process of excluding candidates one by one is continued until all the vacancies have been filled. Due to the fact that the system is now "partial optional preferential" it sometimes happens that the last place is filled by a candidate who does not reach the quota. Under the first STV system for the Senate (which operated from 1949 to 1983) every candidate elected must have a quota. That was made possible by requiring voters to number every square in consecutive order with the vote being rejected as informal if that were not done.

The above description of counting is largely taken from something I wrote in 1993 when the Senate's second PR-STV system was in operation, the stasiocratic system I call "the first unconstitutional camel". That was during the years 1984 to 2014, inclusive. It is best described by considering an actual case. I do that in the First Appendix to this chapter. The case I describe is the election of six senators for Western Australia held on 5 April 2014, the last election before that system was replaced by the stasiocratic and manipulative "second unconstitutional camel", the present system.

The traditional Irish way of doing it still applies for NSW Legislative Council elections from which I now quote Section 10 of their official description:

10 Unless all vacancies have been filled, the surplus votes of each elected candidate shall be transferred to the continuing candidates, in proportion to the voters' preferences, as follows:

(a) The Council returning officer shall divide the number of the elected candidate's surplus votes by the number of first preference votes (excluding any first preference votes indicated on ballot-papers which do not bear a next available preference for a continuing candidate) received by him and the resulting fraction shall, for the purposes of this clause, be the transfer value of that candidate's surplus votes.

(b) The Council returning officer shall take all of the ballot-papers of the elected candidate on which a next available preference is indicated for a continuing candidate and arrange them in separate parcels for the continuing candidates according to the next available preference indicated on them.

(c) The Council returning officer shall ascertain, from the parcel referred to in paragraph (b) in respect of each continuing candidate, the total number of ballot-papers of the elected candidate which bear the next available preference for that continuing candidate and shall, by multiplying that total by the transfer value of the elected candidate's surplus votes, determine the number of votes to be transferred from the elected candidate to each continuing candidate.

(d) If, as a result of the multiplication, any fraction results, so many of those fractions, taken in the order of their magnitude, beginning with the largest, as are necessary to ensure that the number of votes transferred equals the number of the elected candidate's surplus votes shall be reckoned as of the value of unity and the remaining fractions shall be ignored.

(e) The Council returning officer shall then determine the number of ballot-papers to be transferred from the elected candidate to each continuing candidate.

(f) The Council returning officer shall then, in respect of each continuing candidate, forthwith take at random, from the parcel referred to in paragraph (b) containing the ballot-papers of the elected candidate which bear the next available preference for that continuing candidate, the number of ballot-papers determined under paragraph (e) and transfer those ballot-papers to the continuing candidate.

(g) The ballot-papers containing the first preference votes of the elected candidate which have not been transferred (that is, the ballot-papers containing the number of votes equal to the quota) shall be set aside as finally dealt with.

The reference there is to the "Sixth Schedule - Conduct of Legislative Council Elections" of the NSW Constitution Act 1902 No 32. Since 21 members are elected each time the quota is only 4.55 per cent of the vote. The quoted section is preceded by the definition of "continuing candidate" which means "a candidate not already elected or not already excluded from the count." Sections 11, 12 and 13 read this way:

11

(1) When the surplus votes of all elected candidates have been transferred to the continuing candidates as provided by clause 10, any continuing candidate who has received a number of votes equal to or greater than the quota shall be elected.

(2) Unless all the vacancies have been filled, the surplus votes of the elected candidate shall be transferred to the continuing candidates in accordance with the provisions of clause 10, but, in the application of those provisions, only those ballot-papers which have been transferred to the elected candidate from a candidate previously elected shall be taken into consideration.

12

(1) If, as a result of the transfer of the surplus votes of a candidate elected in pursuance of clause 11 or elected at a later stage of the scrutiny, a continuing candidate has received a number of votes equal to or greater than the quota, he shall be elected.

(2) Unless all the vacancies have been filled, the surplus votes of the elected candidate shall be transferred to the continuing candidates in accordance with the provisions of clause 10, but, in the application of those provisions, only those ballot-papers which have been transferred to the elected candidate from the candidate or candidates elected at the last preceding count shall be taken into consideration.

13 The ballot-papers containing the first preference votes of a candidate who has been elected in pursuance of the provisions of clause 11 or 12, together with the ballot-papers transferred to him from a candidate previously elected or excluded which have not been further transferred, shall be set aside as finally dealt with.

The words "forthwith take at random" appear in Section 10 (f). They present a theoretical problem that the day may come when it is necessary to have a re-count in a very close contest for the last seat. The question is: how likely would it be that any such re-count would produce a different result solely due to the operation of "forthwith take at random"? The answer appears to be "pretty unlikely". In my attempt to find an answer I sought the opinion of the expert in the area, Dr Vanessa Teague, Senior Lecturer, Department of Computing and Information Systems, Melbourne School of Engineering, The University of Melbourne. She tells me that the same words operate for STV in local government elections in NSW but "Local government elections are much more likely than Legislative Council elections to get a different answer, because there are fewer votes involved." After listening to her advice, and that of several others, I am of the opinion that there is no need to reform that aspect of the method of election for members of the NSW Legislative Council.

I hasten to add that she disagrees. Teague wrote to me: "NSWEC uses the same program to count local government and Legislative Council elections, so there's still a good practical reason to reform the Legislative Council law at the same time. Consistency is a good thing – we don't want them trying to fix bugs in two different pieces of software." The reason why I disagree with her is that the local government counting system can be fixed by a mere ordinary piece of legislation, but the Council system requires a referendum to change the NSW Constitution. A referendum should be held only when *absolutely required*.

