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TABLE OF LEADING ARTICLES—TITLES

TABLE OF LEADING ARTICLES—AUTHORS

TABLE OF BOOKS REVIEWED—AUTHORS

COMMENTS

INDEX DIGEST

REAL PROPERTY

RIGHT OF PRIVACY

RIVERS

ROBINSON-PATMAN ACT

SALES

THE SELF-EMPLOYED INDIVIDUALS RETIREMENT ACT OF 1962

STATUTE OF LIMITATIONS

SURETYSHIP

TAXATION

TORTS

TRADE REGULATION

TREATIES

TABLE OF CASES

Case names prefixed with an asterisk are the subjects of Case Notes

APPORTIONMENT OF THE NEW YORK ASSEMBLY

*RUTH C. SILVA**

TODAY, New York's assembly is rather generally conceded to be the less popular chamber of the legislature. During New York's first century of existence as a state, however, the assembly was considered to be the more popular house. Indeed, the roots of representative government in New York can be traced back to the first assembly, almost a century before New York's existence as a state—back to January 27, 1683, when the Duke of York directed Governor Thomas Dongan to convene an assembly of not more than eighteen representatives to be elected by the Colony's freeholders. On September 13, the governor and council issued writs of election, which allotted the eighteen representatives among the different parts of the Colony. The assembly met on October 17, divided the Colony into twelve counties, and passed the "Charter of Libertyes," which apportioned twenty-three assemblymen among the newly created counties.[1] Although the Charter was vetoed by the King and never became operative, its reapportionment provisions were similar to those contained in the Apportionment Act of 1691.[2] While the apportionment of September 13, 1683 had been made by executive order, the next two (1691 and 1702) were legislative apportionments in the sense that they were made by an act of the assembly. Subsequent apportionments were acts of the governor and council.

Colonial elections and apportionments occurred at quite irregular intervals. The governor and council dissolved assemblies—usually for one of three reasons: the demise of the Crown, the demise of the governor, or the assembly's failure to pass financial measures. Reapportionment was often incidental to the election of a new assembly following dissolution. The governor and council issued writs of election, which proclaimed how many assemblymen were to be elected in each of the Colony's various territorial units. In some cases, separate representation was accorded to a manor in response to a petition or to a borough in conformity with the borough's charter. During the colonial period, four territorial units were used as a basis for representation. While the county was the most general unit, separate representation was also given to certain manors (Cortlandt, Livingston, and Rensselaerwyck), to the borough of Westchester, and to townships or mixed settlements like Schenectady and its dependencies. The assignment of more members to the more populous territorial units indicates that

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1. 1 Lincoln, The Constitutional History of New York 97-98 (1906).
2. Id. at 441-42.

population as well as the territorial subdivision was a factor in distributing assembly seats among the various parts of the Colony.[3]

I. The Constitutions of 1777, 1821, and 1846

The constitution of 1777 set the size of the assembly at seventy and apportioned the seventy members among the various counties.[4] The constitution also provided for a census of assembly electors to be taken as soon as possible after the expiration of seven years following the end of the war and directed the legislature to reapportion the assemblymen among the counties so that the number of assemblymen would be "justly proportioned" to the number of electors in each county.[5] In 1791, following the first census, the seats were reapportioned.[6] The legislature was authorized to give an additional assemblyman to a county whenever a septennial census showed that the number of electors in that county had increased 1/70th part of the whole number of electors as established by the first census. Similarly, the legislature was empowered to deprive a county of one assemblyman if that county's electors declined 1/70th part of the whole.[7] Although the census of 1795 did not justify an increase of more than eight members, the act of 1796 provided for thirty-eight additional assemblymen, making a total of 108.[8] In 1801, before the return of another census, the legislature redistributed the 108 seats among the various counties.[9]

Later that year, a constitutional amendment altered the rules for assembly apportionment. The original constitution had set the minimum size of the assembly at seventy and provided for a possible increase to three hundred members. The amendment of 1801 fixed the number of assemblymen at one hundred, directed the legislature to apportion these

3. Id. at 97-98, 432-35; 3 Lincoln, The Constitutional History of New York 137, 151 (1906).

4. N.Y. Const. art. IV (1777); 2 Poore, The Federal and State Constitutions, Colonial Charters, and other Organic Laws of the United States 1333 (2d ed. 1878) [hereinafter cited as 2 Poore, The Federal and State Constitutions (2d ed. 1878)].

5. N.Y. Const. art. V (1777); 2 Poore, The Federal and State Constitutions 1333 (2d ed. 1878).

6. N.Y. Sess. Laws 1791, ch. 4.

7. N.Y. Const. art. V (1777); 2 Poore, The Federal and State Constitutions 1333 (2d ed. 1878). Assembly electors included all freemen in the cities of New York and Albany, owners of freeholds valued at twenty pounds or more, and tenants who paid an annual rent of at least forty shillings. N.Y. Const. art. VII (1777); 2 Poore, The Federal and State Constitutions 1334 (2d ed. 1878).

8. N.Y. Sess. Laws 1796, ch. 19. The first census (1790) showed 57,468 assembly electors. This number divided by 70 gave a ratio of 821. The second census (1795) showed 63,774 assembly electors. This number divided by 821 yields an assembly of 78 members. 3 Lincoln, The Constitutional History of New York 153-54 (1906).

9. N.Y. Sess. Laws 1801, ch. 125.

one hundred seats among the several counties, "as nearly as may be, according to the number of their respective electors" and provided that the number of assemblymen should be increased at the rate of two per year until there was a total of 150 members.[10] In 1802, the legislature apportioned the one hundred seats among the various counties according to the number of electors shown by the census of 1801.[11] The fourth census was taken in 1807 and served as the basis for a reapportionment in 1808. Since the amendment of 1801 became operative on the first Monday of July in 1802, six years elapsed between its adoption and the reapportionment of 1808. Consequently, the legislature added twelve seats—two for each year—and apportioned the 112 members among the several counties.[12] Applying the same rule, the act of 1815 added fourteen assemblymen, making a total of 126, and distributed the 126 among the various counties.[13]

Under the amendment of 1801, another census should have been taken in 1821 and fourteen new members should have been added, making a total of 140. If this provision had remained in force, the maximum of 150 assemblymen would have been reached in 1826. Instead of directing that a census be taken in 1821, however, the legislature provided for a convention to revise the constitution. But, rather than merely amending the constitution, the convention of 1821 wrote a new constitution, the apportionment provisions of which differed considerably from those found in the constitution of 1777.

Study of the first constitution, the amendment of 1801, and the six apportionment acts passed thereunder shows that the legislature did not divide a multi-member county into assembly districts. A county entitled to more than one assemblyman served as one multi-member district, in which all of the county's assemblymen were elected at large.[14] The legislature did, however, combine two or more counties into one single-member or multi-member district. This constitution did not guarantee each

10. N.Y. Const. amends. I, II, IV (1801); 2 Poore, The Federal and State Constitutions 1340 (2d ed. 1878).

11. N.Y. Sess. Laws 1802, ch. 81.

12. N.Y. Sess. Laws 1808, ch. 90.

13. N.Y. Sess. Laws 1815, ch. 142.

14. 3 Lincoln, The Constitutional History of New York 137-51 (1906). The first draft of the constitution of 1777 provided: "That every County within this State shall be divided into as many Districts . . . as it [shall have] Representatives . . . . That every district [shall] chuse [sic] one person to represent the County . . . ." A marginal note indicates, however: "Agreed that the elections for representatives shall be by Counties at large as usual . . . . " 1 Lincoln, The Constitutional History of New York 506 (1906). Although there was a strong movement in the 1821 convention for the adoption of the single-member system, the multiple system was retained for the election of all senators and for those assemblymen who represented counties entitled to more than one assembly seat. Id. at 638; 3 Lincoln, The Constitutional History of New York 165-67 (1906).

county separate representation. The convention of 1777 rejected John Jay's motion to guarantee Richmond County at least one assemblyman and Gouverneur Morris' motion that " 'no county shall be left without at least one representative.' "[15] Yet, apportionment acts passed under this constitution gave one member to each of several counties that were below the ratio. Moreover, the act of 1796, for example, gave one assemblyman to Schoharie County without any census returns at all. On the other hand, the legislature created a number of joint districts composed of two (but never more than two) counties. The act of 1815, for example, apportioned five seats to the joint district consisting of Washington and Warren counties and one seat to the joint district composed of Clinton and Franklin counties.[16]

Allowing the legislature to combine counties into a joint district and to apportion more than one member to such a district permitted enough flexibility so that each district's assemblymen could have been made relatively proportionate to that district's representative population. Yet, the first six reapportionments were made without very strict adherence to arithmetic rules. As a matter of fact, the percentage of variation between the largest and the smallest assembly district was always far greater than the percentage of variation between the largest and smallest senatorial district. The greater disproportionality in assembly representation was due largely to three factors. First, county boundary lines were changed so frequently as new counties were created that there were often no accurate census returns for the counties affected by such boundary changes. While the alteration of county boundaries usually affected counties within the same senatorial district and, consequently, did not change the ratio of representation between senatorial districts, such alterations usually affected the ratio of representation between assembly districts. Second, the relatively larger number of assembly districts, each of which had fewer members than did a senatorial district, made it more difficult to maintain proportionality between the representation of various assembly districts. Third, the disproportionality was increased by apportioning one assemblyman to certain counties that were below the ratio rather than combining such counties with other counties into joint districts.

The constitution of 1821 made such disproportionality mandatory by providing three new rules for assembly apportionment. First, by stating

15. 1 Lincoln, The Constitutional History of New York 507 (1906).

16. 3 Lincoln, The Constitutional History of New York 157-59, 165-67 (1906). The acts of 1808 and 1815 prescribed a procedure for canvassing the vote in such joint districts. The clerk of the less populous county was to deliver his election returns to the more populous county's clerk, who then proceeded with the canvass for the entire assembly district in the usual manner. See notes 12 & 13 supra.

that "members of the assembly shall be chosen by counties," the second constitution at least implied that no county could be combined with another to form a joint district. Although Hamilton was combined with Montgomery under the apportionments of 1822, 1826, and 1836 and with Fulton under the apportionment of 1846, every other county enjoyed separate representation while the constitution of 1821 was in force. This not only deprived the legislature of its limited power to draw assembly districts but, since district lines were inflexible, it was also more difficult for the legislature to proportion the seats to the representative population in each district. Second, although no new county could be created unless its population was sufficient to entitle it to an assemblyman, every existing county was guaranteed one assemblyman regardless of how much its representative population might fall below the ratio.[17] Third, the size of the assembly was frozen at 128 members.[18] This made it impossible to give equitable representation to the most populous counties as the total number of counties increased and as the number of counties falling below the ratio multiplied.[19]

The constitution of 1821 also changed the basis of representation from electors to "inhabitants, excluding aliens, paupers, and persons

17. N.Y. Const. art. I, § 7 (1821); 2 Poore, The Federal and State Constitutions 1342 (2d ed. 1878).

18. N.Y. Const. art. I, § 2 (1821); 2 Poore, The Federal and State Constitutions 1341 (2d ed. 1878).

19. ASSEMBLY APPORTIONMENTS UNDER CONSTITUTION OF 1821[a]

Seats apportioned	1822	1826	1836	1846
To counties with less than one ratio	9 or 10[b]	8	8 or 9[c]	7
On basis of full ratios	102 or 101[b]	100	101 or 100[d]	102
On basis of remainders	17[c]	20[d]	19[f]	19[g]
Total	128	128	128	128

[a] Computed from statistics published in 3 Lincoln, The Constitutional History of New York 162-64 (1906).

[b] Niagara and Erie had a combined representative population of 22,838 and were given one seat each. Since the ratio was 10,294, the two counties had a combined remainder of 2,250. It is uncertain whether Niagara had a full ratio or was given a seat under the rule which guarantees one seat to each county.

[c] Apportioned to the seventeen counties having the largest remainders.

[d] Apportioned to the twenty counties having the largest remainders.

[e] Chemung and Tioga had a combined representative population of 33,629 and were each apportioned one seat. Since the ratio was 15,957, the two counties had a combined remainder of 1,715. It is uncertain whether each county had a full ratio.

[f] Seventeen seats were apportioned to seventeen of the eighteen counties having the highest remainders. The other two seats were apportioned to Chenango (remainder of 7,422) and Columbia (remainder of 6,644) rather than to New York (leaving a remainder of 18,203 while the ratio was only 15,957) and Oneida (remainder of 8,857).

[g] Apportioned to the nineteen counties having the largest remainders.

of colour, not taxed." The then present legislature was directed to apportion the 128 seats among the various counties on the basis of the federal census of 1820, but the constitution provided that a state enumeration should be made in 1825 and every ten years thereafter. At its first session after the return of each decennial enumeration, the legislature had the duty of reapportioning the 128 seats among the several counties, "as nearly as may be, according to the numbers of their respective [representative] inhabitants."[20] These constitutional provisions for assembly apportionment remained in force with only minor modifications until superseded by the constitution of 1894.

The constitution of 1846 expressly provided for combining Hamilton with Fulton in a joint district until Hamilton County's representative population became equal to the ratio, which was obtained by dividing the State's representative population by 128. Although the third constitution made single-member assembly districts mandatory, this changed the legislature's authority in no significant way since each multi-member county was to be divided into assembly districts by its own board of supervisors rather than by the legislature.[21] An amendment, adopted in 1874, broadened the basis of representation to "inhabitants, excluding aliens," and transferred the power to divide New York City into assembly districts from the New York County Board of Supervisors to the New York City Board of Aldermen.[22] The latter change simply related to districting in New York City and, of course, did not change the rules for apportioning assemblymen in any way.

During the seventy-two years from 1822 to 1894, eight reapportionment acts were passed. On each of these occasions, a ratio was established by dividing the State's total representative population by 128. In 1826, a joint legislative committee explained that, after apportioning one member to the eight counties below the ratio, the number of assemblymen to which every other county was entitled was determined by dividing that county's representative population by the ratio. This process resulted in apportioning one hundred seats on the basis of full ratios. The committee reported that the twenty remaining seats were assigned to the twenty counties having the largest remainders.[23] This

20. N.Y. Const. art. I, §§ 6-7 (1821); 2 Poore, The Federal and State Constitutions 1341-42 (2d ed. 1878).

21. N.Y. Const. art. III, § 5 (1846); Dougherty, Constitutional History of the State of New York 169 (1915); 2 Poore, The Federal and State Constitutions 1355 (2d ed. 1878). The legislature's only authority in this matter was the power to prescribe the day on which these boards of supervisors were to divide their respective counties into assembly districts.

22. 2 Poore, The Federal and State Constitutions 1373-74 (2d ed. 1878).

23. Csontos, History of Legislative Apportionment in New York State 5-6 (ms. in N.Y. State Library, 1941).

simple arithmetic formula appears to have been used for five apportionments without causing controversy.

Application of the so-called 1826 formula to the 1820 census figures yields precisely the same distribution of seats as provided in the act of 1822.[24] Similarly, application of the formula to the 1825 census statistics produces exactly the same distribution of seats as provided in the act of 1826.[25] If adherence to this formula be the measure, two seats were misapportioned in the act of 1836.[26] Ten years later, however, the legislature adhered strictly to the formula.[27] Thus, of the 512 seats apportioned under the second constitution, only two could be considered as having been "malapportioned" in any sense.

The 1826 formula appears to have been used again in 1857 and, although the act assigned an additional seat to Livingston County (remainder of 11,625) rather than to New York County (remainder of 14,790),[28] there seems to have been no controversy about the matter.

24. N.Y. Sess. Laws 1822, ch. 207. See table and explanation *c* in note 19 supra.
25. N.Y. Sess. Laws 1826, ch. 289. See table and explanation *d* in note 19 supra.
26. N.Y. Sess. Laws 1836, ch. 436. See table and explanation *f* in note 19 supra.
27. N.Y. Sess. Laws 1846, ch. 44. See table and explanation *g* in note 19 supra.
28. N.Y. Sess. Laws 1857, ch. 337. See explanation *b* infra.

ASSEMBLY APPORTIONMENTS UNDER CONSTITUTION OF 1846[a]

Seats apportioned	1857	1866	1879	1892
To counties with less than one ratio	8	13	21	29
On basis of full ratios	96	97	94[d]	92[f]
On basis of remainders	24[b]	18[c]	13[e]	7[g]
Total	128	128	128	128

[a] Computed from statistics published in 3 Lincoln, The Constitutional History of New York 162-64 (1906).

[b] Twenty-three apportioned to twenty-three of the twenty-four counties with the largest remainders. The other seat was apportioned to Livingston (remainder of 11,625) rather than to New York (remainder of 14,790).

[c] Seventeen apportioned to seventeen of the eighteen counties with the largest remainders. The other seat was apportioned to Ontario (remainder of 13,730) rather than to Kings (remainder of 15,128).

[d] Actually, ninety-seven should have been apportioned on full ratios and only ten on remainders. The law of 1879, however, did not give Kings one seat and New York two seats for which they had full ratios.

[e] Seven apportioned to seven of the ten counties having the largest remainders. The other six were apportioned as follows: Cattaraugus (remainder of 11,626) and Niagara (remainder of 13,546) rather than to Kings (remainder of 54,971); to Otsego (remainder of 14,889), St. Lawrence (remainder of 9,792), and Washington (remainder of 12,229) rather than to New York (remainder of 89,910); and to Wayne (remainder of 13,481) rather than to Monroe (remainder of 19,206). In summary, six seats were transferred from Kings, New York, and Monroe to the smaller upstate counties.

[f] Actually, ninety-five should have been apportioned on full ratios and only four on the basis of remainders. The law of 1892, however, denied Kings, New York, and Monroe each

Nine years later, however, we find a minority report criticizing the apportionment of 1866 because an extra seat was given to Ontario, which had a remainder of 13,730, rather than to Kings with a remainder of 15,128.[29] The census of 1875 showed that twelve upstate counties should each lose one seat in the assembly. Rather than transfer these twelve seats to the more rapidly growing counties, the legislature simply postponed reapportionment. In his annual message of 1879, Governor Lucius Robinson reminded the legislature for the fourth time that a reapportionment should be made. He argued: "To make an unjust and unequal apportionment . . . is . . . a very great and difficult labor. It requires expert skill. . . . But to make a fair and equal apportionment calls for nothing more than common sense, an acquaintance with the plainest rules of arithmetic, and an honest disposition to do right."[30]

Although Robinson repeatedly prodded the legislature to pass a reapportionment measure, the act of 1879 became law without his signature. Among other things, he complained because certain less populous counties were given more assembly seats than were given to certain more populous counties: "I find that Cattaraugus county, with 45,737 inhabitants, has two members; while Suffolk, with 50,330, is given but one. Orange with 82,225 inhabitants has only two members, while St. Lawrence with only 78,014 gets three. Nor can I understand the philosophy which gives to the latter county, with 78,000 inhabitants, the same representation as Monroe, which exceeds it in population by nearly fifty thousand."[31]

In terms of the 1826 formula, the act of 1879 misapportioned six seats. Actually, the legislature did not use this formula at all. The committee divided the State's total citizen population by 128 and got a ratio of 34,133. When the committee inspected the census returns for each county, it found that there were twenty-two counties having less than 34,133 citizen inhabitants. This meant that twenty-two seats had to be distributed to these counties at the expense of the more populous

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one seat, for which they had full ratios. Instead, these three seats were given to Albany, Dutchess, and Queens on the basis of remainders.

[g] Three apportioned to three of the four counties with the largest remainders. The other four seats were given to Albany (remainder of 21,025), Dutchess (remainder of 29,837), Rensselaer (remainder of 31,197), and Queens (remainder of 33,492) rather than to Kings (remainder of 54,645), New York (remainder of 66,754), St. Lawrence (remainder of 35,438), and Monroe (remainder of 45,507).

29. N.Y. Sess. Laws 1866, ch. 607; N.Y. Ass. Doc. No. 182 (1866) (a minority report signed by Gideon Tucker, O. A. Bills, and I. S. Frost). See table and explanation *c* in note 28 supra.

30. Csontos, History of Legislative Apportionment in New York State 7 (ms. in N.Y. State Library, 1941).

31. Id. at 9.

counties. The committee argued that, since twenty-two counties having less than a full ratio were each entitled to one seat, use of this ratio for apportioning the remaining 106 seats would operate "against the other rural districts" and, therefore, in favor of the most populous counties. To avoid "this discrimination," the committee recommended distribution of the remaining 106 seats on the basis of a second ratio, which was found by dividing the citizen population of the thirty-seven most populous counties (3,756,818) by 106. Thus, while the constitutional ratio was 34,133, the second ratio was 35,442.[32]

Distribution of the 106 seats to the thirty-seven most populous counties according to the constitutional ratio would have given Kings and New York counties each an additional seat while use of the second ratio would have given these two seats to Otsego and Suffolk counties instead. All other counties would have received the same number of seats on the basis of either ratio. In making the actual apportionment, the legislature apparently used the second ratio to give Otsego two seats instead of one, used the constitutional ratio to give Suffolk one seat instead of two, and seems to have followed no rule at all in the case of eight other counties.[33]

Population trends in New York from 1875 to 1885 indicated that at least a dozen upstate counties probably should each lose a seat according to the next census. To avoid this painful ordeal, no census was taken in 1885. When a census finally was taken in 1892, it showed that fourteen upstate counties would each lose one seat and St. Lawrence would

32. Id. at 181-86; N.Y. Ass. Doc. No. 59 (1879). The table in note 28 supra shows that only twenty-one counties were below the ratio while the committee found twenty-two such counties. This discrepancy is due to the committee's using slightly different statistics than those on which the table in note 28 is based.

33. CONTROVERSIAL SEATS UNDER APPORTIONMENT OF 1879

County	Citizen population[a]	Number of seats on the basis of the Constitutional ratio	Second ratio	Act of 1879[b]
Cattaraugus	45,771	1	1	2
Kings	464,711	14	13	12
Monroe	121,641	4	4	3
New York	909,390	27	26	24
Niagara	47,691	1	1	2
Otsego	49,034	1	2	2
St. Lawrence	78,082	2	2	3
Suffolk	50,340	1	2	1
Washington	46,374	1	1	2
Wayne	47,626	1	1	2

[a] 3 Lincoln, The Constitutional History of New York 162-64 (1906).

[b] N.Y. Sess. Laws 1879, ch. 208.

lose two if the 1826 formula were used, while thirteen would each lose a seat if the second-ratio method were used. According to George H. Bush, who was in charge of the 1892 bill, the original apportionment was based on the 1826 formula but was revised to secure the votes necessary for passage in the legislature.[34] Actually, the law of 1892[35] departed from the 1826 rules in the case of four seats, which were apportioned to Albany, Dutchess, Rensselaer, and Queens rather than to Kings, New York, St. Lawrence, and Monroe.[36]

Critics of the act complained not only because Albany and Rensselaer had each been given an additional seat at the expense of Monroe and St. Lawrence but also because one of several proposed second-ratio methods had not been used. If such a method had been used, various upstate counties such as Chautauqua could have received an additional seat at the expense of New York and/or Kings.[37] Twenty-nine seats were apportioned to the thirty counties having less than a constitutional ratio ($5{,}790{,}865 \div 128 = 45{,}241$). The controversy involved apportionment of the ninety-nine other seats. If the 1826 formula, which Bush said was used, had been strictly applied, ninety-five would have been apportioned on the basis of full ratios, and four would have been apportioned to the four counties having the largest remainders. If the 1879 formula had been used instead, eighty-eight would have been apportioned on the basis of second ratios ($4{,}831{,}162 \div 99 = 48{,}800$), and the eleven other seats would have been apportioned to the eleven counties having the largest remainders. As a practical matter, use of the 1879 rather than the 1826 formula would have transferred three seats from New York and Kings to Chautauqua, Dutchess, and Queens. All other counties would have received the same number of seats under either formula. Although the legislature used the 1826 formula, it did transfer two seats from New York and Kings to Dutchess and Queens so that only Chautauqua would have gained from the legislature's use of the 1879 formula.[38] The two seats that were transferred from Monroe

34. 3 Revised Record of the Constitutional Convention of 1894 of the State of New York 1003-06 (1900).

35. N.Y. Sess. Laws 1892, ch. 397.

36. See table and explanations *f* and *g* in note 28 supra.

37. E.g., 3 Lincoln, The Constitutional History of New York 192-204 (1906).

38. Five counties were affected by the use of two different formulae:

	Number of assemblymen under		
County	1826 formula	1879 formula	Act of 1892
Kings	19	18	18
New York	31	29	30
Queens	2	3	3
Chautauqua	1	2	1
Dutchess	1	2	2

and St. Lawrence to Albany and Rensselaer could not be justified by use of either formula.

In *People ex rel. Carter v. Rice*,[39] the plaintiff objected to the four cases in which the act of 1892 deviated from the 1826 rules, that is, Carter complained that four seats had been given to Albany, Dutchess, Queens, and Rensselaer rather than to Kings, New York, Monroe, [and St. Lawrence]. In a five to two decision, the court of appeals upheld the act on the ground that apportionment involved the exercise of legislative discretion, which the court could not review. Although Judge Rufus W. Peckham said that the constitution did not prescribe a method for apportionment and, therefore, allowed the legislature to use its discretion with respect to ratios and remainders, he proceeded to place his stamp of approval on the 1826 or one-ratio method. He explained arithmetically how the 1879 or two-ratio method "operates unjustly" against the most populous counties. He added that, "by the adoption of this new, arbitrary and unnecessary ratio, New York's representation would be reduced from 31 to 29, and Kings from 19 to 18. . . ."[40] Peckham then went on to justify the act of 1892 by saying that the legislature did not have to apportion the remaining seats to counties with the highest remainders since every county had been given one seat for each full ratio.[41] If by "full ratio" he meant the constitutional ratio of 45,241, this statement simply was not true. For an additional assemblyman had been denied to Kings (remainder of 54,645), New York (66,754), and Monroe (45,507). If by "full ratio" he meant the second ratio of 48,000, the statement was true but the ratio was the one he had condemned.

In a separate concurring opinion, Judge John C. Gray argued that the legislature was not a mechanical contrivance for the mathematical distribution of members of Assembly, because the phrase "as nearly as may be" implies legislative discretion. Although he thought distribution of remaining seats in the order of highest remainders was the best rule, he conceded that deviations may be required by political realities. His talk about the legislature's apportioning eleven seats on the basis of remainders implies that he thought the legislature had used the second-ratio method and that he approved of this method.[42]

Judges Charles Andrews and Francis M. Finch dissented. Andrews argued that "as nearly as may be" had been inserted because the

39. 135 N.Y. 473, 31 N.E. 921 (1892).

40. Id. at 505-06, 31 N.E. at 931. Judges Robert Earl (C.J.), Denis O'Brien, and Isaac Maynard joined in Judge Peckham's opinion and in a separate concurring opinion written by Judge John C. Gray.

41. Ibid.

42. Id. at 510-13, 31 N.E. at 932-33 (concurring opinion joined in by Judges Earl, O'Brien and Maynard).

constitution required the preservation of county lines, which made some inequality unavoidable. He said that "as nearly as may be" meant as nearly as possible so that the legislature had no right to adopt rules that made such inequality greater than was necessary. Although the 1879 formula would have made such inequality greater than the 1826 formula did, he seemed to imply that the 1879 formula should have been used. Accordingly, he argued that the apportionment was unconstitutional because eleven seats had not been assigned in the order of the highest remainders.[43] The fact is that, while eleven seats were to be apportioned on remainders if the 1879 formula had been used, only four seats should have been apportioned on the basis of remainders if the 1826 formula were used. In short, Carter complained because the legislature had departed from the 1826 rules. Five judges approved the legislature's departure from the 1879 rules while two objected to departure from these latter rules. Thus, whichever judges reached the right decision did so for the wrong reasons.

As the four most populous counties (New York, Kings, Erie, and Monroe) grew more rapidly than the rest of the State, they were entitled to gain representation at the expense of the other counties. Since the constitution guarantees one assemblyman to each county, these four large counties could not take their increased representation from the small rural counties. Consequently, these four counties could gain representation only by taking it from the upstate counties that had previously had more than one seat in the assembly. Thus, it became a struggle between the larger upstate counties to keep their representation and the four largest counties to gain the representation that was commensurate with their growth in population. Chenango and Columbia, for example, were each accustomed to having three assemblymen. In 1836, when their population entitled them to only two, they kept their three for another ten years at New York County's expense. Livingston, for example, had been accustomed to two seats. In 1857, when its population justified only one seat, it kept its two also at New York's expense. In summary, such counties as Ontario, Cattaraugus, Niagara, Otsego, Rensselaer, St. Lawrence, Washington, and Wayne were able to keep their customary number of assemblymen for a decade after their population no longer entitled them to so many. The problem was further enhanced as the number of counties falling below the constitutional ratio increased from seven in 1846 to twenty-one in 1879 and twenty-nine in 1892. This was the situation which began to develop in 1836 and led the legislature to deviate from the 1826 rules in fourteen cases between 1836 and 1892.[44]

43. Id. at 513-21, 31 N.E. at 933-36 (dissenting opinion).

The second-ratio method was devised in 1879 as a device to save the representation of the intermediate size counties. Although the legislature reverted to the one-ratio method in 1892, it did make certain "political concessions" to these intermediate counties at the expense of New York, Kings, and Monroe. And it was the indignation caused by these political concessions which strengthened the hand of those who wished to write new apportionment rules into the constitution—rules that, strangely enough, would constitutionalize the very situation that was the subject of complaint.

II. The 1894 Apportionment Formula

While the constitutions of 1821 and 1846 divided the several counties into two classes—those falling below the ratio and those having a citizen population of more than one ratio—the constitution of 1894 established a threefold classification. Specifically, section 5 of article III provides that one assemblyman "shall be apportioned to every county, including Fulton and Hamilton as one county, containing less than the ratio and one-half over." Two members are to be allotted to every other county. The remaining seats are to be divided among the counties having more than two ratios of citizen population. Thus, for the purpose of apportioning assemblymen, there are three classes of counties, which are hereafter referred to as First, Second, and Third class counties:

First. Counties having less than 1½ ratios.

44. Departures from the 1826 Formula

Act of	Gave assemblyman to	On remainder of	Rather than to	With remainder of
1836	1. Chenango	7,422	New York	18,203*
	2. Columbia	6,644	Oneida	8,857
1857	3. Livingston	11,625	New York	14,790
1866	4. Ontario	13,730	Kings	15,128
1879	5. Cattaraugus	11,626	Kings	54,971*
	6. Niagara	13,546		
	7. Otsego	14,889	New York	89,910*
	8. St. Lawrence	9,792		
	9. Washington	12,229		
	10. Wayne	13,481	Monroe	19,206
1892	11. Albany	21,025	Kings	54,645*
	12. Dutchess	29,837	New York	66,754*
	13. Queens	33,492	Monroe	45,507*
	14. Rensselaer	31,197	St. Lawrence	35,438

* Asterisk indicates a remainder that was greater than the constitutional ratio.

Second. Counties having from 1½ to 2 ratios.
Third. Counties having 2 or more ratios.

The constitution also prescribes the method for obtaining the ratio and for apportioning seats on remainders. The ratio is defined as "the quotient obtained by dividing the whole number of inhabitants of the State, excluding aliens, by the number of members of assembly. . . ."[45] Since the constitution sets the size of the assembly at 150 members,[46] the ratio is determined by dividing the State's citizen population by 150. The legislature's discretion is further limited by the provision that "members apportioned on remainders shall be apportioned to the counties having the highest remainders in the order thereof respectively."[47]

The first step in apportioning assemblymen is to find the ratio. The census of 1960, for example, shows a total citizen population of 16,240,786. Therefore, 1½ ratios equal 162,408. One assemblyman will be given to each of the forty-four counties, with Fulton and Hamilton considered as one county, having less than 162,408 citizen inhabitants. Two assemblymen will then be apportioned to each of the seventeen other counties. This will leave seventy-two seats to be distributed among the fourteen counties having more than two ratios—more than 216,544 citizen inhabitants. Thus, forty-four seats will be assigned to counties of the first class, which have a total citizen population of 2,761,656 or 62,765 citizen inhabitants per seat. Six seats will be assigned to counties having from 1½ to 2 ratios, representing 93,478 citizen inhabitants per seat. The remaining one hundred will go to the fourteen most populous counties having a total citizen population of 12,918,265 or 129,183 citizen inhabitants per seat.[48]

45. N.Y. Const. art. III, § 5 (1894).
46. N.Y. Const. art. III, § 2 (1894).
47. N.Y. Const. art. III, § 5 (1894).
48. Statistics in the following table are based on data published in N.Y. Leg. Doc. No. 59, pp. 32-33 (1942); N.Y. Leg. Doc. No. 98, p. 14 (1953); and 1960 citizen-census data supplied by the United States Bureau of the Census. An asterisk indicates that no reapportionment act was passed.

		Average citizen population per assemblyman in counties of		
Census	Constitutional Ratio	First Class	Second Class	Third Class
*1960	108,272	62,765	93,478	129,183
1950	94,690	57,648	87,390	112,477
1940	82,676	52,187	76,046	97,366
*1930	73,937	45,383	64,544	88,606
*1925	64,452	45,677	59,502	73,884
1915	53,730	41,424	44,660	60,998
1905	47,087	41,602	40,385	50,657
1892	38,606	36,010	32,452	40,733

The idea of dividing counties into three groups according to population was first introduced into the 1894 constitutional convention by Edward Lauterbach, who proposed to give one member to every county having less than 1½ ratios, two members to all other counties, and the remaining members to counties having three or more ratios. The Lauterbach proposal was similar to the plan adopted for senatorial apportionment in that no county could have four or more senators unless it had a full ratio for each senator.[49] The Committee on Legislative Organization reported Elon R. Brown's plan, which incorporated the Lauterbach proposal with some modifications. The original Brown plan provided for the apportionment of one assemblyman to every county having less than 1½ ratios, the apportionment of two assemblymen to each county having from 1½ to 2½ ratios, and the distribution of all remaining members among the other counties.[50] The provision reported, considered in the committee of the whole, and adopted by the convention required two members to be apportioned to all counties having from 1½ to 2½ ratios.

Elon R. Brown defended his three-class system largely by arguing that remainders in the second-class counties were lost while those in New York or Kings are combined to gain additional seats.[51] If the one-ratio system were applied to the thirteen second-class counties and to the two largest counties alike, for example, the second-class counties would have received seventeen seats and had thirteen remainders totaling 268,573 while New York and Kings would have received fifty-eight seats and had only two remainders equal to a mere 53,819. Such a system, Brown argued, would mean that the counties below the ratio would enjoy representation largely at the expense of the intermediate counties.[52] Elihu Root contended that the three-class system did not go far enough in giving representation to the second-class counties. He argued that seats apportioned on remainders should not be distributed on the basis of the largest remainders but should be given to those

49. O.I. No. 32. This plan provided for an assembly of 225 members and prescribed that the ratio be established by dividing the State's citizen population by 225. 1 Revised Record of the Constitutional Convention of 1894 of the State of New York 37 (1900); 3 Lincoln, The Constitutional History of New York 207 (1906). The constitution provides: "No county shall have four or more Senators unless it shall have a full ratio for each Senator." N.Y. Const. art. III, § 4 (1894). See also Silva, Apportionment of the New York Senate, 30 Fordham L. Rev. 595, 604-08 (1962).

50. 3 Lincoln, The Constitutional History of New York 214 (1906); 3 Revised Record of the Constitutional Convention of 1894 of the State of New York 346-47 (1900); 5 Revised Record of the Constitutional Convention of 1894 of the State of New York 710-12, 716-18 (1900).

51. 3 Revised Record of the Constitutional Convention of 1894 of the State of New York 1031-32 (1900).

52. Ibid.

counties having the largest percentage of their population unrepresented. He said that Albany would have three seats and a remainder of 36,211 while Broome would have one seat and a remainder of 21,412. Root contended that, in apportioning seats on remainders, Broome should be given preference over Albany, because Broome's remainder represented thirty-four per cent of its total population while Albany's amounted to only twenty-three per cent of Albany's total population.[53]

George H. Bush objected to this three-class system and showed arithmetically how it would operate against the most populous counties. He pointed out that the average population per assemblyman in the first-class counties would be approximately 36,000, still less in the second-class counties, but over 40,000 per member in the third-class counties. He said that New York City would have only 23.3 per cent of the seats in the assembly but pays forty-four per cent of the State's taxes. He objected to the seeming contempt shown for the large cities and argued that they were centers of wealth, intelligence, culture, and refinement.[54]

Charles Z. Lincoln took exception to Bush's statement concerning the large cities' wealth and argued that representation should be based on people rather than dollars. He said that the three-class system was the "crowning feature of this scheme," because it provided for an intermediate ratio and, thereby, gave increased representation to the intermediate counties like Cattaraugus (60,000 citizen population), Chautauqua (73,000), Jefferson (66,000), and Suffolk (58,872). He contended that it was grossly unfair to give only one assemblyman to these counties while also giving one to Putnam (13,000) and one to Schuyler (16,000).[55] While Lincoln defended the scheme on the ground that representation should be based on population, Joseph H. Choate defended the scheme by arguing that the American governmental system was not a democracy but a republic and that population had never been the sole basis of representation in New York. Choate contended that the use of similar apportionment plans in other states justified the three-class arrangement.[56]

53. 3 Revised Record of the Constitutional Convention of 1894 of the State of New York 1230-31 (1900). Root's arithmetic was in error. Actually, Albany was entitled to four seats with a remainder of 2,324. Broome's total citizen population was 61,591. Therefore, a remainder of 21,412 would have been closer to 35% than to 34%. Since the ratio was 38,606, Broome's remainder was actually 22,985, which was 37% of Broome's total population. 5 Revised Record of the Constitutional Convention of 1894 of the State of New York 718 (1900).

54. 3 Revised Record of the Constitutional Convention of 1894 of the State of New York 1008-11, 1016-19 (1900).

55. Id. at 1046-54, 1064.

56. 4 Revised Record of the Constitutional Convention of 1894 of the State of New York 31-37 (1900). Lincoln also defended the three-class system by pointing out that

The three-class scheme was attacked and defended on much the same grounds used to attack and defend the plan for senatorial apportionment. John I. Gilbert argued that the cities have "an undue preponderance in the Legislature" and objected to allowing "a little territory in the southern part of the State" to dominate the legislature.[57] William C. Osborn could see "no political . . . [or] commercial necessity . . ." for creating an intermediate class of counties and contended that this was "stepping directly away from the idea that the rule of population should govern." Osborn thought the only fair thing to do was to give each county one member and then distribute the remaining members among the remaining counties according to their population in mathematical order. He argued that the whole scheme had been devised to maintain rural dominance and to make it impossible for the Democrats to win a majority of seats even in a popular landslide.[58] John M. Bowers agreed that the scheme amounted to a three-ratio system designed to transfer assembly seats from Democratic to Republican counties.[59] DeLancey Nicoll also thought that the scheme was designed to insure Republican control of the legislature for at least a half generation. He argued that the "ingenious classification and division of counties" subordinated population to territorial representation for the purpose of maintaining the prestige of agricultural districts.[60]

In spite of these protests, the convention adopted Brown's plan for assembly apportionment without amendment and sent it to the Committee on Revision.[61] Several days later, Charles Z. Lincoln moved to recall the measure from the committee for amendment so that it would read as follows:

Illinois, Maryland, Pennsylvania, and Missouri each used a four or five-class scheme. 3 Revised Record of the Constitutional Convention of 1894 of the State of New York 1068 (1900). Choate's distinction between "democracy" and "republic" not only proves nothing but is confused and inaccurate. "Democracy" is government in which supreme power is retained by the people and exercised either directly (direct democracy) or indirectly (representative democracy). 5 Encyc. Soc. Sci. 76-84 (1935). This term is used in apposition to "aristocracy" (in which supreme power resides in an elite) and "autocracy" (in which one person has independent, self-derived power). 2 id. at 183-90, 321-22. A "republic" is a government in which the chief of state is directly or indirectly elected for a limited term. 13 id. at 317-21. It is to be contrasted with a "monarchy," which refers to a governmental system having a hereditary chief of state with life tenure. 10 id. at 579-84.

57. 3 Revised Record of the Constitutional Convention of 1894 of the State of New York 1074-75 (1900).

58. Id. at 1034-44.

59. Id. at 1136-37.

60. 4 Revised Record of the Constitutional Convention of 1894 of the State of New York 15 (1900).

61. Vote of eighty-four to fifty-four. Id. at 96. The Becker amendment applied to senatorial but not to assembly apportionment. See Silva, Apportionment of the New York Senate, 30 Fordham L. Rev. 595, 607-08 (1962).

"One Member of Assembly shall be apportioned to every county, including Fulton and Hamilton, as one county[,] containing less than the ratio and one-half over; two members shall be apportioned to every other county; the remaining Members of Assembly shall be apportioned to the counties having more than two ratios[,] according to the number of inhabitants, excluding aliens, *in excess of two ratios.*"[62]

Immediately after reading his proposed amendment, Lincoln moved the previous question so that the proposal was not debated. Despite protests about the impropriety of this procedure, the amendment was passed by a vote of ninety to fifty.[63]

It will be noticed that the Lincoln amendment made two changes: (1) Two members were to be apportioned to every county having at least 1½ ratios rather than only to those counties having from 1½ to 2½ ratios. (2) Remaining members were to be distributed among all counties having more than 2 ratios rather than among only those counties having more than 2½ ratios. This change meant that a county having from 2 to 2½ ratios might be able to gain a third seat on the basis of a remainder. By a vote of fifty-three to ninety-four, the convention defeated Benjamin S. Dean's proposal, which would have written the 1826 rules into the constitution by assigning one assemblyman to each county, distributing the remaining members among the counties that have more than one ratio, and doing so on the basis of the constitutional ratio.[64] By a vote of ninety-six to sixty, the convention then adopted the Brown-Lincoln provision in the form found in the constitution today:

One Member of Assembly shall be apportioned to every county, including Fulton and Hamilton as one county, containing less than the ratio and one-half over. Two members shall be apportioned to every other county. The remaining Members of Assembly shall be apportioned to the counties having more than two ratios according to the number of inhabitants, excluding aliens.[65]

Because there have been so few second-class counties, the three-class system has never been a major cause for the growing discrepancy between the largest counties' proportion of the State's citizen population and their proportion of assembly seats. Not only has over-representation of the second-class counties never cost the third-class counties more than two or three seats, but the number of second-class counties has declined from the high of ten in 1915 to three today. The real cause

62. 4 Revised Record of the Constitutional Convention of 1894 of the State of New York 357, 368 (1900). The parts in italics were included in Lincoln's original motion but omitted when the secretary read it. The bracketed commas were omitted in Lincoln's original motion but included in the secretary's version.