The election of the federal Hawke Labor government in March 1983 produced the most extensive electoral reforms in Australian history. Soon after Hawke's election the Parliament approved the establishment of the all-party *Joint Select Committee on Electoral Reform* which produced its First Report in September 1983. The reference is to Parliamentary Paper No. 227 of 1983. That exercise was so successful that the all-party committee idea caught on. Later there was established a permanent body in replacement known as the *Joint Standing Committee on Electoral Matters*. This body is now referred to as the JSCEM.

For the purpose of this chapter the most significant paragraph of that report can be found on Page 65 being Paragraph 3.34. Under the heading "Distribution of preferences" this quotation is noted:

> In relation to the counting of the Senate vote, the Committee recommends that the distribution of preferences be carried out according to the "Gregory" system or fractional transfer method for transferring surplus votes, as occurs in Tasmanian State elections. The recommended method involves the transfer of every ballot paper at a reduced value. For example, if at the first count 20 per cent of a successful candidate's votes are in excess of the quota, each of his ballot papers is weighted 0.2 and transferred to continuing candidates. (As indicated earlier in this chapter, the present method involves transferring ballot papers "at random" from all those with the same available preference, possibly resulting in an unrepresentative sample being drawn). It also recommends that when transferring excess votes, all of the votes for a candidate be counted, including his number ONE votes, not only those transferred to him.

That recommendation was implemented but the above features of STV systems have not satisfied several modern mathematicians. My experience of the study of Senate returns is that I do not need to know all the variations in the counting mechanisms of the system to be able to understand those returns. Nevertheless, I feel a duty to report them and those more mathematically inclined than I can judge for themselves.

Readers of this book will know that Dr Kevin Bonham is not one of my favourite people. Nevertheless, I take seriously those who might be my rivals and/or my successors. Consequently, I read with an open mind the submission he made to the JSCEM dated 1 November 2016 which was posted as submission Number 74 for the "Inquiry into and report on all aspects of the conduct of the 2016 Federal Election and matters related thereto". Most of Bonham's comments and six of his eight recommendations have no interest for me. However, the first two did attract my attention.

The first was: "That the Inclusive Gregory system for surplus distributions be replaced by the Weighted Inclusive Gregory system, or with some other system that does not cause the undemocratic vote-value distortions that are caused by the unweighted Inclusive Gregory." It seems that the system adopted in 1983 (and then called simply "Gregory") is now called "the unweighted Inclusive Gregory". The reason why it is now thought to be unsatisfactory is the arbitrariness of saying that ballot papers of different value do not have the same proportion of their remaining value used in electing a candidate. This introduces a bias in favour of ballot papers of small value in determining how a surplus is allocated. There is also the significant increase in the number of exhausted votes. In the system which applied from 1949 to 1983 there were none. In the 1984-2014 system there were very few exhausted votes. Now there are rather more of such votes. My guess is that "some other system" refers to Meek.

The second was: "That a progressively reducing quota be introduced for Senate elections, such that the quota is recomputed as the relevant share of all *non-exhausted* vote values after every count at which the total value of exhausted votes increases." (Italics are in the original).

I maintain a good network of friends in this field at various universities in the United Kingdom, the United States, Ireland and New Zealand. I have consulted with these friends on this question about which my mathematical skills are deficient. Consequently, I supply the answer given by the late Alan McRobie, New Zealand's leading psephologist until his death in April 2017. His answer was that Meek's Method is the best, so I attach (with McRobie's compliments) as my Second Appendix to this chapter the document titled "Meek's Method". He told me that in New Zealand at local government level PR-STV is widely used but it is enough, in all cases, for voters to indicate their preference for one candidate only for the vote to be valid. That produces a high rate of exhaustion of votes – of the kind of magnitude that would occur if my reform to the Australian Senate voting system were adopted.

While I write of McRobie with great respect I should also note Narelle Miragliotta formerly of the Department of Political Science at the University of Western Australia. She wrote a 49-page document *Determining the Result: Transferring Surplus Votes in the Western Australian Legislative Council* which was published by the WA Electoral Commission in July 2002 and printed by Snap Printing, 187 St Georges Terrace, Perth, WA, 6000. Her recommendation was adopted by the WA Labor government of the day. Consequently, in WA the Inclusive Gregory system was, indeed, replaced by the Weighted Inclusive Gregory system. And, by the way, J.B. Gregory of Melbourne was a late Nineteenth Century mathematician. Narelle Miragliotta's Appendix is now the Third Appendix to this chapter. She now lives in Victoria.

As a consequence of my comment above, when reading her Appendix, my reader should note that WA has shifted from the category "Inclusive Gregory Method" to the category "Weighted Inclusive Gregory Method". However, there is a more important point. Since Miragliotta wrote her document Victoria has joined the ranks of PR-STV with a new Legislative Council system for which the first election took place in November 2006.