63. Id. at 358-76.

64. Id. at 647, 667-68.

65. Id. at 675, 694; 5 Revised Record of the Constitutional Convention of 1894 of the State of New York 743 (1900).

for the third-class counties' growing under-representation is the increased number of counties falling below the ratio. In 1894, the first-class counties received only two seats more than was commensurate with their proportion of the State's citizen population, because only twenty-one were below the ratio while fifteen had unrepresented remainders. By 1950, however, forty counties fell below the ratio while only five first-class counties had unrepresented remainders.[66]

Since the constitution limits the size of the assembly to 150 members and guarantees each county at least one seat, the counties falling below the ratio must receive their added representation at the expense of the third-class counties. Consequently, as the number of counties falling below the ratio increases, the more under-represented the third-class counties become.[67] The most populous counties' representation can be

66. Statistics in the following table are based on data published in N.Y. Leg. Doc. No. 59, pp. 32-33 (1942); N.Y. Leg. Doc. No. 98, p. 14 (1953); and 1960 citizen-census data supplied by the United States Bureau of the Census. An asterisk indicates that no reapportionment act was passed.

	Number of counties having assembly ratios equal to				
Census	Less than one	From 1 to 1½	From 1½ to 2	Two or more	Total
*1960	38	6	3	14	61
1950	40	5	4	12	61
1940	38	7	4	12	61
*1930	37	5	8	11	61
*1925	34	8	8	11	61
1915	31	8	10	12	61
1905	29	12	8	11	60
1892	21	15	9	14	59
Class	First		Second	Third	State

67. Statistics in the following table are based on data published in N.Y. Leg. Doc. No. 59, pp. 32-33 (1942); N.Y. Leg. Doc. No. 98, p. 14 (1953); and 1960 citizen-census data supplied by the United States Bureau of the Census. An asterisk indicates that no reapportionment act was passed.

	Per cent of citizen population and assembly seats in counties of the					
	First class		Second class		Third class	
Census	Population	Seats	Population	Seats	Population	Seats
*1960	17.0	29.3	3.5	4.0	79.5	66.7
1950	18.3	30.0	4.9	5.3	76.8	64.7
1940	18.9	30.0	4.9	5.3	76.2	64.7
*1930	17.2	28.0	9.3	10.7	73.5	61.3
*1925	19.8	28.0	9.9	10.7	70.3	61.3
1915	20.0	26.0	11.1	13.3	68.9	60.7
1905	24.2	27.3	9.1	10.7	66.7	62.0
1892	22.4	24.0	10.1	12.0	67.5	64.0

made commensurate with their population only by greatly increasing the number of assemblymen or by abolishing the guarantee of separate representation to each of the counties below the ratio.

Abolition of the three-class system would make relatively little difference, simply because there are so few second-class counties. The corollary of this is that the three-class scheme does not serve its intended purpose, because it has given relatively few extra seats to second-class counties. Consequently, the 1938 convention proposed a new threefold classification, which would have roughly doubled the number of second-class counties.[68] Similarly, F. Morse Hubbard, Research Counsel to the Joint Legislative Committee on Reapportionment, suggested giving one assemblyman to every county below the ratio, two to every other county, and distributing the remainder among the counties having more than two ratios of citizen population.[69] Application of the Hubbard plan to the 1960 census, for example, would mean thirty-three first-class, eleven second-class, and seventeen third-class counties. Like the 1879 formula

68. The 1938 proposal would have increased the assembly from 150 to 159 members, changed the basis of representation from citizen population to voters casting ballots at the last gubernatorial election, and divided the counties into three classes: (1) those casting less than 36,000 votes, (2) those casting from 36,000 to 72,000 votes, and (3) those casting over 72,000 votes. The plan provided that one member should be apportioned to each county in the first class, two members to all other counties, and the remaining members to counties in the third class. New York State Constitutional Convention of 1938, Doc. No. 16, at 10, 47-49 (1938). Since the ratio would be frozen at 36,000, the number of first-class counties (i.e., those below the ratio) would decline while the number of second and third-class counties would increase as the population (and, therefore, the number of voters) increased.

On basis of votes cast for Governor* in	Number of counties in		
	First class	Second class	Third class
1942	42	9	10
1950	40	9	12
1958	37	10	14

* Including blank, void, and scattering. The 1938 plan directed the legislature to reapportion at its first session following the 1946 elections and every twelve years thereafter. Thus, such reapportionments would have been based on the gubernatorial vote of 1946, 1958, 1970 and every subsequent twelfth year.

If the 1938 scheme had been applied to the 1950 gubernatorial vote, for example, New York City would have received two seats less and the remainder of the State eleven seats more than provided in the act of 1953. Similarly, application of the 1894 rules to the 1960 citizen-census figures gives New York City four more seats and the remainder of the State thirteen fewer seats than would be the case if the 1938 rules were applied to the 1958 gubernatorial vote.

69. N.Y. Leg. Doc. No. 31, pp. 58, 74-76 (1950). Hubbard suggested freezing the ratio at 80,000 citizen inhabitants. Therefore, as the State's population increased, the number of first-class counties could be expected to decline while the number of second and third-class counties would increase accordingly.

and the present three-class system, both the 1938 and the Hubbard plans were designed to increase the representation of such intermediate counties as Chautauqua, Rensselaer, Schenectady, and Ulster. While the 1938 plan would give this increased representation partially at the expense of New York and Kings and partially by enlarging the assembly to 159 members, the Hubbard plan would give increased representation to both the second and third-class counties by greatly enlarging the assembly.[70] Thus, the 1938 plan would make the assembly less representative while the Hubbard plan would make the assembly more representative of population than is now the case.

III. Apportioning the Remaining Seats

After one member has been assigned to each county having less than 1½ ratios and two members have been given to every other county, the next step is to distribute the remaining members among the counties having more than two ratios of citizen population. Under the 1960 census, for example, there will be seventy-two seats left to be distributed among the fourteen most populous counties. The constitution does not spell out a formula for apportioning these remaining seats. Section 5 of article III simply says:

> The remaining members of assembly shall be apportioned to the counties having more than two ratios according to the number of inhabitants, excluding aliens. Members apportioned on remainders shall be apportioned to the counties having the highest remainders in the order thereof respectively.

Although Charles Z. Lincoln said that this provision makes the legislature a " 'mechanical contrivance' " for the distribution of assemblymen and leaves little room for the exercise of legislative discretion,[71] there has been serious controversy about the apportionment of "remaining Members" to the most populous counties. In 1935, for example, no less than eight different formulae were suggested for distributing these remaining seats.[72] Nor is selection of a formula merely an academic

70. The Hubbard plan provided for an assembly that would be three times as large as the senate. The size of the senate would be determined by dividing the State's total citizen population by 220,000. N.Y. Leg. Doc. No. 31, p. 71 (1950). Therefore, the 1960 citizen-census figures would produce a senate of seventy-four and an assembly of 222 members. Application of the Hubbard plan to the 1960 census would give 14.9% of the assembly seats to the thirty-three first-class counties that have 9.3% of the State's citizen population, 7.7% to the eleven second-class counties with 9.9% of the State's citizen population, and 75.2% to the seventeen third-class counties having 83.0% of the State's citizen population. Thus, representation would be slightly more nearly commensurate with population than is now the case, not because of the revised three-class system but because of the increased number of assemblymen to be apportioned to the second and third-class counties.

71. 3 Lincoln, The Constitutional History of New York 218 (1906).

72. N.Y. Leg. Doc. No. 85, pp. 18-27 (1935).

matter. Use of one formula will give Kings nineteen seats at the next reapportionment, a second formula will give Kings only sixteen, but a third will give Kings twenty-one seats.[73] These formulae are concerned, of course, *only* with apportioning the seats that remain after one seat has been assigned to each county having less than 1½ ratios and two have been apportioned to all other counties. The original Brown plan as reported by the Committee on Legislative Organization, considered in the committee of the whole, and adopted by the convention expressly prescribed a method for apportioning these seats:

"First. One member of assembly shall be apportioned to every county (including Fulton and Hamilton) containing less than the ratio and one half over.

Second. Two members shall be appointed[*] to every county (including Fulton and Hamilton) contaening [sic] such ratio and one half over, but less than twice said ratio and one half over.

Third. The total population (excluding aliens) of the remaining counties of the state shall be divided by the number of remaining members of assembly, and the quotient shall be the ratio for the apportionment of said remaining members. *Members apportioned on less than the ratio* shall go to the counties having the highest remainders, in the order thereof respectively."[74]

Thus, the text adopted on September 7th provided for two different ratios—one to be used for apportioning seats to the first and second-class counties and another ratio to be used for apportioning seats to the third-class counties. On September 11, however, the convention adopted the Lincoln amendment:

"One Member of Assembly shall be apportioned to every county, including Fulton and Hamilton as one county, containing less than the ratio and one-half over; two members shall be apportioned to every other county; the remaining Members of Assembly shall be apportioned to counties having more than two ratios, according to the number of inhabitants, excluding aliens. *Members apportioned on remainders* shall go to the counties having the highest remainders in the order thereof respectively."[75]

It will be noted that the Lincoln amendment made four changes with respect to apportioning seats to second and third-class counties: (1) Counties having from 2 to 2½ ratios were moved from the second to the third class. (2) The original ratio was to be used for apportioning two members to third-class as well as to second-class counties. (3) The phrase "Members apportioned on less than the ratio" was changed to "Members apportioned on remainders." (4) The provision for a second ratio was deleted, and members were to be distributed among the most populous counties "according to the number of inhabitants, excluding

73. See Appendix A–1 infra.

74. 3 Lincoln, The Constitutional History of New York 214 (1906). (Emphasis added.) *So in the document; probably should be "apportioned" rather than "appointed."

75. 4 Revised Record of the Constitutional Convention of 1894 of the State of New York 357, 368, 375-76 (1900). (Emphasis added.)

aliens." In spite of this last change, Lincoln later said that his amendment merely modified the method of computing the second ratio:

[T]he aggregate citizen population above two ratios is to be divided by the number of members not apportioned in the first and second groups, *and the quotient will be a new ratio.* The third group is to be apportioned on this new ratio, distributing remainders according to the rule, and the number of members thus apportioned is to be augmented by the two already apportioned in the second group. This final number is to constitute the completed third group, leaving in the second group the counties having only two members. A county may have more than two full ratios; but the excess may not be large enough to entitle it to an additional member on the ratio for the third group. Such a county will, therefore, remain in the second group, though, for purposes of computation, its excess has been used in apportioning the third group.[76]

Lincoln went on to say that the new constitutional rules for assembly apportionment may be stated as follows:

Divide the aggregrate citizen population of the state by 150; the quotient will be the general ratio.

First. Apportion one member to each county (including Fulton and Hamilton as one) containing less than a ratio and a half. These will constitute the first group.

Second. Apportion two members to each county containing a ratio and a half, or more. These will constitute the second group until modified by the third group.

Third. Ascertain the aggregate citizen population above two full ratios, and divide this aggregate by the number of members not included in the first and second groups; *the quotient will be the ratio for the apportionment of such remaining members.* Apportion these members by this ratio to the counties having more than two original ratios, using the highest *final* remainders in the order thereof respectively. Add to the number of members apportioned to each county on the new ratio the two members primarily apportioned to such counties in the second group. The result will constitute the completed third group.[77]

Lincoln's quite dogmatic explanation of the procedure to be used for distributing the third group of seats at least implies that he thought use of a second ratio was mandatory despite the convention's adoption of his amendment. Similarly, Senator Elon R. Brown proceeded to advocate use of a second ratio much as though the convention had never amended his original proposal. Brown's only concession to the Lincoln amendment was a slight modification of his original formula for obtaining the second ratio. Although the constitution says that "the quotient obtained by dividing the whole number of inhabitants of the State, excluding aliens, by the number of members of assembly, shall be *the* ratio for apportionment . . . ,"[78] and although the convention specifically adopted an amendment that deleted provision for a second ratio,[79]

76. 3 Lincoln, The Constitutional History of New York 228-29 (1906). (Emphasis added.)

77. Id. at 229; 4 Lincoln, The Constitutional History of New York 351 (1906). (Emphasis added.)

78. N.Y. Const. art. III, § 5 (1894). 5 Revised Record of the Constitutional Convention of 1894 of the State of New York 743 (1900). (Emphasis added.)

79. By a vote of ninety to fifty. 4 Revised Record of the Constitutional Convention of 1894 of the State of New York 357, 368, 375-76 (1900).

the legislature employed the so-called Brown formula for reapportioning assemblymen in 1906.

The Brown Formula

The enumeration of 1905 showed a total citizen population of 7,062,988. This number divided by 150 yielded a constitutional ratio of 47,087. Thus, 1½ ratios equalled 70,631. One assemblyman was given to each of the forty-one counties (with Fulton and Hamilton combined) having less than 70,631 citizen inhabitants. Two assemblymen were assigned to each of the nineteen other counties. This left seventy-one "remaining Members" to be distributed among the eleven most populous counties. From the citizen population of each county having more than two ratios (94,174), two ratios were deducted. The results were added. This operation produced a sum of 3,675,222, which was then divided by seventy-one. The quotient of 51,764 was used as a second ratio for distributing the remaining seats. The second ratio was divided into the citizen population of each county less two first ratios, and a number of assemblymen equal to the resulting whole number was apportioned to such county. Erie's citizen population less two first ratios, for example, equaled 344,403, which was divided by 51,764. This process gave Erie six additional members and left a fractional surplus of 33,819. Such use of the second ratio resulted in the distribution of sixty-five seats. The six seats still remaining were then apportioned to the six counties that had the largest fractional surpluses.[80]

80. Statistics in the following table are based on 1905 census data published in N.Y. Leg. Doc. No. 59, pp. 32-33 (1942).

THE APPORTIONMENTS OF 1906 AND 1907

County	Total citizen population	Members apportioned on the constitutional ratio of 47,087	Members apportioned on second ratio of 51,764	Members apportioned on fractional surpluses	Total number of members
Kings	1,178,782	2	20	1	23
New York	1,800,292	2	32	1	35
Queens	179,746	2	1	1	4
Albany	163,983	2	1	—	3
Erie	438,577	2	6	1	9
Monroe	225,609	2	2	1	5
Oneida	131,393	2	—	1	3
Onondaga	169,732	2	1	—	3
Orange	101,644	2	—	—	2
Rensselaer	118,732	2	—	—	2
Westchester	202,650	2	2	—	4
Totals	4,711,140	22	65	6	93

The apportionment produced by the Brown formula was incorporated in the act of 1906.[81] Of the various other formulae suggested, none would have produced precisely the same distribution of seats—some would have given more members to New York City while others would have given even fewer members to it.[82] After the act of 1906 was declared unconstitutional on grounds having nothing to do with assembly apportionment,[83] the legislature again employed the Brown formula. Since the same formula and the same census statistics were used, the new law[84] distributed assemblymen precisely as they had been distributed by the act of 1906. While defending the act of 1907 and his formula before the court of appeals in *In re Reynolds*,[85] Senator Elon R. Brown admitted that the constitution did not require use of his formula:

"There is nothing in the words of the Constitution—'shall be apportioned to the counties having more than two ratios according to the number of inhabitants' which lays down any certain mathematical rule of computation. It is rather a direction to apply the most equitable mathematical computation, whatever rule may be developed."[86]

Although use of the Brown formula may not be mandatory, there remained the question of whether the constitution permits the use of this or of any other second-ratio method. The court disposed of the *Reynolds* case on other grounds and, consequently, did not pass on the constitutionality of any formula for apportioning assemblymen.[87]

Following the census of 1915, a majority of the Special Committee on Apportionment assumed that all remaining members should be apportioned *on a new ratio* to counties having more than two first ratios. The question simply was which of two second-ratio methods should be used—the Brown formula or the method employed by the convention in 1894? The committee pointed out that the apportionment of 1894 had been made according to the procedure in Brown's original proposal and was never revised to conform to the Lincoln amendment. Use of the convention's method rather than the Brown formula in 1916 would have meant the apportionment of an extra seat to New York and Kings rather than to Oneida and Westchester. After deciding that adoption of the Lincoln amendment precluded use of the convention's

81. N.Y. Sess. Laws 1906, ch. 431, § 2.

82. See Appendix A—7 infra.

83. In re Sherrill, 188 N.Y. 185, 81 N.E. 124 (1907). See Silva, Apportionment of the New York Senate, 30 Fordham L. Rev. 595, 617 n.194 (1962).

84. N.Y. Sess. Laws 1907, ch. 727, § 2.

85. 202 N.Y. 430, 96 N.E. 87 (1911).

86. Quoted from 7 New York State Constitutional Convention Committee, Problems Relating to Legislative Organization and Powers 166 (1938).

87. 202 N.Y. 430, 96 N.E. 87 (1911). See Silva, Apportionment of the New York Senate, 30 Fordham L. Rev. 595, 617 n.195 (1962).

method, the committee recommended use of Senator Brown's formula.[88] Although serious questions were raised about the formula's constitutionality,[89] the act of 1916 incorporated the apportionment produced by the senate majority leader's formula.[90]

The act of 1916 was declared unconstitutional in *In re Dowling*,[91] but Judge Emory A. Chase said: "We approve of the rule adopted by the legislature and which has been recognized and adhered to by it since the Constitution of 1894 in allotting the number of assemblymen to the several counties of the state."[92] Two facts should be noted about this judicial approval of the Brown formula. First, since the case was decided on other grounds, Chase's approval of this formula was mere dictum.[93]. Second, Chase did not say that Brown's formula was the only acceptable one. Ten years earlier, he had distinguished between mandatory and discretionary provisions of the constitution relating to *senatorial* apportionment and said that "this court cannot inquire into . . . the relative merits of several plans to choose from which requires the exercise of sound judgment and judicial [legislative?] discretion."[94] Chase's two statements taken together would seem to mean that he believed that the legislature has discretion in selecting a formula, and, therefore, he approved the Brown formula simply because the legislature had used it. In any event, Chase's approval of this formula would not seem to imply judicial disapproval of all other formulae.

In 1917, Senator Brown was still the majority leader in the senate, and his formula was employed again. Since the same formula and the same census returns were used, the act of 1917 apportioned assemblymen precisely as they had been apportioned by the act of 1916.[95] After the enumeration of 1925, the Brown formula was used to draft three bills, all of which were vetoed because the proposed senatorial districts

88. N.Y. Sen. Doc. No. 46 (1916); Csontos, History of Legislative Apportionment in New York State 192-195 (ms. in N.Y. State Library, 1941). The convention of 1894 apportioned thirty-five seats to New York and four to Monroe. 5 Revised Record of the Constitutional Convention of 1894 of the State of New York 744 (1900). Use of the Brown formula, on the other hand, would have resulted in apportioning five seats to Monroe and only thirty-four to New York. Use of the Brown formula rather than the convention's method in 1906 and 1907 again gave Monroe an extra seat at New York County's expense. See Appendix A-8 infra.

89. Minority Report, N.Y. Sen. Doc. No. 51, pp. 2-6 (1916).

90. N.Y. Sess. Laws 1916, ch. 373, art. 8, § 121.

91. 219 N.Y. 44, 113 N.E. 545 (1916).

92. Id. at 59, 113 N.E. at 549.

93. See Silva, Apportionment of the New York Senate, 30 Fordham L. Rev. 595, 619 n.204 (1962).

94. In re Sherrill, 188 N.Y. 185, 198, 81 N.E. 124, 127 (1907).

95. N.Y. Sess. Laws 1917, ch. 798, art. 8, § 121.

allegedly were gerrymandered.[96] Thus, the act of 1917 was still operative when a Democratic majority organized the legislature in 1935.

At that time, the Democrats took the position that the Brown formula was "the Republican formula" and operated unfairly against New York City. Although they took this position and argued that the legislature has discretion in selecting a formula, they adopted the Brown formula and said that they did so in order to minimize partisan differences, facilitate passage of the bill, and because they thought the court of appeals was more likely to approve it rather than some other formula.[97] In a radio address, Governor Herbert H. Lehman said: "I refused to sponsor the method which would have given seventy-one Assemblymen to the City of New York [Cullen formula] and insisted that the Republican [Brown] formula, which gives sixty-five Assemblymen, be adopted. This is the formula under which every apportionment in recent generations has been made."[98] Despite, or perhaps because of, this "compromise," the bill was defeated in the legislature.

Seven years later, William F. Bleakley, Counsel to the Joint Legislative Committee on Reapportionment, said without further discussion: "I have adopted the formula that has been used in past apportionments. This formula is known as the 'Brown' formula. The formula has had judicial approval in the *Matter of Dowling*. . . ."[99] After quoting Chase's dictum, Bleakley then recommended an apportionment that resulted from applying the Brown formula to the 1940 census returns. And, once again, the legislature passed a reapportionment act that was based on the Brown formula.[100] In upholding the constitutionality of this law, Judge Edmund H. Lewis said:

> We have considered also the criticism directed by one of the petitioners to the reapportionment of members of the Assembly—approved at Special Term—and all other matters to which the briefs of counsel direct our attention. Our conclusion is that the reapportionment act of 1943 is in accord with the Constitution.[101]

Thus, the court of appeals tacitly ruled that use of the Brown formula is constitutional. It should be pointed out, however, that Judge Lewis gave no reasons and cited no precedent for this ruling. His failure to

96. See Silva, Apportionment of the New York Senate, 30 Fordham L. Rev. 595, 624 n.227 (1962).

97. New York State Legislature, Executive Session of the Joint Legislative Committee on Reapportionment, March 13, 1935, pp. 19-24 (mimeographed); N.Y. Leg. Doc. No. 85 (1935); 7 New York State Constitutional Convention Committee, Problems Relating to Legislative Organization and Powers 167 (1938).

98. Radio Address by Governor Lehman, April 7, 1935; see also Csontos, History of Legislative Apportionment in New York State 105 (ms. in N.Y. State Library, 1941).

99. N.Y. Leg. Doc. No. 57, p. 19 (1942).

100. N.Y. Sess. Laws 1943, ch. 359, art. 8, § 123.

101. In re Fay, 291 N.Y. 198, 218, 52 N.E.2d 97, 104 (1943).

cite the *Dowling* case at least implies that he thought Chase's approval of the Brown formula was mere dictum. Furthermore, Lewis did not say that the constitution precluded the legislature's selecting a different formula. The court simply upheld the act of 1943 and, thereby, also held the Brown formula to be constitutional since the act of 1943 was based on this formula.

Following the census of 1950, the Joint Legislative Committee on Reapportionment told the Legislature:

> The Constitution does not prescribe the precise formula to be used in apportioning these additional members of Assembly. Several formulae for this apportionment have been suggested. Only one, the Brown Formula, has ever been used. This formula was employed by the Constitution of 1894 and in each valid reapportionment made thereafter. Its use was approved by the Court of Appeals in *Matter of Dowling* and *Matter of Fay*. . . . The committee has followed that formula [in drafting the 1953 bill].[102]

The fact of the matter is, of course, that the Brown formula was not "employed by the Constitution of 1894."[103] Nor should it be implied that the two invalid reapportionments—1906 and 1916—were based on any other formula. In any event, the act of 1953 incorporated the reapportionment produced by the committee's use of the Brown formula.[104] Thus, every reapportionment bill passed by the legislature since 1894 has been based on this formula despite the 1894 convention's adoption of a substitute for Senator Brown's second-ratio method.

The Tuttle Formula

A somewhat different second-ratio method was advocated by Messrs. Charles H. Tuttle, Julien T. Davies, Charles A. Collin, and Frank K. Johnston in the *Reynolds* case.[105] The so-called Tuttle formula was the method used for the apportionment of 1894 except that, in conformity with the Lincoln amendment, it uses 2 rather than 2½ ratios to divide the second-class from the third-class counties. That is, this formula does not apportion two assemblymen to the third-class counties before the second ratio is computed. Like the 1879 and 1894 formulae, the Tuttle formula requires computation of the second ratio on the basis of the total citizen population in all counties entitled to "remaining Members." The Tuttle rules for assembly apportionment may be illustrated in terms of the 1960 census.

Divide the State's total citizen population by 150, and the quotient will be the constitutional ratio used for apportioning seats to first and second-class counties. The 1960 census shows a total citizen population of 16,240,786, which yields a ratio of 108,272.

102. N.Y. Leg. Doc. No. 98, p. 11 (1953).
103. See note 88 supra.
104. N.Y. Sess. Laws 1953, ch. 893, art. 8, § 123.
105. 202 N.Y. 430, 96 N.E. 87 (1911).

First, apportion one seat to all counties having less than 1½ ratios. On the basis of the 1960 census, this would result in assigning forty-four seats to the forty-four counties (with Fulton and Hamilton combined) that had less than 162,408 citizen inhabitants.

Second, apportion two seats to every county that has from 1½ to 2 ratios but not to counties having more than two ratios. According to the 1960 census, this would mean allotting six seats to the three counties having from 162,408 to 216,544 citizen inhabitants.

Third, distribute the remaining seats among the remaining counties on the basis of a second ratio, which is computed by dividing the total citizen population of these most populous counties by the number of seats yet to be apportioned. On the basis of the 1960 census, 100 seats would remain to be distributed among the fourteen counties having more than 216,544 citizen inhabitants. These counties have a total citizen population of 12,918,265. This number divided by 100 produces a ratio of 129,183. This new ratio is then used as a divisor of the citizen population of each county, and the resulting whole number is the number of assemblymen to which such county is entitled.[106] In 1960, for example, Nassau County had a citizen population of 1,275,801. This number divided by 129,183 equals 9.88 Tuttle ratios. Therefore, Nassau would be entitled to nine seats on the basis of full second ratios and a tenth seat on the basis of its fractional surplus. In the fourteen counties, ninety-five seats would be apportioned on the basis of full ratios, and the five remaining seats would be apportioned to the five counties having the largest fractions.[107]

106. N.Y. Leg. Doc. No. 85, pp. 22, 25-26 (1935).

107. The following apportionment using the Tuttle formula is based on the 1960 citizen-census figures supplied by the United States Bureau of the Census.

County	Total citizen population	Number of Tuttle ratios	Total assemblymen with fractions
Albany	269,088	2.08	2
Bronx	1,368,207	10.59	11
Erie	1,039,648	8.05	8
Kings	2,518,510	19.50	20
Monroe	571,029	4.42	4
Nassau	1,275,801	9.88	10
New York	1,584,069	12.26	12
Niagara	235,677	1.82	2
Oneida	259,330	2.01	2
Onondaga	414,770	3.21	3
Queens	1,733,081	13.42	13
Richmond	216,764	1.68	2
Suffolk	650,112	5.03	5
Westchester	782,179	6.05	6
Totals	12,918,265	95+5	100

Because the constitution guarantees two assemblymen to every county having at least 1½ first ratios, any county having less than two full Tuttle ratios must be assigned two seats before any seats can be apportioned on remainders. One may object that the Tuttle formula is unconstitutional because it fails to apportion two members to the most populous counties before the second ratio is computed. This formula would seem to be quite as constitutional as the Brown formula is, however, if no members are apportioned on remainders until after two seats have been apportioned to counties (such as Oneida in 1950) that have less than two full Tuttle ratios.

The McQuade Formula

A third method involving the use of a second ratio is the so-called McQuade formula, which has been advocated by various students of the constitution, including Patrick H. McQuade of Albany County. Like the Brown formula and in conformity with the Lincoln amendment, McQuade's method uses the constitutional ratio to apportion one seat to each county that has less than 1½ ratios and two seats to *all other* counties before determining the "remaining Members" to be distributed among the most populous counties. The McQuade formula requires these remaining seats to be allotted on the basis of a second ratio, which is established by dividing the total citizen population of the third-class counties by the number of seats yet to be apportioned.[108] Thus, like the Tuttle and 1894 formulae but unlike the Brown formula, the McQuade method does not involve the subtraction of two ratios before adding the citizen population of the third-class counties.

Under the 1960 census, for example, there would be seventy-two "remaining Members" to be distributed among fourteen counties having a total citizen population of 12,918,265. Dividing this number by seventy-two yields a second ratio of 179,420, which would then be used as a divisor of the citizen population of each of the fourteen counties concerned. Albany, for example, has 269,088 citizen inhabitants. This number divided by 179,420 produces a quotient of 1.5. Thus, Albany would be apportioned one assemblyman on the second ratio, one on the fractional surplus, and two on the constitutional ratio, making a total of four. In the fourteen counties, sixty-six would be apportioned on second ratios and six on remainders.[109] It will be noticed that the McQuade formula makes it impossible for the smallest third-class county

108. N.Y. Leg. Doc. No. 85, p. 26 (1935).

109. The following apportionment using the McQuade formula is based on the 1960 citizen-census figures supplied by the United States Bureau of the Census.

to receive less than three seats, however small the remainder over two first ratios may be. Indeed, it is almost impossible for such a county to receive less than four seats. This is true because every third-class county is given two seats without subtracting two first ratios from its citizen population. Consequently, this formula favors the least populous third-class counties at the expense of the most populous ones.[110]

The Cullen Formula

The so-called Cullen formula was urged by former Chief Judge Edgar M. Cullen in the *Dowling* case[111] and is the method which the Democratic Party has repeatedly supported as the only constitutional method. In 1916, for example, Senators Robert F. Wagner and Thomas H. Cullen argued that the quotient obtained by dividing the State's citizen population by 150 is "*the* ratio for apportionment" and the only ratio known to the constitution. According to the Wagner-Cullen argument, the constitution prescribes three steps in apportioning assemblymen: (1) assigning one member to each first-class county; (2) assigning two members to all other counties; and (3) apportioning the "remaining Members" among the most populous counties on the basis of "the highest remainders in the order thereof." Advocates of this method argue that adoption of the Lincoln amendment precludes use of

109. (*Cont'd*)

County	Total citizen population	Members apportioned on the constitutional ratio	Number of McQuade ratios	Total members with fractions
Albany	269,088	2	1.80	4
Bronx	1,368,207	2	7.63	10
Erie	1,039,648	2	5.79	8
Kings	2,518,510	2	14.04	16
Monroe	571,029	2	3.18	5
Nassau	1,275,801	2	7.11	9
New York	1,584,069	2	8.83	11
Niagara	235,677	2	1.31	3
Oneida	259,330	2	1.45	3
Onondaga	414,770	2	2.31	4
Queens	1,733,081	2	9.66	12
Richmond	216,764	2	1.21	3
Suffolk	650,112	2	3.62	6
Westchester	782,179	2	4.36	6
Totals	12,918,265	28	66+6	100

110. See Appendices A-1 to -8 and B-1 to -8 infra.

111. 219 N.Y. 44, 113 N.E. 545 (1916).

a second ratio and changes the meaning of "remainders."[112] The original Brown plan used a second ratio for apportioning "remaining Members" and provided that any members not apportioned on the basis of the first or second ratio should be assigned to the counties with the "highest remainders." Members apportioned on the basis of remainders were also described as " 'Members apportioned on less than the ratio.' "[113] Supporters of the Cullen formula argue that, under the Lincoln amendment, "remainders" are the citizen population in the third-class counties left over after deducting two ratios for the two members apportioned to each such county in the second step. They contend, therefore, that all "remaining Members" are to be apportioned in the order of the highest remainders.[114]

Because the number of assemblymen is frozen at 150 and because the number of counties below the ratio has increased, the number of ratios of citizen population in the third-class counties has become increasingly greater than the number of assemblymen to be apportioned to these counties. According to the 1892 census, for example, there were ninety-six seats to apportion to the third-class counties, and these counties had only ninety-six full ratios of citizen population—or 101.29 ratios if fractions be included.[115] By 1960, however, the third-class counties had 114 full ratios—or 119.31 ratios if fractions are included—but only 100 seats can be apportioned to these counties.[116] Therefore, it is arithmetically impossible to use the constitutional ratio as a divisor of the citizen population of each third-class county without having the sum of the quotients exceed the number of seats to be apportioned. There simply are not enough seats to go around. Consequently, the Cullen formula employs the simple process of subtracting one ratio for every assemblyman apportioned. The Cullen procedure may be stated as follows:

> Allot assemblymen to the county having the highest remainder, subtracting one ratio for each allotted assemblyman from the remainder of that county's citizen population until such remainder is less than the remainder in any other county; then allot assemblymen to such other county until its remainder in turn is less than that of any other county, and continue this process until [all assemblymen have] been allotted.[117]

On the basis of the 1960 census, for example, forty-four assemblymen would be apportioned to the forty-four counties (with Fulton and

112. Minority Report, N.Y. Sen. Doc. No. 51, pp. 2-3 (1916).
113. 3 Lincoln, The Constitutional History of New York 214 (1906).
114. Minority Report, N.Y. Sen. Doc. No. 51, pp. 5-6 (1916).
115. See Appendix A-8 infra.
116. See Appendix A-1 infra.
117. Minority Report, N.Y. Sen. Doc. No. 51, p. 3 (1916).

Hamilton combined) having less than 1½ ratios and thirty-four would be apportioned to the seventeen other counties. This would leave seventy-two assemblymen to be distributed among the fourteen most populous counties. After subtracting two ratios from the citizen population of each of these counties, Kings would have the largest remainder. Therefore, Kings would be apportioned the first remaining member and one ratio would be deducted from Kings' remainder. This process would be repeated until Kings' remainder was less than some other county's remainder. Therefore, the first eight of these seventy-two seats would be apportioned to Kings, leaving Kings with a remainder of 1,435,790. Queens County's citizen population less two ratios would be 1,516,537. Therefore, the ninth seat would be allotted to Queens, and one ratio would be deducted, leaving Queens with a remainder of 1,408,265. Since Kings would have a larger remainder (1,435,790), the tenth seat would be assigned to Kings. This process would be continued until the seventy-second seat had been apportioned to Monroe County.[118] It will be seen that the Cullen formula allows no county to receive a seat on a remainder so long as there is another county having a larger remainder. In practice, this would mean that *all* remaining members would have to be apportioned on the basis of full ratios, and smaller third-class counties would have no chance of receiving extra seats on the basis of fractional surpluses.

The Four Formulae

The Cullen formula is essentially the 1826 formula adapted to the present distribution of population. The constitutional ratio could be used as a divisor of each county's population as long as the sum of the whole-number quotients did not exceed the number of seats to be apportioned. But, as the number of counties falling below the ratio increased, the greater the unrepresented remainders in the third-class counties became. Consequently, arithmetic necessity required the substitution of subtraction for division. Once this happened, the constitutional ratio would no longer distribute assemblymen among the third-class counties according to citizen population, because it allows the first and second-class counties to receive their constitutionally guaranteed over-representation almost wholly at the expense of the less populous third-class counties. If the aim be to equalize the number of citizen

118. The above apportionment using the Cullen formula is based on the 1960 citizen-census figures supplied by the United States Bureau of the Census. For a complete and detailed apportionment resulting from application of the Cullen formula to the 1915 citizen-census figures, see N.Y. Sen. Doc. No. 51, pp. 4-5 (1916). For a complete and detailed apportionment resulting from application of the Cullen formula to the 1930 citizen-census figures, see 7 New York State Constitutional Convention Committee, Problems Relating to Legislative Organization and Powers 170-71 (1938).

inhabitants per assemblyman in all of the third-class counties, the Cullen formula has been arithmetically indefensible since the census of 1905, and use of this formula would have produced increasingly inequitable apportionments.

The McQuade formula would always produce inequitable apportionments, not only because it gives the first and second-class counties their constitutionally guaranteed over-representation wholly at the expense of the most populous third-class counties but also because it gives each of the less populous third-class counties two seats without deducting two ratios of citizen population for these two seats. Consequently, even the smallest third-class county can use its entire citizen population to gain a third, and usually a fourth, seat. Thus, if the number of citizen inhabitants per seat in the third-class counties be the measure of equity, the McQuade formula never was and never will be arithmetically defensible.

An inspection of Appendix A shows that the Cullen formula consistently favors the more populous third-class counties while the McQuade formula consistently favors the less populous third-class counties. Compared to these two formulae, the Tuttle and Brown formulae are relatively neutral with respect to favoring one group of third-class counties over another. But Appendix A also shows that the Tuttle formula tends to favor the smaller third-class counties less than the Brown formula does. This is true because a Tuttle ratio is always smaller than a Brown ratio.[119] The smaller the ratio used to apportion "remaining Members," the more seats the largest counties will receive on the basis of full ratios and the less chance the smaller third-class counties will have of receiving seats on the basis of fractional surpluses or "remainders."[120]

119. Statistics in the following table are based on data published in N.Y. Leg. Doc. No. 59, pp. 32-33 (1942); N.Y. Leg. Doc. No. 98, p. 14 (1953); and 1960 citizen-census data supplied by the United States Bureau of the Census.

Census	Constitutional (Cullen) ratio	Tuttle ratio	Brown ratio	McQuade ratio
1960	108,272	129,183	137,315	179,420
1950	94,690	112,477	118,324	149,455
1940	82,676	97,366	102,196	129,377
1930	73,937	88,606	93,216	116,453
1925	64,452	73,884	76,852	97,104
1915	53,730	60,998	63,601	82,848
1905	47,087	50,657	51,764	66,354
1892	38,606	40,733	41,609	57,505

120. As the size of the dividend used to find the ratio declines or as the size of the divisor

Whether the Tuttle or the Brown formula will produce the more equitable apportionment depends largely, but not wholly, on the distribution of population among the third-class counties. On the basis of the 1892 and 1905 enumerations, the two formulae would have produced almost the same distribution of seats in the third-class counties.[121] Under the enumerations of 1915, 1925, and 1960, the Brown formula would have distributed "remaining Members" among the third-class counties more equitably in terms of citizen inhabitants per assemblymen.[122] From 1930 to 1950, however, the Tuttle formula would have come closer to achieving this objective than the Brown formula did.[123] Given an unknown distribution of population, it is impossible to prove whether the Brown or Tuttle formula would produce the more equitable apportionment, because neither is based on sound mathematical principles. A mathematically ideal method of apportionment would produce an equitable apportionment for every conceivable distribution of population.[124] Since the constitutional formula for apportionment presumably should be one that will produce future apportionments with equity and since no one can predict precisely how New York's population will be distributed among the several counties in the future, it is suggested that the formula should be one which will produce the most equitable apportionment on the basis of any conceivable census returns in the years to come.

The Willcox Formulae

In 1825, New York's total representative population was 1,531,648, and the size of the assembly was set at 128 members. Therefore, there should have been one member for every 11,966 representative inhabitants, and the apportionment to each county should theoretically have been that county's representative population divided by 11,966. But no county had nor was likely to have a representative population equal to an exact multiple of 11,966. Therefore, forty-seven fractions of

used to find the ratio increases, the ratio decreases. When this smaller ratio is used as the divisor of each county's representative population, the quotients for the more populous counties will increase faster than those for the less populous counties. In the literature on the mathematics of apportionment, this is generally known as the "Alabama paradox." After the census of 1880, when the national House of Representatives was increased from 299 to 300 members, the remainders for Illinois and Texas passed Alabama's remainder so that Alabama would have had one less seat in a house of 300 members than in a house of 299 members. Willcox, Last Words on the Apportionment Problem, 17 Law & Contemp. Prob. 290, 292 (1952).

121. See Appendices B-8 and B-7 infra.

122. See Appendices B-6, B-5, and B-1 infra.

123. See Appendices B-2, B-3, and B-4 infra.

124. For a discussion of the mathematical fallacies in ratio-type methods of apportionment see Schmeckebier, Congressional Apportionment 73-85 (1941).

various sizes remained, and it is the determination of the weight given to such fractions that presents the problem of an equitable apportionment. If all fractions had been disregarded, only 108 assemblymen would have been apportioned.[125] Moreover, this *method of rejected fractions* would have favored the most populous counties, because a less populous county's unrepresented fraction constitutes a large proportion of such small county's total population.[126] If an assemblyman had been given to a county for any fraction however small, 155 rather than 128 assemblymen would have been apportioned.[127] Moreover, this *method of included fractions* would have favored the small counties, because it gives a second seat, and thereby doubles representation, for any fraction however small. Similarly, it gives a third seat, and thereby increases representation by fifty per cent, for any fraction. But giving a twenty-first seat to a county already entitled to twenty only increases that county's representation by five per cent.