On the first page of my Introduction to this book I mention the other book on which I am working *It's Not the Voting that's Democracy* with particular reference to the chapter in that book *Miracle at Canberra*. It was my experience in that miracle which gave me the respect I have for the PRSA and Bogey Musidlak in particular. Consequently, in August 2017 I wrote to Bogey to inquire what marks he would give to the two Hare-Clark systems and to the new Victorian system. He gave a high distinction mark to BOTH of the Hare-Clark systems and a credit mark to the Victorian system. His answer to my question began with "I usually think in terms of further worthwhile reforms that could be undertaken rather than assigning a current classification" but then went on:

> The ACT legislation accepts more votes as formal than does Tasmania's and deliberately minimises exhausted votes when ballot papers are not transferable. By continuing distributions even when the number of continuing candidates is the same as the number of unfilled vacancies, it becomes clear that nearly all of those elected have achieved a quota, avoiding misapprehensions such as those that led to a mandated Tasmanian increase from three (originally half the number of vacancies back in 1909) in the number of preferences to be marked for a vote to be accepted as formal. We also managed to entrench the key Hare-Clark principles after the Follett Labor government's short-lived attempt to white-ant Robson Rotation.

Nevertheless, if pressed, I would still allocate a high distinction to Tasmania for its principled pioneering work, particularly in relation to countback and Robson Rotation that elevate elector influence, and Clark's original modest criterion for a vote to be formal.

Victoria has entrenched the principle of proportional representation and stepped back from the original drafted thought of imposing an unreasonable below-the-line requirement. While it uses the benighted unweighted inclusive Gregory approach to transfer values, eschews countback and allows fluke quotas to be cobbled together through the efforts of preference whisperers, it was originally an improvement upon prevailing Senate arrangements and possibly deserving of a credit ranking on that account.

To end my narrative I turn to my First Appendix to Chapter Three. The political commentary upon it could well go anywhere but I have decided to give it after giving the statistics and their psephological interpretation.

FIRST APPENDIX TO CHAPTER TWO

The re-election of six senators for Western Australia held on Saturday 5 April 2014 was of enormous interest, both politically and psephologically, both in the short term and in the long term. In the short term the big winner was Greens senator Scott Ludlam which causes me to describe his political career from beginning to end. He was first elected in November 2007. His then first preference vote was two-thirds of the quota but he received enough preferences to be elected and he took his seat on 1 July 2008. He was re-elected in September 2013, again with two-thirds of a quota and again receiving enough preferences to be declared elected. Then the High Court voided the election of all six senators declared elected, of whom he was one.

Looking at my commentary over recent years that decision of the High Court is one of very few cases of interest to me where I have agreed with the decision. It was handed down on 18 February 2014 and the judgment was written by then Justice Kenneth Hayne, sitting as the Court of Disputed Returns. It gave an affirmative answer to this question: "Did the loss of the 1,370 ballot papers between the fresh scrutiny and the re-count mean that the 1,370 electors who submitted those ballot papers in the poll were 'prevented from voting' in the Election for the purposes of section 365 of the Commonwealth Electoral Act 1918?"

In September 2013 there were 1,310,278 formal votes and the quota was 187,183 votes (14.3 per cent). In April 2014 there were 1,277,804 formal votes and the quota was 182,544 votes (14.3 per cent). Ludlam received 122,752 first preference votes in 2013 (9.4 per cent) so he needed preferences to be elected. In 2014, however, he received 198,845 first preference votes which was a quota in his own right. At the 2016 Senate general election Ludlam again received a quota in his own right, but that was not so difficult since, with 12 being elected, the quota was only 7.7 per cent. Nevertheless, his vote was big enough to cause the Greens' second candidate, Senator Rachel Siewert, also to be elected – with the help of preferences. He was deemed to have a six-year term (expiring on 30 June 2022) while she was deemed to have the short term which expired on 30 June 2019.

On Friday 14 July 2017 Ludlam made a bombshell announcement. He had resigned his Senate seat in expectation that the High Court would confiscate it from him. His offence was that he was born in New Zealand and had not renounced his New Zealand citizenship. Then four days later, on Tuesday 18 July, his Queensland Greens colleague, Larissa Waters, followed suit. She resigned her Senate seat, again in expectation that the High Court would confiscate it from her. In that case the offence was that she was born in Canada and had not renounced her Canadian citizenship. On Friday 27 October 2017 the High Court duly did as expected. It did not merely rule that there were vacancies created by Ludlam and Waters. For substantially the same reasons Senator Fiona Nash (Nationals, NSW) and Senator Malcolm Roberts (Pauline Hanson's One Nation Party, Queensland) had their seats confiscated. I return to these subjects in my tenth chapter titled *Judges Exercise their Power*. In that chapter readers will learn why I use a term like "confiscate". The polite form of expression would be that Ludlam and the others expected the High Court "to declare him/her not to have been validly elected."

In describing the count for the April 2014 election, I begin by noting the ballot paper format. It reads:

YOU MAY VOTE IN ONE OF TWO WAYS

Either:

Above the line
By placing the single figure **1** in one and **only one** of these squares to indicate the voting ticket you wish to adopt as your vote

A	B	C	D
☐ or	☐ or	☐ or	☐ or
THE WIKILEAKS PARTY	THE NATIONALS		AUSTRALIAN DEMOCRATS

Or:

Below the line
By placing the numbers **1 to 77** in the order of your preference

A THE WIKILEAKS PARTY	B THE NATIONALS	C	D AUSTRALIAN DEMOCRATS
☐ MESZAROS Tibor THE WIKILEAKS PARTY	☐ VAN STYN Shane THE NATIONALS	☐ WOOLF Russell	☐ FERNANDEZ Chris AUSTRALIAN DEMOCRATS
☐ NICOL Lucy THE WIKILEAKS PARTY	☐ DE GRUSSA Colin Stephen THE NATIONALS	☐ JAMES Verity	☐ THIEL William AUSTRALIAN DEMOCRATS

AEC Australian Electoral Commission

Before I proceed let me say why I think the new system is *worse* than the old. It is true that the below-the-line instruction of the old was unreasonable. That, however, could easily have been fixed by adopting the Victorian Legislative Council model – as I proposed in 2013, 2014, 2015 and 2016. It would then read: "By placing the numbers 1 to at least 6 in the order of your preference". Furthermore, these old-system instructions were honest – unlike the new

ones. There was no deceit involved. There was a worthy motive for the old system – to reduce the informal vote, thereby helping voters. There was no worthy motive for the new system. It was driven by greed. There is, however, a species within the genus greed – and that species is revenge. The Liberal Party wanted to get its revenge on former senator Ricky Muir. It succeeded.

The truth is that both systems were/are dishonest. The problem the present system has is that the Australian people do not understand it. They are not meant to understand it! They are meant to do what they are told. Our politicians are so cynical they think that does not matter. The only people capable of explaining the system are those who understand the magnitude of its dishonesty. Whenever I am asked to explain its four contrivances I say that their purpose is NOT TO HELP VOTERS. Their purpose is to help the machines of big parties manipulate voters to guarantee that senators of those big parties will be elected in the "correct" order. Their purpose is to ensure that senators are NOT directly chosen by the people. Direct election is too democratic for the big political parties, so their machines manipulate voters to produce the kind of result that would be produced by a party-list system.

The only respect in which the old system was worse than the new is that it was more unfair between candidates than the new. I now tell the story of a conversation I had with Senator Louise Pratt at her Parliament House office on the afternoon of Tuesday 15 October 2019. At the re-election Bullock and Pratt were stage-managed by the Labor party to walk to the same polling place to vote together. That pretence of friendship was shown nationally on television on the nightly news. Bullock went in and voted for himself by placing a single number 1 in the Group F box. Pratt, by contrast, placed her number 1 for herself and numbered all 77 boxes carefully in numerical sequence. Consequently, while they went in together Pratt came out ten minutes later than Bullock. Her formal vote for herself took ten minutes longer than his vote for himself. Not surprisingly Pratt is a strong supporter of my reforms designed to make the system fair between candidates, not merely fair between parties.

It was noted above that the WA re-election total formal vote was 1,277,804. That number was then divided by 7, giving a quota of 182,543.43. The next whole number above was 182,544. In the list of candidates and votes below note that the votes for Meszaros, Van Styn, Woolf, Fernandez etc are the sum of above-the-line and below-the-line votes. Since there were only seven candidates with a serious chance of being elected their full names are shown. Here are the full first preferences:

Candidates	First Preference Votes	Surplus Votes
Group A		
Meszaros (Wikileaks)	7,935	
Nicol (Wikileaks)	127	
Group B		

Van Styn (Nationals)	38,543			
De Grussa (Nationals)	275			

Group C

Woolf (Independent)	7,457			
James (Independent)	322			

Group D

Fernandez (Democrats)	3,447			
Thiel (Democrats)	45			

Group E

Boyd (Pirates)	6,203			
Allen (Pirates)	67			

Group F

Bullock, Joe (Labor)	269,023	Elected (2)	86,479
Pratt, Louise (Labor)	5,390		
Hill (Labor)	319		
Andric (Labor)	362		

Group G

Howlett (Motoring Enthusiasts)	6,971			
Zandvliett (Motoring Enthusiasts)	24			

Group H

Koutalianos (Freedom and Prosperity)	825			
Ashby (Freedom and Prosperity)	12			

Group I

Nitschke (Voluntary Euthanasia)	8,566			
Duffield (Voluntary Euthanasia)	32			

Group J

Fryar (Liberal Democrats)	23,205			
Hamilton (Liberal Democrats)	46			

Group K

Parkes (Australian Voice)	984		
Butler (Australian Voice)	18		

Group L

Bezant (Building Australia)	1,038		
Smee (Building Australia)	9		

Group M

Fels (Mutual)	832		
Chandra (Mutual)	10		

Group N

Rose (Family First)	9,411		
Heng (Family First)	60		

Group O

Strachan (Sustainable Population)	3,038		
Bourke (Sustainable Population)	25		

Group P

Wang, Zhenya (Palmer United)	156,352		
Headland (Palmer United)	1,176		
Terblanche (Palmer United)	212		

Group Q

Dropulich (Australian Sports)	4,155		
Lackovic (Australian Sports)	11		

Group R

Johnston, David (Liberal)	433,660	Elected (1)	251,116
Cash, Michaelia (Liberal)	546		
Reynolds, Linda (Liberal)	585		
Brockman (Liberal)	429		

Group S

Bow (Shooters and Fishers)   13,117
Parkes (Shooters and Fishers)   45

Group T

Moylan (Help End Marijuana Prohibition)   13,525
Moylan (Help End Marijuana Prohibition)   54

Group U

Anderson (Republican)   736
Hollick (Republican)   7

Group V

Katz-Barber (Smokers Rights)   3,596
Di Rado (Smokers Rights)   13

Group W

McCarthy (Fishing and Lifestyle)   4,616
Wyatt (Fishing and Lifestyle)   12

Group X

Moran (Christians)   19,507
Moseley (Christians)   142

Group Y

Cuthbert (Secular)   925
Thompson (Secular)   25

Group Z

Foreman (Rise Up Australia)   2,213
Bennett (Rise Up Australia)   11

Group AA

Ludlam, Scott (Greens)   198,845   Elected (3)   16,301
Cunningham (Greens)   192
James (Greens)   58
Steele-John (Greens)   27