Therefore, the problem is not only how to apportion just the right number of seats when the total number is fixed,[128] but also how to equalize the relative representation of the more populous and the less populous counties. A method like the Cullen formula, which is derived from the principle of "rejected fractions" apportions the most possible assemblymen to the larger counties at the expense of the smaller third-class counties. And this inequity increases as the number of counties below the ratio multiplies. A method like the McQuade formula, which is a grossly distorted form of "included fractions," will give the most seats possible to the less populous third-class counties wholly at the expense of the more populous counties. If the aim is to hold a balance between the more populous and the less populous third-class counties and to equalize the number of inhabitants per assemblyman in these

125. The ratio (R) = State's total representative population divided by total number of assemblymen (X). Seats apportioned to each county (a) = each county's representative population divided by R; and, if fractions are dropped, $\Sigma a < X$ (Sum of a is less than X.) The 1938 convention's proposal would have produced a similar situation. For citizen inhabitants, this proposal would have substituted votes cast at the last gubernatorial election. It would also have written the Brown formula into the constitution but provided that no county could have ten or more members unless such county had a full ratio for each member. See note 68 supra. If the 1938 formula had been applied to the 1942 gubernatorial election returns, for example, seven members should have been apportioned on fractional remainders, but the ten-or-more rule made only six counties eligible. Therefore, only 158 rather than 159 assemblymen could have been apportioned.

126. Willcox, Last Words on the Apportionment Problem, 17 Law & Contemp. Prob. 290, 291 (1952). Although Root apparently did not understand the mathematics involved, he correctly made this point in the 1894 convention. 3 Revised Record of the Constitutional Convention of 1894 of the State of New York 1229 (1900).

127. $\Sigma a > X$ (Sum of a is greater than X.) See note 125 supra.

128. $\Sigma a = X$ (Sum of a equals X.)

third-class counties, both extreme methods should be rejected in favor of an intermediate method. That is why the Brown and Tuttle formulae produce more equitable apportionments.

If the number of assemblymen is frozen at 128 or at 150 or at any number, however, apportioning seats on the basis of a ratio simply is not sound mathematically.[129] This is especially true when a significant number of counties falls below the ratio. All modern and mathematically defensible methods for apportioning "remaining Members" do so according to a system of priorities. Since the present constitution requires one member to be assigned to each county below 1½ ratios and two members to be assigned to every other county, seventy-eight first and second seats would be assigned under the 1960 citizen census. Therefore, a priority list would start with the seventy-ninth member or the third member for some third-class county. Each county would have a priority number of its third member, one for its fourth member, and so on. After computing these priority numbers, they are arranged in descending order.[130]

129. Schmeckebier, Congressional Apportionment 73-81 (1941).

130. Section of a priority list for method of major fractions based on citizen-census of 1960:

Total number of assemblymen apportioned to all counties	Priority number	County	Cumulative total of assemblymen for each county
79	1,007,404	Kings	3
80	719,574	Kings	4
81	693,232	Queens	3
82	633,628	New York	3
83	559,669	Kings	5
84	547,283	Bronx	3
85	510,320	Nassau	3
89	415,859	Erie	3
97	312,872	Westchester	3
105	260,045	Suffolk	3
112	228,412	Monroe	3
130	165,908	Onondaga	3
145	138,620	Erie	8
146	137,745	New York	12
147	136,136	Kings	19
148	134,295	Nassau	10
149	130,305	Bronx	11
150	129,154	Kings	20
151	128,376	Queens	14
152	126,895	Monroe	5

It will be noted that the first number in the table in footnote 130 is seventy-nine, because seventy-eight assemblymen have already been assigned by the constitutional mandate concerning 1½ ratios. It will also be noted that the first number in the last column is three, because each third-class county has already been assigned two members in conformity with the 1½ ratio rule. The priority numbers in the second column may be computed in one of several ways, each of which is designed to give the next seat to the most under-represented third-class county—that is, to apportion the seventy-ninth and every successive seat "according to the number of inhabitants, excluding aliens." In 1935, when Professor Walter F. Willcox of Cornell University suggested four methods, at least two of which were mathematically sound, for computing these priority numbers, the Counsel to the Joint Legislative Committee on Reapportionment, William J. O'Shea, concluded that these methods "appear to be more suited for use under the Federal Constitution than under our New York Constitution."[131] This conclusion simply was a *non sequitur*, because each of Willcox' formulae is based on universal mathematical principles and is not tied to any particular constitution or set of census returns. In fact, at least two of the Willcox formulae are well "suited for use under our New York Constitution" since they would come closer than the Brown or Cullen or Tuttle formula to apportioning "remaining Members . . . according to the number of inhabitants, excluding aliens."

There are two mathematical measures of apportioning members according to the number of inhabitants, excluding aliens: (1) The average citizen population per assemblyman, which results from dividing a county's citizen population by the number of its assemblymen (A/a). According to the 1960 census, for example, Albany has 269,088 citizen inhabitants and will be given two assemblymen at the next reapportionment. Therefore, Albany will have 134,544 citizen inhabitants per assemblyman. (2) The individual citizen's share in one assemblyman, which is obtained by dividing his county's number of assemblymen by his county's citizen population (a/A). Since $2 \div 269{,}088 = .000{,}007{,}4$, an individual citizen of Albany will have .000,007,4 share in one assemblyman.[132] When the total number of assemblymen is fixed, an apportionment is mathematically satisfactory (1) if the discrepancy between the number of citizen inhabitants per assemblyman in *any two* counties—A/a and B/b—and (2) if one citizen's share of an assemblyman in *any two* counties—a/A and b/B—can not be reduced by

131. N.Y. Leg. Doc. No. 85, p. 27 (1935).

132. Schmeckebier, The Method of Equal Proportions, 17 Law & Contemp. Prob. 302 (1952).

apportioning one more assemblyman to County A and one less assemblyman to County B or vice versa.[133]

Major fractions was the first method suggested by Professor Willcox for apportioning "remaining Members . . . according to the number of inhabitants, excluding aliens." According to this method, the priority list is computed by dividing each third-class county's citizen population by the *arithmetic* mean (or average) between succeeding assemblymen. Since each third-class county already has been assigned two assemblymen, its priority for a third would be computed by dividing its citizen population by 2½. For each succeeding priority number, the divisor is increased by one. Thus, each county's priority for a fourth seat is determined by dividing that county's citizen population by 3½. The divisor used for determining priorities for the fifth seat is 4½, for the twenty-fifth seat is 24½, and so forth.[134] This method best minimizes the *absolute* differences in one citizen's share of an assemblyman in the several counties.[135]

Equal proportions, the second so-called Willcox formula, computes the priority numbers by dividing each county's citizen population by the *geometric* mean between succeeding assemblymen.[136] That is, County A is entitled to another member when its citizen population divided by the geometric mean of its present assignment of assemblymen and its next higher assignment exceeds any other county's citizen population divided by the geometric mean of such other county's present assignment and its next higher assignment. This method best minimizes the *relative* difference between any two counties' representation when measured in terms of citizen population per member and also in terms of the individual citizen's share in an assemblyman.[137]

The method of the harmonic mean is the third so-called Willcox formula. A harmonic mean priority list is prepared by dividing each county's citizen population by the harmonic mean of its next higher

133. Report of a committee of the National Academy of Sciences quoted by Schmeckebier, Congressional Apportionment 70 (1941).

134. Id. at 13-21. Priority (P) $= \frac{\text{county's citizen population (A)}}{\text{county's present assignment} + ½}$. Therefore, P3 $=$ A $\div$ 2½, P4 $=$ A $\div$ 3½, and so forth. See Appendix E infra.

135. Schmeckebier, Congressional Apportionment 59 (1941).

136. Id. at 21-33. The geometric mean (m) of any two numbers—a and b—is the square root of their product. $m = \sqrt{ab}$. Therefore, the priority number (P) would be the county's citizen population (A) divided by the geometric mean of its present assignment (a) and its next assignment (b). $P = \frac{A}{\sqrt{ab}}$, $P3 = \frac{A}{\sqrt{2 \times 3}}$, and $P4 = \frac{A}{\sqrt{3 \times 4}}$, and so forth. See Appendix E infra.

137. Schmeckebier, The Method of Equal Proportions, 17 Law & Contemp. Prob. 302, 304-05 (1952). For the algebraic proof of this proposition see Schmeckebier, supra at 305-08.

assignment of members and its present assignment. Therefore, a county's priority for a third assemblyman would be computed by dividing its citizen population by the harmonic mean of 2 and 3. Similarly, its priority for a fourth seat would be established by dividing its citizen population by the harmonic mean of 3 and 4. This method does the best job of minimizing the *absolute* differences in the number of citizen inhabitants per assemblyman.[138]

The method of greatest divisors is the fourth and last formula, which Professor Willcox suggested to the Joint Legislative Committee on Reapportionment in 1935. According to this formula, the priority numbers are determined by dividing each county's citizen population by successive numbers of assemblymen plus one. Thus, each county's priority for a third assemblyman would be established by dividing its citizen population by its present number of assemblymen (2) + 1. Four would be the divisor used to determine priorities for a fourth assemblyman, five would be the divisor for establishing priorities for a fifth, and so forth.[139] This method is designed to minimize the *absolute* difference (or range) between the number of citizen inhabitants per assemblyman in the least under-represented and the most under-represented third-class county.[140]

The method of smallest divisors is a fifth modern method of apportionment, which determines priority numbers by dividing each county's citizen population by successive numbers of assemblymen minus one. Thus, each county's priority for a third seat would be computed by dividing its citizen population by the number of the next seat (3) to be apportioned to such county less one. Therefore, two would be the divisor used to determine priorities for a third assemblyman,

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138. Schmeckebier, Congressional Apportionment 33-40, 60 (1941). The harmonic mean of any two numbers—a and b—is twice their product divided by their sum. Thus, the harmonic mean of 2 and 3 $= H = \frac{2(2 \times 3)}{2+3} = \frac{12}{5} = 2.4$. Therefore, each county's priority for a third seat (P3) = county's citizen population divided by 2.4. This may be expressed algebraically, $P = \frac{A}{\left(\frac{2ab}{a+b}\right)}$. Therefore, each county's priority for a fourth seat (P4) would be its citizen population divided by $\frac{2(3 \times 4)}{3+4} = \frac{A}{\left(\frac{24}{7}\right)} = \frac{A}{3.428,571,43}$. See Appendix E infra.

139. Id. at 49-58. $P = \frac{\text{county's citizen population (A)}}{\text{county's next assignment (b)}} = \frac{A}{b}$ so that $P3 = \frac{A}{3}$, and so forth. See Appendix E infra.

140. Schmeckebier, Congressional Apportionment 82 (1941).

three would be the divisor for establishing priorities for a fourth assemblyman, and so forth.[141] Like the method of greatest divisors, the smallest-divisor formula is designed to equalize the absolute representation of the least under-represented and the most under-represented third-class county, but the smallest-divisor formula uses a more complicated measure of "absolute representation."[142]

The method of smallest divisors will often transfer one or more seats from the more populous to the less populous third-class counties. Application of the four Willcox formulae to any given set of census returns, however, will almost always produce precisely the same distribution of seats.[143] Yet, even some of the Willcox formulae have a greater tendency than do others to favor the less populous over the more populous third-class counties. The five formulae may be arranged from the one favoring the less populous third-class counties most to the one favoring them least as follows:

1. Smallest divisors
2. Harmonic mean
3. Equal proportions
4. Major fractions
5. Greatest divisors.[144]

The mathematician will see that the reason for this sequence is that the methods are ordered from the one using the smallest divisor to the one using the largest. The smaller the divisor, the less it will reduce each county's early priorities (absolute quotients) and, therefore, the more it will increase the smaller counties' chances of receiving additional seats on early priorities. In other words, the priority number for a third seat according to greatest divisors becomes the priority number for a fourth seat according to smallest divisors, the priority for a fourth seat becomes the priority for a fifth seat, and so forth. Moreover, these methods are arranged on the above list from the one using the divisors

141. Id. at 40-49. $P = \frac{\text{county's citizen population (A)}}{\text{county's present assignment (a)}} = \frac{A}{a}$, $P3 = \frac{A}{2}$, and so forth. See Appendix E infra.

142. Schmeckebier, Congressional Apportionment 40 (1941).

143. This was true of the four Willcox formulae in 1935. The apportionment according to smallest divisors was erroneously labelled "Greatest divisors and minimum range formulae." N.Y. Leg. Doc. No. 85 (1935) reprinted in 7 New York State Constitutional Convention Committee, Problems Relating to Legislative Organization and Powers 173 (1938); see Appendices A-2, A-3, and A-4 infra. Moreover, it was one formula. Minimum range is merely a device for testing the mathematical accuracy of any formula. In this case, the smallest-divisor formula would actually have increased the range and, thereby, failed the test of "minimum range." See Appendix B-1 to -8 infra.

144. Schmeckebier, Congressional Apportionment 70-71 (1941).

that increase most rapidly to the one using divisors that increase least rapidly.[145] The greater the relative increase of the divisor, the more rapidly the priority numbers of the most populous counties will decline and, consequently, the sooner the initial priorities of the less populous counties will supersede the later priorities of the more populous counties.

If one measures the equity of an apportionment either by the number of inhabitants per assemblyman or by each citizen's share in one assemblyman, the methods of smallest divisors and of greatest divisors should be rejected. Each of these two methods is designed primarily to reduce the range between the most over-represented and the most under-represented county. The fact is, however, that either of these methods may actually increase the range under certain circumstances. Under the 1930 census, for example, smallest divisors would have favored the smaller third-class counties to the point that it actually would have increased the range from 14,053 to 14,488 citizen inhabitants per assemblyman. Under different circumstances, the method of greatest divisors would favor the larger counties to the point that its use would also increase the range. Thus, neither method can meet its objectives under every circumstance. This leaves three methods from which to choose: harmonic mean, major fractions, and equal proportions. Because the harmonic mean and equal proportions favor the smaller third-class counties more and because the still smaller first and second-class counties are already over-represented—indeed, thirty-eight of them are now below the ratio—major fractions theoretically will come the closest to equalizing the number of citizen inhabitants per assemblyman in the half dozen most populous counties with the number of citizen inhabitants per assemblyman in all other counties. As a practical matter, however, major fractions and equal proportions are likely to produce exactly the same distribution of seats.

With only two exceptions, the application of major fractions and equal proportions to each of the eight sets of citizen-census returns from 1892 to 1960 would produce precisely the same distribution of assemblymen. In the two exceptional cases, equal proportions would give the assemblyman to the less populous county—to Weschester rather than to New York County in 1940 and to Nassau rather than to New York in 1925.[146] Mathematicians will see that this difference is due to the fact that major fractions uses the arithmetic mean while equal proportions uses the geometric mean.[147] In 1940, major fractions would have done a

145. See Appendix E infra.

146. See Appendix A-1 to -8 infra.

147. Willcox, Last Words on the Apportionment Problem, 17 Law & Contemp. Prob. 290, 294, 296, 298 (1952). Therefore, major fractions adopts an unchanging critical fraction of .500 while equal proportions adopts a changing one lying between .414 and .500. See

better job of reducing the absolute difference in the number of inhabitants per assemblyman in the most and least under-represented third-class counties,[148] but equal proportions would have reduced the range more than major fractions would have done in 1925.[149]

Algebraically, the *harmonic mean* can only be proved to meet one test of equitable apportionment—to minimize the differences in the number of citizen inhabitants per assemblyman. Similarly, *major fractions* can only be proved to meet one test—to minimize the differences in each citizen's share of one assemblyman. Since there is algebraic proof that *equal proportions* meets both tests, this method is mathematically superior to the other two. This superiority over major fractions is highly theoretical, however, since both methods will almost always produce the same apportionment in practice.[150]

Practical considerations would suggest that major fractions should be selected in preference to equal proportions, because the ordinary citizen will be able to understand the former method. He will be able to see the reasonableness of determining his county's priority for another assemblyman by dividing his county's population by a number midway between his county's present number of assemblymen and the number of assemblymen his county would have if one more were apportioned. Any average high school student can be shown why $2\frac{1}{2}$ is a proper divisor for establishing priorities for a third seat, why $3\frac{1}{2}$ is proper for the fourth seat, and so forth. He need understand neither geometric nor harmonic means. In short, only a knowledge of elementary arithmetic is necessary to understand major fractions while a knowledge of algebra is necessary to understand equal proportions. Therefore, major fractions appears to be preferable to equal proportions on the very practical ground that the average citizen will understand the fairness of the former while only mathematics professors are likely to be convinced of the equity of the latter.

Either formula can only reduce the inequities among the third-class counties. Neither major fractions nor equal proportions can really distribute assemblymen among all of the counties according to citizen population if the assembly remains frozen at 150 members while a significant number of counties is below the ratio.

Appendix E infra. This explains why equal proportions gives the seat to the smaller county on the rare occasions when the two methods do not yield precisely the same distribution of seats, because the critical fraction increases as the number of seats apportioned to a county increases.

148. See Appendix B-3 infra.

149. See Appendix B-5 infra.

150. See Appendix A-1 to -8 infra.

IV. Size of the Assembly

In 1821, when only nine or ten counties were under the ratio, the assembly was frozen at 128 members. When the convention of 1846 met, the total number of counties had risen from fifty-two (with Hamilton and Montgomery combined as one county) to fifty-eight (with Hamilton and Fulton combined), but the number of counties below the ratio had declined to seven. Therefore, although the State's citizen population had almost doubled,[151] the assembly was held at 128 members.[152] By 1867, there was only one new county (Schuyler), but the number below the ratio had risen to thirteen. Therefore, the convention's Committee on Legislative Organization proposed to enlarge the assembly to 139 members to reduce the inequality caused by apportioning so many seats to counties below the ratio,[153] but this proposal was defeated at the polls. Although the number of counties falling below the ratio increased to twenty-one according to the enumeration of 1875, the 1872 Commission did not recommend an increase in the number of assemblymen.[154] Thus, when the convention met in 1894, the assembly still had 128 members.

The convention's Committee on Legislative Organization:

> [D]eemed it advisable to increase the number . . . of Assemblymen from 128 to 150 in order to effectuate a more complete representation of the whole people of the State. The present number [128] . . . was fixed by the Constitution of 1821, when the population of the State was 1,372,812. The total citizen population of the State is, under the census of 1892, nearly five times greater. . . .[155]

Elon R. Brown and others defended the increased number of assembly-

151. From 1,317,632 in 1820 to 2,399,548 in 1845. 3 Lincoln, The Constitutional History of New York 164 (1906).

152. There was, however, some sentiment for enlarging the assembly. Moses Taggart of Genesee, for example, suggested an assembly of 136; Samuel Richmond, also of Genesee, proposed 144; Henry C. Murphey of Kings suggested 148. By a vote of thirty-five to seventy, the convention rejected the motion of Richard P. Marvin of Chautauqua that would have empowered the legislature to enlarge the assembly to 150 members after the 1855 enumeration. 2 Lincoln, The Constitutional History of New York 129 (1906). Genesee lost two assemblymen, and Chautauqua lost one in 1846. 3 Lincoln, The Constitutional History of New York 165 (1906).

153. Others suggested enlarging the assembly to 141, 142, 143, or 145 members. Milton Merwin, a member of the Committee on Legislative Organization, presented a minority report proposing an assembly with a possible membership of 250. By a vote of fifty-two to sixty-two, the convention rejected a motion to fix the assembly at 160 members. 3 Lincoln, The Constitutional History of New York 319-20, 432 (1906).

154. There was considerable sentiment, however, for enlarging the assembly. The committee on the legislature proposed 256 members. 2 Lincoln, The Constitutional History of New York 487-90 (1906).

155. 5 Revised Record of the Constitutional Convention of 1894 of the State of New York 711 (1900).

men on much the same grounds by arguing that the State's increased population required a larger assembly.[156] Tracey C. Becker said that this was a "just and fair increase in the number" of assemblymen designed "to bring them up to the great increase in the population of the whole State. . . ."[157] William Sullivan argued that this line of reasoning should logically lead to a five-fold increase—to an assembly of 640 members. Sullivan contended that a growth in population requires an increase in the ratio rather than in the number of assemblymen.[158]

Equitable apportionment required enlarging the assembly, not because the population had grown, but because: (1) the number of counties had risen from fifty-two to fifty-nine; (2) the number of counties falling below the ratio had increased to twenty-nine; and (3) each of these twenty-nine counties was constitutionally entitled to an assemblyman. Before 1821, assemblymen could be apportioned more nearly according to population, because two or more counties could be combined into one assembly district, to which an appropriate number of members could be apportioned. The constitution of 1821 guaranteed separate representation to each county and, thereby, made greater disparities between population and representation inevitable. Yet, assemblymen could still be apportioned without serious disparities while only a few counties were below the ratio. In 1892, however, almost a quarter of all assemblymen had to be apportioned to counties having less than one ratio of representative inhabitants. In short, the assembly was too small, because the growth in population had not been uniform throughout the State. Therefore, apportioning assemblymen according to population could only be accomplished in one of three ways: (1) reducing the number of counties; (2) abolishing the guarantee of one member to each county; or (3) enlarging the assembly. The 1894 convention's Committee on Legislative Organization correctly pointed out:

> The principal difficulty in reaching absolute equality arises . . . from regarding the county lines as controlling. But with 150 Members of Assembly . . . the inequalities are not considerable, except in the few [21] cases arising under the provision of the Constitution which provides that every county, no matter what its population, shall have a Member of Assembly. Your committee has not deemed it wise to attempt to change this rule, which has been so long established. . . .[159]

Since it was not deemed feasible to reduce the number of counties

156. 3 Revised Record of the Constitutional Convention of 1894 of the State of New York 1029-30 (1900).