Nielsen-Harvey (Greens)	91
Cullity (Greens)	145

Group AB

Good (Democratic Labour)	2,707
Kiernan (Democratic Labour)	20

Group AC

Bouwman (Katter's Australian)	1,165
Hoddinott (Katter's Australian)	17

Group AD

Love (Animal Justice)	8,254
Sutton (Animal Justice)	34

Group AE

Patten (Sex)	12,041
Coleman (Sex)	68

Group AF

Bainbridge (Socialist)	799
Jenkins (Socialist)	19

Group AG

Fishlock (Outdoor Recreation)	2,734
De Lima (Outdoor Recreation)	19

Ungrouped

Van Lieshout (Independent)	169
Mubarak (Independent)	109

Since the above statement is of first preferences there are no exhausted votes. The remainder of my entries will, however, include some exhausted votes. These will be the consequence of the then below-the-line "savings" provision whereby a ballot paper with 90 per cent correct numbering was counted as a formal vote. (The actual provision was that at least 90 per cent of the squares must be numbered with no more than three departures from an increasing sequence after the first preference.)

The first distribution of surpluses saw those of Johnston, Bullock and Ludlam distributed, after which the counts were as follows:

Candidates	Progress Totals		Surplus Votes
Cash, Michaelia (Liberal)	251,344	Elected (4)	68,800
Wang, Zhenya (Palmer United)	156,389		
Pratt, Louise (Labor)	91,929		
Van Styn (Nationals)	38,576		
Fryar (Liberal Democrats)	23,215		
Moran (Christians)	19,514		
Cunningham (Greens)	16,112		
Moylan (HEMP)	13,536		
Bow (Shooters and Fishers)	13,125		
Patten (Sex)	12,051		
Rose (Family First)	9,421		
Nitschke (Voluntary Euthanasia)	8,574		
Love (Animal Justice)	8,260		
Meszaros (Wikileaks)	7,949		
Woolf (Independent)	7,483		
Howlett (Motoring Enthusiasts)	6,973		
Boyd (Pirates)	6,210		
McCarthy (Fishing and Lifestyle)	4,617		
Dropulich (Australian Sports)	4,156		
Katz-Barber (Smokers Rights)	3,597		
Fernandez (Democrats)	3,454		
Strachan (Sustainable Population)	3,041		
Fishlock (Outdoor Recreation)	2,735		
Good (Democratic Labour)	2,713		
Foreman (Rise Up Australia)	2,216		
Reynolds, Linda (Liberal)	690		
All Other Candidates	12,282		

Distribution of Cash's surplus

Wang, Zhenya (Palmer United)	156,392
Pratt, Louise (Labor)	91,935
Reynolds, Linda (Liberal)	69,439
Van Styn (Nationals)	38,581
Fryar (Liberal Democrats)	23,215
Moran (Christians)	19,516
Cunningham (Greens)	16,115
Moylan (HEMP)	13,536
Bow (Shooters and Fishers)	13,125
Patten (Sex)	12,051
Rose (Family First)	9,421
Nitschke (Voluntary Euthanasia)	8,574
Love (Animal Justice)	8,260

Meszaros (Wikileaks)	7,949
Woolf (Independent)	7,484
Howlett (Motoring Enthusiasts)	6,973
Boyd (Pirates)	6,210
McCarthy (Fishing and Lifestyle)	4,617
Dropulich (Australian Sports)	4,156
Katz-Barber (Smokers Rights)	3,597
Fernandez (Democrats)	3,454
Strachan (Sustainable Population)	3,042
Fishlock (Outdoor Recreation)	2,735
Good (Democratic Labour)	2,713
Foreman (Rise Up Australia)	2,216
All Other Candidates	12,284

Every candidate was then excluded, one by one, leaving only these:

Candidates	Progress Totals	Surplus Votes
Wang, Zhenya (Palmer United)	201,846 Elected (5)	19,302
Pratt, Louise (Labor)	175,052	
Reynolds, Linda (Liberal)	169,914	

When Wang's surplus was distributed Reynolds received 18,255 extra votes and Pratt only 990, leaving the final count at these numbers:

Candidates	Progress Totals	Surplus Votes
Reynolds, Linda (Liberal)	188,169 Elected (6)	5,625
Pratt, Louise (Labor)	176,042	

If we add together the quota five times to which is added the final votes for Reynolds and Pratt the total comes to 1,276,931 votes. Since the total formal vote was 1,277,804 that means 873 votes were exhausted or lost by fractions. Under the 1949-83 STV system fractions were not allowed for and exhausted votes did not exist. Consequently, no senator was elected without a quota. As can be seen from the above it was possible to be elected without a quota under the 1984-2014 system. However, that occurred only once. In 1990 NSW Labor Senator Suzanne West was elected with 476,151 final votes when the quota was 476,878. The reason was the closeness of the final count, combined with the fact that 1,940 votes were exhausted or lost by fractions.

The April 2014 half-Senate election in Western Australia turned out to be the last Senate election under that system. There were 67 such elections in the states, the first six being held in December 1984. In almost every respect the count shown above for the 67th election was quite standard. However, in two respects it was unique. The first such uniqueness was in its being held separate from a general election for the House of Representatives. The second was that the leading Greens candidate was re-elected as a senator with a quota in his own right in an election in which Labor could muster so few votes (relative to its normal performance) as to be able to elect *just one* senator. It is also true that Labor could elect *just one* senator for South Australia in September 2013 but, in that case, Sarah Hanson-Young of the Greens needed preferences to be re-elected. Furthermore, it is true that there were several separate

Senate elections under the 1949-83 system, but this was the only case under the 1984-2014 system.

The entire history of this election could make for a book in its own right but what I want to do is speculate as to what would have happened under my reform. I begin with the leaflets handed out at polling places by supporters of the Greens. Their "How to Vote Greens" leaflet would have read 1 for Scott Ludlam, 2 for Christine Cunningham, 3 Ian James, 4 Jordon Steele-John, 5 Sarah Nielsen-Harvey and 6 Judith Cullity. It would then have continued "Your vote will not count unless you number at least 6 boxes but you may vote 7, 8 etc as you please."

The total Greens vote was 199,358 of which 198,845 was for Ludlam. My first piece of speculation is that under my reform the total Greens vote would have been noticeably lower, perhaps 170,000. My second piece of speculation is that the distribution of the vote between Ludlam and the other five candidates would not have been significantly different from that which actually occurred.

What about Labor? They stood four candidates who, in 2013, were (in order) Joe Bullock, Louise Pratt, Peter Foster and Suliman Ali. In 2014 Labor's candidates in order were Bullock, Pratt, Shane Hill and Klara Andric. In the middle of this book one of the 23 plates is my last one, a "how to vote Labor" leaflet and it reads 1 for Bullock, 2 for Pratt, 3 Foster, 4 Ali. 5 Hill and 6 Andric. It does not take much knowledge or thought to know that Labor's situation would have been very different from that of the Greens.

The circumstances of the election were wonderful for the Greens. Senator Ludlam was seen as deserving of sympathy because he was seen as a victim. So too was Senator Pratt. She was the only incumbent on the Labor list that many thought should have been given the top position. Yet the power of the trade unions was such they insisted Bullock go top. That meant Ludlam could use the Senate chamber to campaign for his own personal re-election which he did very effectively. One speech he made virulently abusing Tony Abbott (with pretend politeness) went viral on social media! Poor Louise Pratt could not do that. She had to "cop it sweet" and campaign for Labor which meant campaigning for the election of Bullock with her re-election only to be possible if Labor had enough votes to get her re-elected as the second candidate.

The campaign created the impression that Ludlam was *genuinely* and *strongly* opposed to the then Abbott government. Bullock, by contrast, created the impression that he had a soft spot for Tony Abbott and did not care much for Pratt. She was from the left of the party, he from the right. She was a feminist who was in favour of same-sex marriage. He was a devout Anglican with the traditional view of marriage as a Christian sacrament between a man and a woman.

It would be difficult to reject my speculation that these circumstances caused at least 20,000 Labor votes to switch to Ludlam for whom it was so easy to vote. The elector could do that by putting a single mark of approval in the party box for the Greens. To vote for Pratt, by contrast, was too difficult. So, the message to Labor voters from the Greens was simple: show that you *really* are *opposed* to the Abbott government by voting above the line for the Greens.

Pratt received 5,390 votes as first preferences and came reasonably close to retaining her seat. I reckon she would have received at least 25,000 first preference votes under my reform. Consequently, my speculation is that the distribution of Labor's vote between Bullock and Pratt would have been *very* different from that which occurred. For the Liberal Party and the Greens, by contrast, it would *not* have been particularly different.

All of this raises a problem for me – but also an opportunity. On the bright side I can argue that my system would be constitutional where the present system is patently unconstitutional. I can argue that my system would be voter-friendly where the present system is not. I can argue that my ballot paper would be honest where the present one is so dishonest. I can argue that my system would make it possible to sell eight-year terms for senators so as to allow four-year terms for the House of Representatives. That would help the big parties to govern better. There is no way that eight-year terms for senators can be sold to the Australian people for as long as the voting system is as *disreputable* as the present one deserves to be. My intention is to do everything within my power to make it disreputable!

The really big problem I have is how to sell this reform to big party machines which want to be able to *appoint* senators, *de facto*, by stacking the order of election. I also have a quite different problem in selling it to minor parties as I now explain. The truth is that my reform would not be neutral in the way it treats the parties. If district magnitude stays at six my reform would make it slightly easier for big parties to win seats and slightly more difficult for small parties. The only way to make it equally easy for both types of party would be to create district magnitudes of seven. That would involve a House of Representatives of 174 members (which might be 175 or 176) and a Senate of 88. One instinct in me says: leave the House at 151 and the Senate at 76. The other instinct in me says that politicians are so greedy (virtually all of them) one has to offer them something to satisfy their greed. For that reason, I have changed my view. When my submission was published on the JSCEM website in 2017 it assumed the size of the Senate would stay at 76. I now advocate a Senate of 88 since that is the only way to sell to the politicians the idea that senators should be elected under a *decent* voting system.

SECOND APPENDIX TO CHAPTER TWO

Meek's Method

Computer Journal article that describes Meek's method of counting STV votes:'Algorithm 123 - Single Transferable Vote by Meek's Method' (166k)**This document is in Adobe Acrobat (.pdf) format. You need to have the Adobe Acrobat Reader installed on your computer. You can download a free version from the Adobe site.

The following paragraphs are extracts from Schedule 1 to the Local Electoral Act which explain how Meek's method has been adapted for use ïn New Zealand.