157. Id. at 999, 1002.

158. Id. at 1103.

159. 5 Revised Record of the Constitutional Convention of 1894 of the State of New York 710 (1900); see also the comments of Elihu Root, 3 Revised Record of the Constitutional Convention of 1894 of the State of New York 1211 (1900).

or to abolish the county rule, enlarging the assembly was the only alternative to increasingly inequitable apportionments. George H. Bush and John M. Bowers favored an assembly of 160 members.[160] Henry J. Cookinham proposed an assembly of 200 members,[161] which would have left only eight counties below the ratio. Edward Lauterback suggested 225 assemblymen,[162] which would have left only Putnam, Schuyler, and Yates below the ratio. Charles Z. Lincoln and Joseph H. Choate advocated enlarging the assembly to 150 so that some second-class counties' representation could be increased from 1/128th to 1/75th.[163] John H. Peck was disturbed because the second and third-class counties would gain this additional representation at the expense of rural counties, whose representation would be reduced from 2/128ths to 2/150ths or from 1/128th to 1/150th.[164] Benjamin S. Dean also objected to this reduction in the rural counties' representation and predicted that future population growth would occur in these rural areas so that fewer counties would be below the ratio.[165] Consequently, he moved to hold the assembly to 128 members. After defeating Dean's motion,[166] the convention adopted the Brown-Davies plan for an assembly of 150 members.

In 1894, an assembly of 150 meant that two-thirds of the counties were above the ratio. Today, however, it means that almost two-thirds are below the ratio.[167] Thus, there is now more reason for enlarging the assembly than there was in 1894. The greater the number of counties below the ratio, the more under-represented the third-class counties must be if the number of assemblymen remains fixed at 150. If each county below the ratio is to enjoy separate representation, the most obvious way to approach an apportionment "as nearly as may be according to the number of their respective inhabitants, excluding aliens" would be to enlarge the assembly enough to give each third-class county one seat for each full constitutional ratio and for every major fraction

160. Id. at 1081, 1132-36.

161. O.I. No. 48, 1 Revised Record of the Constitutional Convention of 1894 of the State of New York 40 (1900); O.I. No. 103, 1 Revised Record of the Constitutional Convention of 1894 of the State of New York at 137.

162. O.I. No. 32, 1 Revised Record of the Constitutional Convention of 1894 of the State of New York at 37.

163. 3 Revised Record of the Constitutional Convention of 1894 of the State of New York 1056-57 (1900); 4 Revised Record of the Constitutional Convention of 1894 of the State of New York 35 (1900); see also "Address to the People." Id. at 1254.

164. 3 Revised Record of the Constitutional Convention of 1894 of the State of New York 1069-73 (1900).

165. Id. at 1155-57.

166. By a vote of ninety-four to fifty-three. 4 Revised Record of the Constitutional Convention of 1894 of the State of New York 646, 667-68 (1900).

thereof. If this kind of a change were adopted, the size of the assembly would fluctuate according to the number of counties below the ratio and according to the number of major fractions in the third-class counties.[168] Even with these additional seats, the third-class counties would still be substantially under-represented *in relation to* the many counties below the ratio. Parity in representation can be achieved only by enlarging the assembly and, consequently, enlarging the divisor used to find the ratio.

If the assembly were set at 200 members, thirty-three counties would still be under the ratio according to the 1960 citizen census. Even with an assembly of 300 members, twenty-three counties would continue to be below the ratio although the ratio would be reduced to only 54,136. On the basis of the 1960 citizen census, 1,085 assemblymen would be required to get a ratio small enough to bring Schuyler County above the ratio. So large an assembly would be undesirable, of course, for a number of obvious reasons. Thus, the problem is to create an assembly that is small enough to be a working legislative body and yet large enough to permit a reasonably equitable apportionment.

V. Constitutional Amendment

If the number of counties below the ratio does not increase by more than a few and if major fractions or equal proportions rather than the

167. The number of counties below the ratio according to the census of 1892 = 21, of 1905 = 29, of 1915 = 31, of 1925 = 34, of 1930 = 37, of 1940 = 38, of 1950 = 40, and of 1960 = 38.

168. The second, third, and fourth columns in the following table exclude all first-class and second-class counties but include all third-class counties. The last column includes all of the State's counties.

Census	Total number of constitutional ratios	Total number of assemblymen apportioned	Additional seats necessary to give one for each ratio and major fraction	Total size of assembly
1960	119.31	100	19	169
1950	115.21	97	18	168
1940	114.23	97	17	167
1930	110.26	92	18	168
1925	105.47	92	15	165
1915	103.30	91	12	162
1905	100.03	93	7	157
1892	101.29	96	5	155

Except for the two additional seats given on major fractions in 1925, these third-class counties would not have received more than was commensurate with their number of constitutional ratios.

Brown formula were used, an assembly of 200 members would permit relatively equitable apportionments.[169]

Plan One

If the total number of assemblymen is to be fixed, a modern and mathematically sound apportionment method such as major fractions will actually apportion assemblymen more nearly "according to the number of inhabitants" or according to the number of voters than will any ratio-type method yet devised. Therefore, one way of making the assembly more representative would be the adoption of a constitutional provision similar to the following:

The Assembly shall always consist of two hundred members. One Assemblyman shall be apportioned to every county, including Fulton and Hamilton as one county. The remaining Assemblymen shall be apportioned to the several counties, including Fulton and Hamilton as one county, in the order of priority determined by the formula of major fractions. The priority list shall be determined by dividing each county's total [*citizen*] *population*[170] by the arithmetic mean of the last seat apportioned to said county and the next seat to be apportioned to said county. No county shall hereafter be erected unless it shall contain at least one-half of one per cent (1/200th) of the State's total [*citizen*] *population.*[171]

Adoption of such an apportionment method would be no revolutionary innovation. The major fractions method was used to apportion congressmen among the states after the census of 1910 and again after the census of 1930 while equal proportions was employed in the 1941, 1951, and 1961 congressional reapportionments.[172] Moreover, at least three states

169. Proposals for enlarging the assembly to 200 have often been introduced in the legislature. See, e.g., 2 New York State Constitutional Convention Committee, Amendments Proposed to the New York Constitution 1895-1937, at 121 (1938).

170. Since the ratio of citizens to aliens is now approximately the same in every county, it makes relatively little difference whether the popular base be total or citizen population. Silva, Legislative Representation With Special Reference to New York, 27 Law & Contemp. Prob. —, — n.22 (1962). For the italicized words "citizen population," the words "number of votes cast for assemblymen at the last two regular elections" may be substituted. The reason for using votes rather than population as the popular base for apportionment is that nonvoters do not bear a uniform relation to total population in every county. Therefore, if the aim is to equalize the weight of one popular vote cast for assemblyman in any county with the weight of one popular vote cast for assemblyman in any other county, number of votes rather than population must be used as the apportionment base. Id. at — n.24. The reason for using the number of votes cast for assemblyman at the last two elections is that voter participation in presidential years does not increase over that in gubernatorial years at a uniform rate throughout the State. Id. at — n.27.

171. The last sentence would be necessary to prevent the legislature from increasing the number of counties below the ratio. See also note 170 supra.

172. No congressional reapportionment was made after the census of 1920. Following the census of 1940, a Democratic Congress replaced major fractions by equal proportions, largely because the latter method gave the 435th Congressman to Democratic Arkansas rather than to Republican or doubtful Michigan.

have used equal proportions to distribute their respective legislators among the several counties. The constitutions of both Alaska and Hawaii require use of equal proportions for distributing members of the lower house.[173] The Arkansas Board of Apportionment has employed the equal proportions method on several occasions, and the Arkansas Supreme Court found the apportionment which resulted from use of this method to be remarkably accurate.[174] Not only are these modern apportionment methods remarkably accurate, but incorporation of such a method into the New York Constitution would mean both greater clarity and at least 170 fewer words in the second and fifth sections of article III.[175]

Plan Two

Yet, if the number of counties falling below the ratio increases, an assembly of 200 will become too small to permit an equitable apportionment just as an assembly of 128 members became too small in 1894 and just as an assembly of 150 is now too small to permit an equitable apportionment. Consequently, a second and, perhaps, better alternative would be an assembly, whose size would adjust automatically according to the number of counties below the ratio. If the number of such counties increased, the assembly would automatically be enlarged, but if the number of such counties declined, the number of assemblymen would also decline. Therefore, a second alternative would be the adoption of a constitutional amendment similar to the following:

The ratio for apportioning Assemblymen shall always be determined by dividing the State's total [*citizen*] *population* by two hundred. One Assemblyman shall be apportioned to every county, including Fulton and Hamilton as one county, below the ratio. Every other county, including Fulton and Hamilton as one county, shall be apportioned one Assemblyman for each full ratio of [*citizen*] *population* and for a major fraction thereof. No county shall hereafter be erected unless it shall contain at least one-half of one per cent (1/200th) of the State's total [*citizen*] *population*.[176]

Adoption of this proposal would reduce the verbiage in the second and fifth sections of article III by approximately 200 words.[177] Although this proposal would reduce the classes of counties from three to two—those below and those above the ratio—it would not change the present guarantee of one assemblyman to every county below 1½ ratios. Nor

173. Alaska Const. art. VI, § 4 (1959); Alaska Legislative Council, Legislative Districting and Apportionment in Alaska, (Staff Memo. No. 8) 13 (1956); Hawaii Const. art. III, § 4 (1959).

174. Shaw v. Adkins, 202 Ark. 856, 153 S.W.2d 415 (1941); Sears, Methods of Reapportionment 25-26 (1952).

175. This proposal contains 109 words which would replace ten words in § 2 and 275 words in the first two paragraphs of § 5.

176. See note 170 supra.

177. This proposal contains eighty-nine words. See note 175 supra.

would it alter the present rule which guarantees two assemblymen to every county having from 1½ to 2 ratios, because they would continue to receive a second seat for the major fraction. It would simply mean that the additional assemblymen would be given to the largest counties, whose representation is not now commensurate with their citizen population. It would also mean that one ratio—the constitutional ratio—would be used for apportioning assemblymen. Thus, adoption of this simple formula would eliminate controversy about second ratios and would adapt the 1826 formula to modern conditions and modify it to conform to sound mathematical theory.[178]

If for 200, a larger divisor is substituted, the ratio will become smaller and, consequently, the fewer the counties below the ratio, the larger the size of the assembly, the more assemblymen to be apportioned to counties above the ratio, and the smaller the difference between the number of citizen inhabitants per assemblyman in the smallest and the largest counties. If for 200, a smaller divisor is substituted, the more counties below the ratio, the fewer the number of assemblymen to be apportioned to the largest counties, and the greater the disproportion between the representation of the largest and the smallest counties. Although a larger divisor would allow for a more representative assembly, it could lead to an assembly of unwieldy size.

If a divisor of 200 were used, the assembly would attain its theoretical maximum size of 260 members only in the inconceivable event that more than 99.75 per cent of the State's representative population lived in one county while less than .25 per cent lived in all the other counties. The number of assemblymen would decline to the theoretical minimum of 170 in the equally unlikely event that *no* county fell below the ratio and that *every* county had an unrepresented minor fraction of .49999+. In fact, adoption of this formula is likely to mean an assembly of some 210 or 215 members.[179]

While a divisor of 200 does not make representation reflect the number of citizen inhabitants perfectly, it does come close to equalizing the representation of the smallest, the intermediate, and the largest coun-

178. The mathematical objections to apportioning by use of a ratio do not apply to this proposal, because the size of the assembly is not set. See Willcox, Last Words on the Apportionment Problem, 17 Law & Contemp. Prob. 290, 291 (1952); Schmeckebier, Congressional Apportionment 78-79 (1941).

179. Application of this formula to the citizen-census figures for 1960 would produce an assembly of 215 members; for 1950 = 213; for 1940 = 211; for 1930 = 210; for 1925 = 206; for 1915 = 205; for 1905 = 199; and for 1892 = 202. See Appendix D-3 infra. As Schmeckebier correctly points out, the number of assemblymen may decline as the State's population increases if a proportionate part of this increase occurs in the less populous counties so that the number of counties below the ratio declines. Schmeckebier, Congressional Apportionment 74 (1941).

ties.[180] Therefore, adoption of this proposal would also reduce the differences between the number of citizen inhabitants per assemblyman in the smallest, the intermediate, and the largest counties.[181] After inspecting the table in footnote 181, one may object that the one-seat counties are still over-represented in relation to the other counties. This is inevitable with an assembly of only 200-odd members. The only solution to this problem would be further enlargement of the assembly or abolition of the guarantee of one assemblyman to every county. Certainly, however, one thing can be said of this proposal for an assembly of 200-plus-or-minus members. Its adoption would give the third-class counties representation that is more nearly commensurate with their citizen population.[182]

Neither Plan One nor Plan Two would make representation perfectly

180. The percentage of citizen population and the percentage of assembly seats apportioned to counties entitled to one, two, and three-or-more assemblymen would have been:

	One seat		Two seats		Three or more seats	
Census	Population	Seats	Population	Seats	Population	Seats
1960	13.51	18.60	5.66	5.58	80.83	75.82
1950	14.50	19.25	4.81	4.69	80.69	76.06
1940	15.16	19.43	6.07	5.69	78.77	74.88
1930	15.54	19.05	7.12	6.67	77.34	74.28
1925	15.52	17.96	10.28	9.71	74.20	72.33
1915	15.64	16.58	14.16	13.66	70.20	69.76
1905	16.81	16.58	15.19	15.08	68.00	68.34
1892	12.73	11.88	17.17	18.81	70.10	69.31

181. The number of citizen inhabitants per assemblyman in the entire State, and in the counties entitled to one, two, and three-or-more assemblymen would have been:

Census	All counties	One-seat counties	Two-seat counties	Three-or-more-seat counties
1960	75,539	54,859	76,546	80,539
1950	66,683	50,236	68,286	70,746
1940	58,774	45,856	62,682	61,829
1930	52,812	43,085	56,378	54,986
1925	46,931	40,548	49,706	48,143
1915	39,315	37,075	40,761	39,564
1905	35,492	35,973	35,761	35,317
1892	28,668	30,718	26,161	28,996

182. The percentage of citizen population and the percentage of assemblymen in all third-class counties as defined in the present constitution would have been:

reflect the number of inhabitants (or voters)[183] in each county, and the one-seat counties would continue to have more assemblymen than is commensurate with the size of their popular base. This is inevitable, however, if the assembly is to have only 200-odd members. The only solution to this problem is further enlargement of the assembly or abolition of the rule that guarantees at least one assemblyman to each county. Plans One and Two are so explicit that adoption of either would make apportionment a ministerial function, which permits no discretion. Either would make the apportioner "a mechanical contrivance for the mathematical distribution of members of assembly."[184] Therefore, if the duty of apportioning assemblymen were vested in an executive officer such as the secretary of state, the courts could compel the apportionment of assemblymen by mandamus.[185] Such automatic apportionment is desirable, not only because it is so precise that it would avoid logrolling and controversy but also because it would prevent the kind of stalemate which occurred after the enumeration of 1925.[186] Moreover, adoption of either formula would make the following constitutional provision superfluous: "No county shall have more members of Assembly than a county having a greater number of inhabitants, excluding aliens."[187] The kind of apportionment that this sentence was designed to prevent simply could not occur under either Plan One or Plan Two.

Plan Three

If the rule guaranteeing at least one assemblyman to each county were abolished, then a smaller assembly could reflect the popular base with

182. (*Cont'd*)

		Assemblymen	
Census	Population	Present formula	Proposed formula
1960	79.5	66.7	74.4
1950	76.8	64.7	71.8
1940	76.2	64.7	72.0
1930	73.5	61.3	70.0
1925	70.3	61.3	68.0
1915	68.9	60.7	68.3
1905	66.7	62.0	66.8
1892	67.5	64.0	66.3

183. See note 170 supra.

184. People ex rel. Carter v. Rice, 135 N.Y. 473, 512, 31 N.E. 921, 933 (1892) (concurring opinion); see also 3 Lincoln, The Constitutional History of New York 218 (1906).

185. Silva, The Legal Aspects of Reapportionment and Redistricting: Baker v. Carr, 30 Fordham L. Rev. 581, 593 n.73 and accompanying text (1962).

186. Id. at 593 n.75.

187. N.Y. Const. art. III, § 5 (1894).

equal accuracy. Therefore, a third alternative might well be a provision similar to the following:

The Assembly shall always consist of [one hundred fifty] members. The ratio for apportioning Assemblymen shall always be determined by dividing the State's total [*citizen*] *population*[188] by [one hundred fifty]. Each county having one or more full ratios shall be apportioned one Assemblyman for each full ratio *or a major fraction thereof.*[189] The remaining counties shall be combined into assembly districts so that each district shall contain, as nearly as may be, an equal *number of* [*citizen*] *inhabitants.*[190]

Plan Four

If a fixed ratio for apportioning assemblymen is preferred, a variation of Plan Three is suggested as a fourth alternative similar to the following:

The ratio for apportioning Assemblymen shall always be *one hundred thousand* [*citizen*] *inhabitants.*[191] Each county having one or more full ratios shall be apportioned one Assemblyman for each full ratio *or a major fraction thereof.*[192] The remaining counties shall be combined into assembly districts so that each district shall contain, as nearly as may be, an equal *number of* [*citizen*] *inhabitants.*[193]

Allowing the districting agency to combine several counties into one joint district would permit apportionment according to population (or voters) and would do so with an assembly of less than two hundred members. Moreover, adoption of such a plan would not be a complete innovation in New York. Before 1821, the legislature not only combined several counties into one joint assembly district but also apportioned more than one assemblyman to some of these joint districts. This permitted enough flexibility so that each district's number of assemblymen could be proportioned to the size of that district's popular base. Although multi-member assembly districts were used until 1846, the constitution of 1821 made disproportionality mandatory by abolishing the joint district and by guaranteeing at least one assemblyman to every county while freezing the size of the assembly at 128 members.[194] Thus, adoption of Plan Three or Four would be a partial return to New York's first constitution.

188. "[N]umber of votes cast for Assemblymen at the last two regular elections" may be substituted for the italicized words. See note 170 supra.

189. "[A]nd an additional Assemblyman for a surplus [citizen] population [or votes] exceeding three-fifths of a ratio" may be substituted for the italicized words. See Silva, Apportionment of the New York Senate, 30 Fordham L. Rev. 595, 642 n.294 and accompanying text (1962).

190. "[N]umber of votes cast for Assemblymen at the last two regular elections" may be substituted for the italicized words. See note 170 supra.

191. "[E]ighty-five thousand votes cast for Assemblymen at the last two regular elections" may be substituted for the italicized words. See note 170 supra.

192. See note 189 supra.

193. "[N]umber of votes cast for Assemblymen at the last two regular elections" may be substituted for the italicized words. See note 170 supra.

194. See notes 14-21 supra and accompanying text.

Plan Five

Plans Three and Four are both premised on the assumption that county lines are to be respected in apportioning assemblymen and in drawing the boundaries of assembly districts. If county lines were not to be controlling in the drawing of assembly districts, however, then a fifth alternative might well be the adoption of a constitutional provision similar to the following:

Each senatorial district shall be divided into three [or two or four] assembly districts, each of which shall elect one Assemblyman. Each assembly district shall be composed of contiguous territory and shall be as compact as practicable. No assembly district shall contain a *number of* [*citizen*] *inhabitants* that is [three] per cent greater or [three] per cent less than the average *number of* [*citizen*] *inhabitants* in all assembly districts in the same senatorial district.[195]

While adoption of Plan Five would permit a smaller assembly, it would, of course, create some serious districting problems.[196]

Districting under Plan One or Two or Three or Four or Five

The fact is that any of the first five plans suggested for assembly representation would present districting problems, and no one of them should be adopted without also adopting appropriate districting rules to prevent—or at least restrict—gerrymandering. If Plan One or Two were adopted, the local authority might well continue to draw the boundaries of assembly districts in counties entitled to more than one assemblyman. In this case and in the absence of a thorough districting study, a provision similar to the following is tentatively suggested:

The [local body] in each county entitled to two or more Assemblymen shall meet on the day designated by [the state apportionment agency] and divide the county into a number of assembly districts equal to the number of Assemblymen to which that county is entitled. Each district shall be composed of contiguous territory and shall be as compact as practicable. No district shall contain a number of [*citizen*] *inhabitants* that is [three] per cent greater or [three] per cent less than the average *number of* [*citizen*] *inhabitants* in all assembly districts in the same county.[197]

This districting provision would have the merit of limiting gerry-

195. "[N]umber of votes cast for Assemblymen at the last two regular elections" may be substituted for the italicized words. See note 170 supra.

196. For a discussion of the distinction between apportionment and districting, see Silva, Apportionment of the New York Senate, 30 Fordham L. Rev. 595-97 (1962). Districting problems are beyond the scope of this article. For a summary discussion of districting problems, see Silva, Legislative Representation With Special Reference to New York, 27 Law & Contemp. Prob. ——, —— - —— (1962). For a number of excellent suggestions for a new approach to districting rules and for objective criteria to be used in measuring the equity of a districting plan, see Reock, Procedures and Standards for the Apportionment of State Legislatures (unpublished doctoral thesis, Rutgers State University, 1959).