Every Single Transferable Voting system for elections has the following features:

- voting by order of preference for the candidates:
- a quota for election, calculated from the number of votes and the number of positions to be filled:
- a first count of first preferences only, and the election of any candidate who equals or exceeds the quota (except in the special case of a multi-way tie):
- redistribution of surplus votes (above the quota) for any candidate in accordance with the voter's further preferences, and election of any candidate who then reaches the quota:
- when no further distribution of surpluses is possible, the exclusion of the candidate who then has the fewest votes, and redistribution of those votes:
- further counting, election, redistribution of surpluses, and exclusion, as necessary, until all positions for election are filled.

The following points explain in what ways Meek's method is different to other forms of STV:

Vote transfer

Votes are transferred to the next preference of the voter in the exact order indicated by the voter on the voting document unless the candidate has already been excluded.

Value of surpluses

The total value of a surplus or surpluses is shared in due proportion across both transferable and non-transferable voting documents.

Sharing of votes
If a candidate is elected later in the count, or an elected candidate receives further votes, the surplus to be transferred is shared across all voting documents credited to that candidate in due proportions, not just across the voting documents that gave immediate rise to the surplus.

Recalculation of quota
As votes become non-transferable (eg, because the number of preferences recorded in the voting document is exhausted), the quota is recalculated to reflect the smaller total of votes remaining active. The new quota then applies to already elected candidates as well as others, giving them further surpluses to redistribute.

Need for computer technology

Because the procedure required to conduct a count using Meek's method of counting votes requires a candidate to be assigned a scaling factor (a keep value) representing the proportion of each vote that will actually be credited to each candidate, the number of calculations involved requires the count to be conducted using computer technology rather than by means of a manual count.

General description of process used to conduct count at election under system of Single Transferable Voting using Meek's method of counting votes

Interpretation

In the following clauses, unless the context otherwise requires:

- **non-transferable vote** means a voting document on which no next preference for a non-excluded candidate is indicated or can be identified by the electoral officer
- **surplus** means the number of votes that a candidate obtains at any stage of the counting of votes in excess of the quota
- **total surplus** means the sum of all candidates' surpluses at any stage of the counting of votes.

Election to fill mayoral or single member vacancy

- Before commencing the official count, the electoral officer rejects as informal any voting document on which the voter's first preference is not able to be determined.
- The number of valid voting documents is determined.
- The absolute majority of votes is the number of votes sufficient to secure the election of any candidate. It is determined by dividing the total number of valid votes, excluding non-transferable votes, by 2. If the number is not a whole number, the quotient is rounded up to the next whole number.
- The number of first preference votes recorded for each candidate is determined and recorded.
- If any candidate obtains an absolute majority of votes, that candidate is treated as being elected and the count ceases.
- If no candidate has an absolute majority of votes, the candidate who has the fewest votes is excluded and each voting document for that candidate, unless it is non-transferable, is counted to the candidate next in the order of the elector's preference.
- This process is continued until 1 candidate has an absolute majority of votes.

Equal votes
If, on any count, 2 or more candidates have an equal number of votes and 1 of them has to be excluded, the electoral officer determines which candidate had the fewest votes the first time the candidates' totals were different and excludes the candidate with the lowest total votes.

Ties
If the candidates had an equal number of votes at all stages of the count, a random (or pseudo-random) process is used to choose which candidate is excluded.

Multi-member vacancies
Before commencing the official count, the electoral officer rejects as informal any voting document on which the voter's first preference is not able to be determined, or on which a unique first preference vote is recorded for a candidate who is no longer available for election.

The number of valid voting documents is determined.

Formulas

Quota

The quota is calculated (to 9 decimal digits after the point with any remainder being disregarded) in accordance with the following formula:

$$q = \frac{v + 0.000000001}{n + 1}$$

where:

q is the quota

v is the total number of valid votes, less the number of non-transferable

votes

n is the total number of members to be elected.

Keep value
When a candidate's votes exceed the quota, a new keep value is calculated in accordance with the following formula:

$$k = \frac{ck \times q}{cv}$$

where:

k is the candidate's new keep value

ck is the candidate's current keep value

q is the current quota

cv is the candidate's current votes.

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In calculating the keep value under subclause (1), both the multiplication and the division are taken to 9 decimal digits after the point and, in each case, rounded up if not exact.

General procedure

- The number of valid voting documents is counted and the quota determined. The quota is adjusted downwards as voting documents become non-transferable.
- At each stage in the count, each candidate has an associated keep value, which indicates the proportion of every vote, or part of a vote, received by that candidate that is kept by him or her.
- Each candidate's keep value is initially set at 1.0, and that candidate retains the full value of all votes, or parts of votes, received. If any candidate withdraws, that candidate's keep value is set to 0.0.
- If a candidate reaches the current quota for election, a new keep value is calculated, indicating the value of each vote or part of a vote retained by him or her.
- A candidate is excluded at any stage of the count if the sum of his or her votes and the total surplus is less than the votes of any other non-excluded candidate.
- If a candidate is excluded, his or her keep value is set to 0.0.
- Any candidate whose votes equal or exceed the current quota is elected.

Counting of votes

The first iteration

- The votes credited to each candidate are set to 0.0.
- Non-transferable votes are set to 0.0.
- The first preferences for the candidates are tallied and the initial quota is determined.
- Any candidate whose votes equal or exceed the current quota is elected.