197. "[N]umber of votes cast for Assemblymen at the last two regular elections" may be substituted for the italicized words. See note 170 supra.

mandering while allowing the local body to conform to local custom and convenience by using wards or election districts or health districts or census tracts rather than towns and blocks.[198]

If Plan Three or Plan Four or Plan Five were adopted, assembly district boundaries would have to be drawn by an agency having statewide authority. Such a districting agency might well be subject to the same limitations suggested for the local authority:

> Each assembly district shall be composed of contiguous territory and shall be as compact as practicable. No district shall contain a *number of* [*citizen*] *inhabitants* that is [three] per cent greater or [three] per cent less than the average *number of* [*citizen*] *inhabitants* in all assembly districts in the same county [or in the same senatorial district].[199]

Plan Six

If both county lines and the single-member districts were to be abolished for purposes of assembly representation, not only could the assembly be smaller but all assembly districting problems could be solved by adoption of a sixth alternative. All of the fifth section of article III could be replaced by a simple twelve-word sentence: "One Senator and three [or two] Assemblymen shall be elected in each senatorial district." Prior to 1955, each of Illinois' senatorial districts served as a three-member representative district, in which three members of the Illinois House of Representatives were elected at large.[200] Since Illinois uses a proportionate electoral system for electing members of the lower house, at least three representatives had to be elected in each district. If such an electoral system were used, the number should be limited to three in order to prevent a splintering of the two major parties.[201] If a single-ballot system were used, however, only two assemblymen should be elected in each senatorial district in order to minimize the disproportionality between each party's share of the statewide vote and its share of assemblymen.[202]

198. N.Y. Leg. Doc. No. 53, pp. 9-10 (1945). See also 1 Silva, Legislative Apportionment, State of New York Temporary Commission on Revision and Simplification of the Constitution Staff Report No. 33, pp. I-26 to I-29 (1960).

199. "[N]umber of votes cast for Assemblymen at the last two regular elections" may be substituted for the italicized words. See note 170 supra. If Plan Five were adopted, "in the same senatorial district" should be substituted for "in the same county."

200. Ill. Const. art. IV, §§ 7-8 (1870). The 1954 amendment provides for fifty-eight senatorial and fifty-nine representative districts so that the two districts are no longer congruent. But this amendment readopted the three-member representative district and the cumulative vote. Ill. Const. amend. art. IV, §§ 6-7 (1954); see also Juergensmeyer & Sokolow, The Campaign for the Illinois Reapportionment Amendment (1957).

201. 2 Silva, Legislative Apportionment, State of New York Temporary Commission on Revision and Simplification of the Constitution, Staff Report No. 33, pp. S-56 to S-58 (1960).

202. Id. at S-18, S-56.

Plan Seven

A final alternative is identical to the fifth plan suggested for senatorial representation.[203] This seventh alternative provides for the apportionment of one assemblyman to each of the sixty-two counties and for weighting of each assemblyman's vote in the assembly according to the population in his county or according to the number of popular votes cast in his county at the last two regular assembly elections. If each assemblyman's vote were weighted on the basis of population, the assemblyman from the least populous county would have one vote. Therefore, Hamilton's assemblyman would have one vote in the assembly. Every other assemblyman's vote would be weighted by dividing the population of that assemblyman's county by the population of Hamilton County. Since New York County's 1960 population was 398 times that of Hamilton, for example, New York County's assemblyman would be entitled to cast 398 votes in the assembly.[204]

Similarly, an assemblyman's vote could be weighted according to the number of popular votes cast in his county at the last two regular elections. The fewest popular votes cast in any one county at the 1958 and 1960 assembly elections were cast in Hamilton County. While only 5,301 popular votes were cast for assemblyman at these two elections in Hamilton County, 1,029,876 were cast in Nassau County. Therefore, Hamilton's assemblyman would be entitled to one vote in the assembly while Nassau's would be entitled to 194 votes.[205] One objection to this particular weighting system is that high electoral participation by the minority party's supporters in a county would simply enhance the other party's strength in the assembly. This, of course, would encourage the minority party in any given county to abstain from voting in assembly elections.

Therefore, a better system might be to reduce the number of assemblymen from 150 to 124, give one assemblyman to each of the two major parties in each of the State's sixty-two counties, and weight each assemblyman's vote in the assembly according to the number of popular votes cast *for his party's candidate* in his county at the last two assembly elections. The fewest popular votes cast for a major party's assembly candidates in any one county at the last two elections were cast for the

203. Silva, Apportionment of the New York Senate, 30 Fordham L. Rev. 595, 647-50 (1962).

204. Computed from 1960 census data published in U.S. Bureau of Census, U.S. Census of Population: 1960, Vol. I, pt. A, 34-3 (1961).

205. 1,029,876 divided by 5,301 equals 194. Election figures were supplied by the New York Secretary of State since the Legislative Manual does not distinguish between votes cast in Hamilton and in Fulton counties. For an explanation of the reason for using the number of votes cast at the last two regular elections, see note 170 supra.

Democratic candidates in Hamilton County. Since Hamilton's Democratic candidates polled 1,535 votes while the Republican candidate polled 3,766, Hamilton's Democratic assemblyman would have one vote in the assembly while Hamilton's Republican assemblyman would have 2½ votes in the assembly.[206] Similarly, Nassau's Democratic assemblyman would have 280 votes[207] while Nassau's Republican assemblyman would have 386 votes in the assembly.[208] While various other weighting systems have been suggested, they have not been discussed here, not only because they are a great deal more complicated but also because they require use of a proportional or semi-proportional electoral system.[209]

Whatever arguments can be advanced in favor of weighting a senator's vote according to the population or to the number of votes in his county, can also be advanced in favor of weighting an assemblyman's vote according to the number of inhabitants or votes in that assemblyman's county: weighting provides what amounts to automatic reapportionment; it is arithmetically simple; it provides equitable representation with mathematical precision; and so forth.[210] Plan Seven might well be coupled with any one of the first four plans suggested for senatorial representation[211] but should not be combined with the fifth one.[212] If each senator's vote in the senate and each assemblyman's vote in the assembly were weighted according to either the population or the number of votes cast in his county, the two houses would be molded in the image of each other, and the purpose of bicameralism would be vitiated.

Without the adoption of a constitutional amendment that either weights the assemblyman's vote or enlarges the assembly or abolishes the guarantee of separate representation to every county, little can be done to make the apportionment of assemblymen more equitable. In the absence of such a constitutional amendment in 1963, about all that can be done will be to shuffle one assembly seat each from Monroe and Onondaga to Bronx and Kings counties.[213]

206. 3,766 divided by 1,535 equals 2½. See note 205 supra.

207. 429,794 divided by 1,535 equals 280. See note 205 supra.

208. 592,997 divided by 1,535 equals 386. See note 205 supra.

209. See Engle, Weighting Legislators' Votes to Equalize Representation, 12 Western Pol. Q. 442 (1959).

210. Silva, Apportionment of the New York Senate, 30 Fordham L. Rev. 595, 648-50 (1962).

211. Id. at 640-47.

212. Id. at 647-50. The selection of a plan for assembly representation should depend at least partially on the plan used for senatorial representation and vice versa. While Plan Six is compatible with the first four plans suggested for senatorial representation (id. at 640-47), it is not compatible with the fifth one. Id. at 647-50. Plan Six is probably best suited for use with the third one. Id. at 643-44.

213. See Appendix A-1 infra.

APPENDIX A-1
CENSUS OF 1960

All counties having more than two constitutional ratios	Number of constitutional ratios	Number of assembly seats under various formulae				
			Using second ratio			Major fractions or Equal proportions
		Cullen	Tuttle	Brown	McQuade	
Bronx	12.64	11	11	10	10	11
Kings	23.26	21	20	19	16	20
New York	14.63	13	12	12	11	12
Queens	16.01	14	13	13	12	13
Richmond	2.00	2	2	2	3	2
Albany	2.49	2	2	2	4	2
Erie	9.60	8	8	8	8	8
Monroe	5.27	4	4	5	5	4
Nassau	11.78	10	10	10	9	10
Niagara	2.18	2	2	2	3	2
Oneida	2.40	2	2	2	3	2
Onondaga	3.83	2	3	4	4	3
Suffolk	6.00	4	5	5	6	5
Westchester	7.22	5	6	6	6	6
Total	119.31	100	100	100	100	100

Computed from 1960 citizen-census data supplied by the United States Bureau of the Census. See also N.Y. Leg. Doc. No. 85, pp. 18-27 (1935).

APPENDIX A-2
CENSUS OF 1950

All counties having more than two constitutional ratios	Number of constitutional ratios	Number of assembly seats under various formulae				
			Using second ratio			Major fractions or Equal proportions
		Cullen	Tuttle	Brown	McQuade	
Bronx	14.55	13	12	12	11	12
Kings	27.41	26	23	22	19	24
New York	18.96	17	16	16	14	16
Queens	15.67	14	13	13	12	13
Albany	2.47	2	2	2	4	2
Erie	9.28	7	8	8	8	8
Monroe	5.02	3	4	4	5	4
Nassau	6.92	5	6	6	6	6
Oneida	2.29	2	2	2	4	2
Onondaga	3.53	2	3	3	4	3
Suffolk	2.76	2	2	3	4	2
Westchester	6.35	4	6	6	6	5
Total	115.21	97	97	97	97	97

Computed from 1950 citizen-census data published in N.Y. Leg. Doc. No. 98, p. 15 (1953).

APPENDIX A-3
CENSUS OF 1940

All counties having more than two constitutional ratios	Number of constitutional ratios	Number of assembly seats under various formulae					
			Using second ratio			Major fractions	Equal proportions
		Cullen	Tuttle	Brown	McQuade		
Bronx	15.01	13	13	13	12	13	13
Kings	29.12	27	25	24	21	25	25
New York	19.55	18	17	16	14	17	16
Queens	14.56	13	12	12	11	12	12
Albany	2.58	2	2	3	4	2	2
Erie	9.25	7	8	8	8	8	8
Monroe	5.05	3	4	4	5	4	4
Nassau	4.64	3	4	4	5	4	4
Oneida	2.35	2	2	2	4	2	2
Onondaga	3.42	2	3	3	4	3	3
Suffolk	2.21	2	2	2	3	2	2
Westchester	6.49	5	5	6	6	5	6
Total	114.23	97	97	97	97	97	97

Computed from 1940 citizen-census data published in N.Y. Leg. Doc. No. 57, pp. 50-51 (1942).

APPENDIX A-4
CENSUS OF 1930

All counties having more than two constitutional ratios	Number of constitutional ratios	Number of assembly seats under various formulae				
			Using second ratio			Major fractions or Equal proportions
		Cullen	Tuttle	Brown	McQuade	
Bronx	14.40	13	12	12	11	12
Kings	29.18	27	24	24	21	25
New York	19.93	18	17	16	15	17
Queens	13.05	11	11	11	10	11
Albany	2.71	2	2	3	4	2
Erie	9.55	8	8	8	8	8
Monroe	5.29	3	5	5	5	4
Nassau	3.69	2	3	3	4	3
Oneida	2.50	2	2	2	4	2
Onondaga	3.69	2	3	3	4	3
Westchester	6.27	4	5	5	6	5
Total	110.26	92	92	92	92	92

Computed from 1930 citizen-census data published in N.Y. Leg. Doc. No. 57, pp. 50-51 (1942).

APPENDIX A-5
CENSUS OF 1925

All counties having more than two constitutional ratios	Number of constitutional ratios	Number of assembly seats under various formulae					
			Using second ratio			Major fractions	Equal proportions
		Cullen	Tuttle	Brown	McQuade		
Bronx	11.28	10	10	10	9	10	10
Kings	27.90	27	24	24	20	24	24
New York	22.61	21	20	19	17	20	19
Queens	10.01	9	9	9	9	9	9
Albany	2.89	2	3	3	4	3	3
Erie	9.89	8	9	8	9	9	9
Monroe	5.54	4	5	5	6	5	5
Nassau	2.87	2	2	3	4	2	3
Oneida	2.77	2	2	3	4	2	2
Onondaga	3.84	2	3	3	4	3	3
Westchester	5.87	5	5	5	6	5	5
Total	105.47	92	92	92	92	92	92

Computed from 1925 citizen-census data published in N.Y. Leg. Doc. No. 57, pp. 50-51 (1942).

APPENDIX A-6
CENSUS OF 1915

All counties having more than two constitutional ratios	Number of constitutional ratios	Number of assembly seats under various formulae				
			Using second ratio			Major fractions or Equal proportions
		Cullen	Tuttle	Brown	McQuade	
Bronx	9.18	8	8	8	8	8
Kings	26.82	26	24	23	20	24
New York	27.40	26	24	23	20	24
Queens	6.53	5	6	6	6	6
Albany	3.15	2	3	3	4	3
Erie	9.44	8	8	8	8	8
Monroe	5.23	4	5	5	5	5
Oneida	2.69	2	2	3	4	2
Onondaga	3.62	2	3	3	4	3
Orange	2.01	2	2	2	3	2
Rensselaer	2.15	2	2	2	4	2
Westchester	5.08	4	4	5	5	4
Total	103.30	91	91	91	91	91

Computed from 1915 citizen-census data published in N.Y. Leg. Doc. No. 57, pp. 50-51 (1942).

APPENDIX A-7
CENSUS OF 1905

All counties having more than two constitutional ratios	Number of constitutional ratios	Number of assembly seats under various formulae				
			Using second ratio			Major fractions or Equal proportions
		Cullen	Tuttle	Brown	McQuade	
Kings	25.03	24	23	23	20	23
New York	38.23	37	36	35	29	36
Queens	3.82	3	4	4	5	4
Albany	3.48	3	3	3	4	3
Erie	9.31	9	9	9	9	9
Monroe	4.79	4	4	5	5	4
Oneida	2.79	2	3	3	4	3
Onondaga	3.60	3	3	3	5	3
Orange	2.16	2	2	2	3	2
Rensselaer	2.52	2	2	2	4	2
Westchester	4.30	4	4	4	5	4
Total	100.03	93	93	93	93	93

Computed from 1905 citizen-census data published in N.Y. Leg. Doc. No. 57, pp. 50-51 (1942).

APPENDIX A-8
CENSUS OF 1892

All counties having more than two constitutional ratios	Number of constitutional ratios	Number of assembly seats under various formulae				
			Using second ratio			Major fractions or Equal proportions
		Cullen	Tuttle	Brown	McQuade	
Kings	22.51	22	21	21	17	21
New York	36.89	36	35	34*	27	35
Queens	3.21	3	3	3	4	3
Albany	4.06	4	4	4	5	4
Erie	7.89	7	8	8	7	8
Monroe	4.69	4	4	5*	5	4
Oneida	3.03	3	3	3	4	3
Onondaga	3.68	3	4	4	5	4
Orange	2.42	2	2	2	4	2
Rensselaer	3.15	3	3	3	4	3
St. Lawrence	2.09	2	2	2	3	2
Steuben	2.11	2	2	2	3	2
Ulster	2.21	2	2	2	4	2
Westchester	3.35	3	3	3	4	3
Total	101.29	96	96	96	96	96

Computed from 1892 citizen-census data published in N.Y. Leg. Doc. No. 57, pp. 50-51 (1942).

* The 1894 convention apportioned thirty-five assembly seats to New York and four to Monroe.

APPENDIX B-1
CENSUS OF 1960

All counties having more than two constitutional ratios	Number of citizen inhabitants per assemblyman under various formulae				
	Cullen	Tuttle	Brown	McQuade	Major fractions or Equal proportions
Bronx	124,382	124,382	136,821	136,821	124,382
Kings	119,929	125,926	132,553	157,407	125,926
New York	121,851	132,006	132,006	144,006	132,006
Queens	123,792	133,314	133,314	144,423	133,314
Richmond	108,382	108,382	108,382	72,255	108,382
Albany	134,544	134,544	134,544	67,272	134,544
Erie	129,956	129,956	129,956	129,956	129,956
Monroe	142,757	142,757	114,206	114,206	142,757
Nassau	127,580	127,580	127,580	141,756	127,580
Niagara	117,839	117,839	117,839	78,559	117,839
Oneida	129,665	129,665	129,665	86,443	129,665
Onondaga	207,385	138,257	103,693	103,693	138,257
Suffolk	162,528	130,022	130,022	108,352	130,022
Westchester	156,436	130,363	130,363	130,363	130,363
Difference between the largest and the smallest	99,003	34,375	33,128	90,135	34,375

See Appendix A-1 supra.

APPENDIX B-2
CENSUS OF 1950

All counties having more than two constitutional ratios	Number of citizen inhabitants per assemblyman under various formulae				
	Cullen	Tuttle	Brown	McQuade	Major fractions or Equal proportions
Bronx	106,014	114,848	114,848	125,289	114,848
Kings	99,815	112,834	117,963	136,589	108,133
New York	105,631	112,233	112,233	128,266	112,233
Queens	106,015	114,170	114,170	123,685	114,170
Albany	117,034	117,034	117,034	58,517	117,034
Erie	125,500	109,813	109,813	109,813	109,813
Monroe	158,346	118,759	118,759	95,007	118,759
Nassau	131,138	109,282	109,282	109,282	109,282
Oneida	108,243	108,243	108,243	54,122	108,243
Onondaga	167,227	111,484	111,484	83,613	111,484
Suffolk	130,502	130,502	87,001	65,251	130,502
Westchester	150,421	100,280	100,280	100,280	120,336
Difference between the largest and the smallest	67,412	30,222	31,758	82,467	22,369

See Appendix A-2 supra.

APPENDIX B-3
CENSUS OF 1940

All counties having more than two constitutional ratios	Number of citizen inhabitants per assemblyman under various formulae					
	Cullen	Tuttle	Brown	McQuade	Major fractions	Equal proportions
Bronx	95,482	95,482	95,482	103,439	95,482	95,482
Kings	89,166	96,299	100,312	114,642	96,299	96,299
New York	89,777	95,058	100,999	115,427	95,058	100,999
Queens	92,596	100,313	100,313	109,432	100,313	100,313
Albany	106,592	106,592	71,061	53,296	106,592	106,592
Erie	109,296	95,634	95,634	95,634	95,634	95,634
Monroe	139,178	104,384	104,384	83,507	104,384	104,384
Nassau	127,755	95,817	95,817	76,653	95,817	95,817
Oneida	97,158	97,158	97,158	48,579	97,158	97,158
Onondaga	141,464	94,309	94,309	70,732	94,309	94,309
Suffolk	91,432	91,432	91,432	60,955	91,432	91,432
Westchester	107,380	107,380	89,483	89,483	107,380	89,483
Difference between the largest and the smallest	52,298	15,948	33,323	66,848	15,948	17,109

See Appendix A-3 supra.

APPENDIX B-4
CENSUS OF 1930

All counties having more than two constitutional ratios	Number of citizen inhabitants per assemblyman under various formulae				
	Cullen	Tuttle	Brown	McQuade	Major fractions or Equal proportions
Bronx	81,927	88,754	88,754	96,822	88,754
Kings	79,911	89,900	89,900	102,743	86,304
New York	81,849	86,664	92,080	98,219	86,664
Queens	87,696	87,696	87,696	96,466	87,696
Albany	100,357	100,357	66,905	50,179	100,357
Erie	88,303	88,303	88,303	88,303	88,303
Monroe	130,297	78,178	78,178	78,178	97,723
Nassau	136,307	90,871	90,871	68,154	90,871
Oneida	92,293	92,293	92,293	46,147	92,293
Onondaga	136,291	90,861	90,861	68,146	90,861
Westchester	115,833	92,666	92,666	77,222	92,666
Difference between the largest and the smallest	56,396	22,179	25,761	56,596	14,053

See Appendix A-4 supra.

APPENDIX B-5
CENSUS OF 1925

All counties having more than two constitutional ratios	Number of citizen inhabitants per assemblyman under various formulae					
	Cullen	Tuttle	Brown	McQuade	Major Fractions	Equal Proportions
Bronx	72,698	72,698	72,698	80,776	72,698	72,698
Kings	66,606	74,931	74,931	89,918	74,931	74,931
New York	69,385	72,855	76,689	85,711	72,855	76,689
Queens	71,669	71,669	71,669	71,669	71,669	71,669
Albany	93,123	62,082	62,082	46,561	62,082	62,082
Erie	79,667	70,815	79,667	70,815	70,815	70,815
Monroe	89,300	71,440	71,440	59,533	71,440	71,440
Nassau	92,545	92,545	61,696	46,272	92,545	61,696
Oneida	89,210	89,210	59,473	44,605	89,210	89,210
Onondaga	123,602	82,401	82,401	61,801	82,401	82,401
Westchester	75,675	75,675	75,675	63,063	75,675	75,675
Difference between the largest and the smallest	56,996	27,128	22,928	45,313	30,463	27,514

See Appendix A-5 supra.