Second and subsequent iterations

- A new value of the quota is calculated to allow for any increases in non-transferable votes.
- A new keep value for each elected candidate is calculated.
- The votes are recounted using the latest keep values, which automatically perform the required redistributions, and increase the non-transferable votes, if relevant.
- Any candidate whose vote now equals or exceeds the current quota is elected.
- If the sum of the lowest candidate's votes and the total surplus is less than the votes of any other non-excluded candidate, or if the total surplus is less than 0.0001, the lowest candidate is excluded and his or her keep value reset to 0.0.
- Iterations continue until the required number of members are elected.

Equal votes

If, on any count, 2 or more candidates have an equal number of votes and 1 of them has to be excluded, the electoral officer determines which candidate had the fewest votes the first time the candidates' totals were different and excludes the candidate with the lowest total votes.

Ties

If the candidates had an equal number of votes at all stages of the count, a random (or pseudo-random) process is used to choose which candidate is excluded.

Algorithm used to calculate Meek's method

The following paragraphs give some further detail on the algorithm used to calculate Meek's method and how computer programs using the algorithm will be certified.

Algorithm and article

Meek's method of counting votes requires the use of Algorithm 123 in the form described in an article in The Computer Journal (UK), Vol 30, No 3, 1987, pp 277-81 (the article). (A discussion of the mathematical equations that prove the existence and uniqueness of the method is set out in the article).

Authority for modifications

Algorithm 123 (in the form described in the article) and the formulas and procedures proposed in the article may, for the purposes of designing a computer program to implement Meek's method of counting votes, incorporate the following modifications:

        (a) the formula used for determining the quota for election quoted in paragraph 2.5 of the article, (ie, "total votes---total excess)/(number of seats plus 1)"), may be modified by adding the figure 0.000000001 to the product of that calculation (any remainder after the ninth decimal digit being disregarded). (The addition of one-billionth of a vote to the quota removes the unlikely possibility of a tie):

        (b)   any other modification authorised by regulations made under this Act.

Duties of programmers and certifiers

Duties of programmers

very person responsible for the design of a computer program intended to implement Meek's method of counting votes must take all reasonable steps to ensure that the program produces outcomes that are consistent with Algorithm 123 in the form described in the article and any authorised modifications

Duties of certifiers

A computer program may not be used at any election or poll under this Act for the purpose of implementing Meek's method of counting votes unless a certifier appointed for the purpose by the Secretary for Local Government has first certified that the program produces outcomes that are consistent with Algorithm 123 (in the form described in the article) and any authorized modifications.

THIRD APPENDIX TO CHAPTER TWO

APPENDIX 4 (of Miragliotta)

A COMPARISON OF THE RANDOM SELECTION, FRACTIONAL AND MEEK METHODS

Random Selection (Ireland, Malta & New South Wales)

Advantages	Disadvantages
Transfers the correct number of ballot papers	Possibility that some votes will exceed 1.00 under certain conditions
Count can be verified manually	Random selection introduces an element of chance if the transfer generates a consequential surplus
Rules are relatively easy to explain to voters	Risk that if the election is close and a recount is required that it could give rise to a different outcome
	Considers surplus ballots not contained in the last parcel as fully dealt with
	Assumes each elector is only seeking to elect one person in a multi-member election

Gregory Method (Australian Capital Territory & Tasmania)

Advantages	Disadvantages
Maintains value of vote at 1.00	Assumes each elector is only seeking to elect one person in a multi-member election
Last parcel of votes contains ballot papers of the same value	Gives ballot papers from later transfers greater weight (a ballot paper distributed from a candidate who was not elected has a greater prospect of contributing to the election of more than one candidate)
Count can be verified manually	An arbitrary distinction is drawn between those votes considered to have exhausted their potential and those which are deemed to be responsible for generating the surplus
	Considers surplus ballots, not contained in the last parcel, as fully dealt with

Inclusive Gregory Method (Commonwealth Senate, Western Australia and South Australia)

Advantages	Disadvantages
Avoids the anomaly in the Gregory system whereby surplus ballot papers, which are not contained in the last parcel, are considered as fully dealt with	Possibility of ballot papers being worth more than one vote in certain circumstances (this may occur if the surplus of an elected candidate contains votes from a previously elected candidate with a smaller surplus)
Does not privilege votes received late in the count	There is a risk that any large parcel of ballot papers received under an existing transfer value will be over-represented in the surplus
Count can be verified manually	
Allows each elector to contribute to the election of the number of candidates to be elected	

Weighted Inclusive Gregory Method

Advantages	Disadvantages
Avoids anomaly in Gregory system whereby surplus ballot papers, which are not contained in the last parcel, are considered fully dealt with	The counting process would be more involved than the Inclusive Gregory method and computerised software for calculating election results would be necessary
Avoids possibility in Inclusive Gregory system where some ballot papers are worth more than one vote in certain circumstances	Rules are less transparent and understandable to the voter
All ballot papers are included, although transfer values are weighted to take account of existing transfer values	

Meek Method (New Zealand District Health Board Elections beginning 2004)

Advantages	Disadvantages
Ensures that transfer values don't exceed 1.00	Counting process is too tedious to be performed by hand. Specialised computerised software for calculating election results would be necessary
Votes are transferred to the next preference in the exact order indicated by the voter, unless candidate is excluded	The high level of complexity associated with this method results in the vote counting rules being less transparent and understandable to the voter
Reduces incentives for strategic voting	
Minimises vote wastage (quotas are recalculated throughout the count to reflect the removal of non-transferable votes)	