APPENDIX B-6
CENSUS OF 1915

All counties having more than two constitutional ratios	Number of citizen inhabitants per assemblyman under various formulae				
	Cullen	Tuttle	Brown	McQuade	Major fractions or Equal proportions
Bronx	61,642	61,642	61,642	61,642	61,642
Kings	55,432	60,051	62,662	72,061	60,051
New York	56,626	61,345	64,012	73,614	61,345
Queens	70,219	58,516	58,516	58,516	58,516
Albany	84,545	56,363	56,363	42,273	56,363
Erie	63,373	63,373	63,373	63,373	63,373
Monroe	70,219	56,175	56,175	56,175	56,175
Oneida	72,388	72,388	48,259	36,194	72,388
Onondaga	97,235	64,823	64,823	48,618	64,823
Orange	54,113	54,113	54,113	36,075	54,113
Rensselaer	57,788	57,788	57,788	28,894	57,788
Westchester	68,267	68,267	54,614	54,614	68,267
Difference between the largest and the smallest	43,122	18,275	16,564	44,720	18,275

See Appendix A-6 supra.

APPENDIX B-7
CENSUS OF 1905

All counties having more than two constitutional ratios	Number of citizen inhabitants per assemblyman under various formulae				
	Cullen	Tuttle	Brown	McQuade	Major fractions or Equal proportions
Kings	49,116	51,251	51,251	58,939	51,251
New York	48,657	50,008	51,437	62,079	50,008
Queens	59,915	44,937	44,937	35,949	44,937
Albany	54,661	54,661	54,661	40,996	54,661
Erie	48,731	48,731	48,731	48,731	48,731
Monroe	56,402	56,402	45,122	45,122	56,402
Oneida	65,697	43,798	43,798	32,848	43,798
Onondaga	56,577	56,577	56,577	33,946	56,577
Orange	50,822	50,822	50,822	33,881	50,822
Rensselaer	59,366	59,366	59,366	29,683	59,366
Westchester	50,663	50,663	50,663	40,530	50,663
Difference between the largest and the smallest	17,040	15,568	15,568	32,396	15,568

See Appendix A-7 supra.

APPENDIX B-8
CENSUS OF 1892

All counties having more than two constitutional ratios	Number of citizen inhabitants per assemblyman under various formulae				
	Cullen	Tuttle	Brown	McQuade	Major fractions or Equal proportions
Kings	39,499	41,380	41,380	51,117	41,380
New York	39,555	40,685	41,882	52,740	40,685
Queens	41,325	41,325	41,325	30,994	41,325
Albany	39,187	39,187	39,187	31,350	39,187
Erie	43,530	38,089	38,089	43,530	38,089
Monroe	45,308	45,308	36,246	36,246	45,308
Oneida	39,068	39,068	39,068	29,301	39,068
Onondaga	47,353	35,515	35,515	28,412	35,515
Orange	46,636	46,636	46,636	23,318	46,636
Rensselaer	40,560	40,560	40,560	30,420	40,560
St. Lawrence	40,340	40,340	40,340	26,893	40,340
Steuben	40,700	40,700	40,700	27,133	40,700
Ulster	42,696	42,696	42,696	21,348	42,696
Westchester	43,075	43,075	43,075	32,306	43,075
Difference between the largest and the smallest	8,285	11,121	11,121	31,392	11,121

See Appendix A-8 supra.

APPENDIX C
PLAN ONE

The assembly shall always consist of two hundred members. One assemblyman shall be apportioned to every county, including Fulton and Hamilton as one county. The remaining assemblymen shall be apportioned to the several counties, including Fulton and Hamilton as one county, in the order of priority determined by the formula of major fractions. The priority list shall be determined by dividing each county's total citizen population by the arithmetic mean of the last seat apportioned to said county and the next seat to be apportioned to said county. No county shall hereafter be erected unless it shall contain at least one-half of one per cent (1/200th) of the State's total citizen population. See note 170 supra.

C-1: According to citizen census of 1960

Rank	County	Number of seats	Number of citizen inhabitants per seat
1	Schuyler	1	14,974
2	Yates	1	18,552
3	Schoharie	1	22,410
4	Lewis	1	23,064
5	Greene	1	30,931
6	Putnam	1	31,006
7	Seneca	1	31,235
8	Orleans	1	33,845
9	Wyoming	1	34,534
10	Essex	1	34,987
11	Tioga	1	37,610
12	Cortland	1	40,685
13	Chenango	1	42,979
14	Delaware	1	43,237
15	Warren	1	43,594
16	Livingston	1	43,690
17	Allegany	1	43,759
18	Franklin	1	43,915
19	Sullivan	1	44,434
20	Columbia	1	46,734
21	Washington	1	48,135
22	Otsego	1	51,588
23	Genesee	1	53,416
24	Madison	1	54,262
25	Fulton & Hamilton	1	55,067
26	Montgomery	1	56,287
27	Tompkins	1	64,227
28	Herkimer	1	65,218
29	Wayne	1	67,344
30	Ontario	1	67,410
31	Rensselaer	2	70,467
32	Clinton	1	71,389
33	Chautauqua	2	71,916

C-2: According to citizen census of 1950

Rank	County	Number of seats	Number of citizen inhabitants per seat
1	Schuyler	1	14,066
2	Yates	1	17,461
3	Putnam	1	19,668
4	Lewis	1	22,187
5	Schoharie	1	22,218
6	Greene	1	28,082
7	Seneca	1	28,254
8	Orleans	1	29,306
9	Tioga	1	29,826
10	Wyoming	1	32,275
11	Essex	1	34,542
12	Cortland	1	36,786
13	Warren	1	38,677
14	Chenango	1	38,741
15	Sullivan	1	39,359
16	Livingston	1	39,692
17	Columbia	1	42,111
18	Allegany	1	43,475
19	Delaware	1	43,863
20	Franklin	1	43,919
21	Madison	1	45,624
22	Washington	1	46,353
23	Genesee	1	46,690
24	Otsego	1	50,089
25	Clinton	1	52,443
26	Fulton & Hamilton	1	54,190
27	Wayne	1	56,662
28	Montgomery	1	57,610
29	Tompkins	1	57,853
30	Ontario	1	59,269
31	Herkimer	1	59,693
32	Rensselaer	2	64,998
33	Dutchess	2	65,985

APPENDIX C (*Cont'd*)

C-1: According to citizen ceusus of 1960				C-2: According to citizen census of 1950			
Rank	County	Number of seats	Number of citizen inhabitants per seat	Rank	County	Number of seats	Number of citizen inhabitants per seat
34	Cayuga	1	73,240	34	Chautauqua	2	66,580
35	Schenectady	2	75,344	35	Cayuga	1	69,037
36	Niagara	3	78,559	36	Schenectady	2	69,652
37	Cattaraugus	1	79,548	37	Oneida	3	72,162
38	Onondaga	5	82,954	38	Nassau	9	72,854
39	Oswego	1	85,356	39	Erie	12	73,209
40	Bronx	16	85,513	40	Saratoga	1	73,447
41	Dutchess	2	85,698	41	Orange	2	74,215
42	Oneida	3	86,443	42	New York	24	74,822
43	Jefferson	1	86,606	43	Westchester	8	75,210
44	Erie	12	86,637	44	Oswego	1	75,935
45	Queens	20	86,654	45	Kings	34	76,329
46	Kings	29	86,845	46	Bronx	18	76,566
47	Westchester	9	86,909	47	Cattaraugus	1	76,993
48	New York	18	88,004	48	Albany	3	78,023
49	Saratoga	1	88,134	49	Queens	19	78,117
50	Albany	3	89,696	50	Monroe	6	79,173
51	Orange	2	89,937	51	Jefferson	1	83,539
52	Nassau	14	91,129	52	Onondaga	4	83,613
53	Suffolk	7	92,873	53	Chemung	1	85,989
54	Monroe	6	95,172	54	Rockland	1	86,123
55	Steuben	1	97,176	55	Suffolk	3	87,001
56	Chemung	1	97,891	56	Ulster	1	90,350
57	Broome	2	104,799	57	Broome	2	90,748
58	Richmond	2	108,382	58	Steuben	1	90,761
59	St. Lawrence	1	109,082	59	Niagara	2	92,031
60	Ulster	1	116,818	60	Richmond	2	92,516
61	Rockland	1	131,834	61	St. Lawrence	1	96,517
	Total	200			Total	200	
Range:		14,974-131,834		Range:		14,066-96,517	
Average:		81,204		Average:		71,017	
Median:		86,654		Median:		75,935-76,329	
Computed from 1960 citizen-census data supplied by the United States Bureau of the Census.				Computed from 1950 citizen-census data published in N.Y. Leg. Doc. No. 93, p. 14 (1953).			

APPENDIX D
PLAN TWO

The ratio for apportioning assemblymen shall always be determined by dividing the State's total citizen population by two hundred. One assemblyman shall be apportioned to every county, including Fulton and Hamilton as one county, below the ratio. Every other county, including Fulton and Hamilton as one county, shall be apportioned one assemblyman for each full ratio of citizen population and for every major fraction thereof. No county shall hereafter be erected unless it shall contain at least one-half of one per cent (1/200th) of the State's total citizen population. See note 170 supra.

D-1: According to citizen census of 1960

Rank	County	Number of seats	Number of citizen inhabitants per seat
1	Schuyler	1	14,974
2	Yates	1	18,552
3	Schoharie	1	22,410
4	Lewis	1	23,064
5	Greene	1	30,931
6	Putnam	1	31,006
7	Seneca	1	31,235
8	Orleans	1	33,845
9	Wyoming	1	34,534
10	Essex	1	34,987
11	Tioga	1	37,610
12	Cortland	1	40,685
13	Chenango	1	42,979
14	Delaware	1	43,237
15	Warren	1	43,594
16	Livingston	1	43,690
17	Allegany	1	43,759
18	Franklin	1	43,915
19	Sullivan	1	44,434
20	Columbia	1	46,734
21	Washington	1	48,135
22	Otsego	1	51,588
23	Genesee	1	53,416
24	Madison	1	54,262
25	Fulton & Hamilton	1	55,067
26	Montgomery	1	56,287
27	Tompkins	1	64,227
28	Herkimer	1	65,218
29	Rockland	2	65,917
30	Wayne	1	67,344
31	Ontario	1	67,410
32	Broome	3	69,866
33	Rensselaer	2	70,467
34	Clinton	1	71,389

D-2: According to citizen census of 1950

Rank	County	Number of seats	Number of citizen inhabitants per seat
1	Schuyler	1	14,066
2	Yates	1	17,461
3	Putnam	1	19,668
4	Lewis	1	22,187
5	Schoharie	1	22,218
6	Greene	1	28,082
7	Seneca	1	28,254
8	Orleans	1	29,306
9	Tioga	1	29,826
10	Wyoming	1	32,275
11	Essex	1	34,542
12	Cortland	1	36,786
13	Warren	1	38,677
14	Chenango	1	38,741
15	Sullivan	1	39,359
16	Livingston	1	39,692
17	Columbia	1	42,111
18	Allegany	1	43,475
19	Delaware	1	43,863
20	Franklin	1	43,919
21	Madison	1	45,624
22	Washington	1	46,353
23	Genesee	1	46,690
24	Otsego	1	50,089
25	Clinton	1	52,443
26	Fulton & Hamilton	1	54,190
27	Wayne	1	56,662
28	Montgomery	1	57,610
29	Tompkins	1	57,853
30	Ontario	1	59,269
31	Herkimer	1	59,693
32	Broome	3	60,499
33	Niagara	3	61,387
34	Richmond	3	61,677

APPENDIX D (*Cont'd*)

D-1: According to citizen census of 1960				D-2: According to citizen census of 1950			
Rank	County	Number of seats	Number of citizen inhabitants per seat	Rank	County	Number of seats	Number of citizen inhabitants per seat
35	Chautauqua	2	71,916	35	Rensselaer	2	64,998
36	Richmond	3	72,255	36	Suffolk	4	65,251
37	Cayuga	1	73,240	37	Dutchess	2	65,985
38	Schenectady	2	75,344	38	Chautauqua	2	66,580
39	Westchester	10	78,218	39	Onondaga	5	66,891
40	Niagara	3	78,559	40	Monroe	7	67,862
41	New York	20	79,203	41	Cayuga	1	69,037
42	Cattaraugus	1	79,548	42	Schenectady	2	69,652
43	Nassau	16	79,738	43	Kings	37	70,140
44	Erie	13	79,973	44	Queens	21	70,677
45	Bronx	17	80,483	45	New York	25	71,829
46	Kings	31	81,242	46	Oneida	3	72,162
47	Suffolk	8	81,264	47	Bronx	19	72,536
48	Monroe	7	81,576	48	Nassau	9	72,854
49	Queens	21	82,528	49	Erie	12	73,209
50	Onondaga	5	82,954	50	Saratoga	1	73,447
51	Oswego	1	85,356	51	Orange	2	74,215
52	Dutchess	2	85,698	52	Westchester	8	75,210
53	Oneida	3	86,443	53	Oswego	1	75,935
54	Jefferson	1	86,606	54	Cattaraugus	1	76,993
55	Saratoga	1	88,134	55	Albany	3	78,023
56	Albany	3	89,696	56	Jefferson	1	83,539
57	Orange	2	89,937	57	Chemung	1	85,989
58	Steuben	1	97,176	58	Rockland	1	89,123
59	Chemung	1	97,891	59	Ulster	1	90,350
60	St. Lawrence	1	109,082	60	Steuben	1	90,761
61	Ulster	1	116,818	61	St. Lawrence	1	96,517
	Total	215			Total	213	
Range:		14,974-116,818		Range:		14,066-96,517	
Average:		75,539		Average:		66,683	
Median:		79,973		Median:		70,140	
Computed from 1960 citizen-census data supplied by the United States Bureau of the Census.				Computed from 1950 citizen-census data published in N.Y. Leg. Doc. No. 98, p. 14 (1953).			

APPENDIX D (*Cont'd*)
PLAN TWO

D-3: Number of assemblymen apportioned under Plan Two on the basis of the census of:

	1960	1950	1940	1930	1925	1915	1905	1892
New York State	215	213	211	210	206	205	199	202
New York City	92	105	107	105	98	96	91	85
Bronx	17	19	20	19	15	12	—	—
Kings	31	37	39	39	37	36	33	30
New York	20	25	26	27	30	37	51	49
Queens	21	21	19	17	13	9	5	4
Richmond	3	3	3	3	3	2	2	2
Remainder of State	123	108	104	105	108	109	108	117
Albany	3	3	3	4	4	4	5	5
Allegany	1	1	1	1	1	1	1	1
Broome	3	3	3	3	3	2	2	2
Cattaraugus	1	1	1	1	1	2	2	2
Cayuga	1	1	1	1	1	2	2	2
Chautauqua	2	2	2	2	2	3	3	3
Chemung	1	1	1	1	1	1	1	2
Chenango	1	1	1	1	1	1	1	1
Clinton	1	1	1	1	1	1	1	2
Columbia	1	1	1	1	1	1	1	2
Cortland	1	1	1	1	1	1	1	1
Delaware	1	1	1	1	1	1	1	2
Dutchess	2	2	2	2	2	2	2	3
Erie	13	12	12	13	13	13	12	11
Essex	1	1	1	1	1	1	1	1
Franklin	1	1	1	1	1	1	1	1
Fulton & Hamilton	1	1	1	1	1	1	1	1
Genesee	1	1	1	1	1	1	1	1
Greene	1	1	1	1	1	1	1	1
Herkimer	1	1	1	1	1	1	1	2
Jefferson	1	1	1	1	2	2	2	2
Lewis	1	1	1	1	1	1	1	1
Livingston	1	1	1	1	1	1	1	1
Madison	1	1	1	1	1	1	1	1
Monroe	7	7	7	7	7	7	6	6
Montgomery	1	1	1	1	1	1	1	2
Nassau	16	9	6	5	4	2	2	—
Niagara	3	3	2	2	2	2	2	2
Oneida	3	3	3	3	4	4	4	4
Onondaga	5	5	5	5	5	5	5	5
Ontario	1	1	1	1	1	1	1	2
Orange	2	2	2	2	2	3	3	3
Orleans	1	1	1	1	1	1	1	1
Oswego	1	1	1	1	1	2	2	2
Otsego	1	1	1	1	1	1	1	2
Putnam	1	1	1	1	1	1	1	1
Rensselaer	2	2	2	2	2	3	3	4

APPENDIX D (*Cont'd*)

D-3: Number of assemblymen apportioned under Plan Two on the basis of the census of:

	1960	1950	1940	1930	1925	1915	1905	1892
Rockland	2	1	1	1	1	1	1	1
St. Lawrence	1	1	1	2	2	2	2	3
Saratoga	1	1	1	1	1	1	2	2
Schenectady	2	2	2	2	2	2	2	1
Schoharie	1	1	1	1	1	1	1	1
Schuyler	1	1	1	1	1	1	1	1
Seneca	1	1	1	1	1	1	1	1
Steuben	1	1	1	1	2	2	2	3
Suffolk	8	4	3	3	3	2	2	2
Sullivan	1	1	1	1	1	1	1	1
Tioga	1	1	1	1	1	1	1	1
Tompkins	1	1	1	1	1	1	1	1
Ulster	1	1	1	1	2	2	2	3
Warren	1	1	1	1	1	1	1	1
Washington	1	1	1	1	1	1	1	2
Wayne	1	1	1	1	1	1	1	2
Westchester	10	8	9	8	8	7	6	4
Wyoming	1	1	1	1	1	1	1	1
Yates	1	1	1	1	1	1	1	1

Computed from citizen-census data published in N.Y. Leg. Doc. No. 57, pp. 50-51 (1942); N.Y. Leg. Doc. No. 98, p. 14 (1953); and 1960 citizen-census data supplied by the United States Bureau of the Census.

APPENDIX E

TABLE OF DIVISORS TO BE USED FOR COMPUTING PRIORITIES

For assemblyman number	According to method of				
	Smallest divisors	Harmonic mean*	Equal proportions (geometric mean)*	Major fractions (arithmetic mean)	Greatest divisors
2	1	1.333	1.414	1.5	2
3	2	2.400	2.449	2.5	3
4	3	3.429	3.464	3.5	4
5	4	4.444	4.472	4.5	5
6	5	5.455	5.477	5.5	6
7	6	6.462	6.481	6.5	7
8	7	7.467	7.483	7.5	8
9	8	8.471	8.485	8.5	9
10	9	9.474	9.487	9.5	10
11	10	10.476	10.488	10.5	11
12	11	11.478	11.489	11.5	12
13	12	12.480	12.490	12.5	13
14	13	13.481	13.491	13.5	14
15	14	14.483	14.491	14.5	15
16	15	15.484	15.492	15.5	16
17	16	16.485	16.492	16.5	17

* Rounded-off at third decimal

APPENDIX E (*Cont'd*)

For assemblyman number	According to method of				
	Smallest divisors	Harmonic mean*	Equal proportions (geometric mean)*	Major fractions (arithmetic mean)	Greatest divisors
18	17	17.486	17.493	17.5	18
19	18	18.486	18.493	18.5	19
20	19	19.487	19.494	19.5	20
21	20	20.488	20.494	20.5	21
22	21	21.488	21.494	21.5	22
23	22	22.489	22.494	22.5	23
24	23	23.489	23.495	23.5	24
25	24	24.490	24.495	24.5	25
26	25	25.490	25.495	25.5	26
27	26	26.491	26.495	26.5	27
28	27	27.491	27.495	27.5	28
29	28	28.491	28.496	28.5	29
30	29	29.492	29.496	29.5	30
31	30	30.492	30.496	30.5	31
32	31	31.492	31.496	31.5	32
33	32	32.492	32.496	32.5	33
34	33	33.493	33.496	33.5	34
35	34	34.493	34.496	34.5	35
36	35	35.493	35.496	35.5	36
37	36	36.493	36.497	36.5	37
38	37	37.493	37.497	37.5	38
39	38	38.494	38.497	38.5	39
40	39	39.494	39.497	39.5	40
41	40	40.494	40.497	40.5	41
42	41	41.494	41.497	41.5	42
43	42	42.494	42.497	42.5	43
44	43	43.494	43.497	43.5	44
45	44	44.494	44.497	44.5	45
46	45	45.495	45.497	45.5	46
47	46	46.495	46.497	46.5	47
48	47	47.495	47.497	47.5	48
49	48	48.495	48.497	48.5	49
50	49	49.495	49.497	49.5	50
51	50	50.495	50.497	50.5	51
99	98	98.497	98.498	98.5	99
100	99	99.497	99.499	99.5	100
101	100	100.498	100.499	100.5	101
149	148	148.498	148.499	148.5	149
150	149	149.498	149.499	149.5	150
151	150	150.498	150.499	150.5	151
199	198	198.499	198.499	198.5	199
200	199	199.499	199.499	199.5	200
201	200	200.499	200.499	200.5	201

* Rounded-off at third decimal