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THE ORIGINAL UNDERSTANDING OF THE CENSUS CLAUSE: STATISTICAL ESTIMATES AND THE CONSTITUTIONAL REQUIREMENT OF AN “ACTUAL ENUMERATION”

Thomas R. Lee*

This Article addresses the question of whether statistical methods of estimating the population for purposes of congressional apportionment are consistent with the constitutional requirement of an “actual enumeration.” Although the existing literature generally asserts that history provides no meaningful guidance on this question, this Article uncovers an extensive historical record—that supports the conclusion that the generation of the Framers understood that an “actual enumeration” would consist of an actual count and would not be based on statistical estimation. Specifically, the Article shows that assessments of population on both sides of the Atlantic routinely contrasted methods of drawing “conjectural estimates” with the more costly approach of conducting an “actual enumeration.” Moreover, the Article identifies historical evidence that the Framers’ generation was well aware of the principal “modern” objection to enumeration—that the inherent limitations of such an approach predictably lead to an undercount. Thus, the Article concludes that the Framers prescribed a census by “actual enumeration” not out of naivété or unfamiliarity with methods of estimation, but to minimize the risk of political manipulation in what they knew would always be a politically charged decision—the apportionment of seats in the U.S. House of Representatives.

In 1997, the United States Census Bureau released a written report to Congress outlining its proposal to use statistical sampling to supplement the apportionment count in the 2000 census.¹ Two separate legal challenges followed, one filed by various counties and States and the other by the United States House of Representatives.² Both suits alleged that the Bureau’s plan was unlawful under the Census Act and the Census Clause of the United States Constitution.³

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Ultimately, the Supreme Court struck down the Bureau’s sampling proposal on statutory grounds. Justice O’Connor’s opinion for the Court held that “there is only one plausible reading of [the Census Act]: It prohibits the use of sampling in calculating the population for purposes of apportionment.” In so doing, the Court stopped short of deciding the constitutional question of whether the Census Clause’s requirement of an “actual enumeration” forecloses the use of statistical methods.

That issue was taken up briefly in Justice Scalia’s concurrence and in Justice Stevens’ dissent. Justice Scalia argued in support of the majority’s statutory interpretation based on the principle of “constitutional doubt”—that “the statutory intent to permit use of sampling for apportionment purposes is at least not clear,” and that it is “unquestionably doubtful whether the constitutional requirement of an ‘actual Enumeration’... is satisfied by statistical sampling.” Justice Scalia’s view of the Constitution stemmed primarily from his understanding of the text. He noted that “[d]ictionaries roughly contemporaneous with the ratification of the Constitution” defined “enumerate” as “to count”—“singly,” “separately,” “number by number,” or “distinctly.” Because the notion of such counting is

4. U.S. Dep’t of Commerce v. U.S. House of Representatives, 525 U.S. 316, 340 (1999). Because the two cases were heard by a special three-judge court prescribed by statute, see Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Act of 1998, Pub. L. No. 105-119, § 209(e)(I), III Stat. 2440, 2482 (codified in a note following 13 U.S.C. § 141 (Supp. 2000)), the cases were heard on direct appeal to the Supreme Court. The Court consolidated both cases for oral argument and then affirmed the Glavin court’s rulings on justiciability and on the legality of the sampling proposal under the Census Act and dismissed the appeal in House of Representatives for failing to present any additional substantial federal question. House of Representatives, 525 U.S. at 328, 330, 344.

5. House of Representatives, 525 U.S. at 340. The operative provision of the Act is section 195, which provides that “[e]xcept for the determination of population for purposes of apportionment of Representatives in Congress among the several States, the Secretary shall, if he considers it feasible, authorize the use of the statistical method known as ‘sampling’ in carrying out the provisions of this title.” 13 U.S.C. § 195 (1994). Justice O’Connor’s opinion for the Court acknowledged that this provision’s “except/shall” structure reasonably could be read on its face “as either permissive or prohibitive with regard to the use of sampling” for apportionment. House of Representatives, 525 U.S. at 339. She concluded, however, that any ambiguity was clarified by the history of the Act. Because “federal statutes have prohibited the use of statistical sampling where apportionment is concerned” for over 200 years, Justice O’Connor concluded that Congress did not intend to overturn this approach in section 195. Id. at 339–40.


8. Id. at 346–47 (quoting NOAH WEBSTER, AMERICAN DICTIONARY OF THE ENGLISH LANGUAGE (1828); SAMUEL JOHNSON, DICTIONARY OF THE ENGLISH LANGUAGE 658 (4th ed. 1773); THOMAS SHERIDAN, COMPLETE DICTIONARY OF THE ENGLISH LANGUAGE (6th ed. 1796)). For a contrary
The History of "Actual Enumeration"

"incompatible . . . with gross statistical estimates," Scalia concluded that "a strong case can be made that an apportionment census conducted with the use of 'sampling techniques' is not the 'actual Enumeration' that the Constitution requires." 9

Scalia also alluded briefly to historical practice. He noted that "[t]here were difficult-to-reach inhabitants in the early 1800's, just as there are today," and surmised that "it must have been known that various methods of estimating unreachable people would be more accurate than assuming that all unreachable people did not exist." 10 But because "such methods of estimation have not been used for over two centuries," Justice Scalia asserted that "the early Congresses" must have "thought that estimations were not permissible." 11

Justice Stevens also touched briefly on the constitutional question in his dissent. Under the view outlined by Justice Stevens, "[t]he paramount constitutional principle codified in th[e] [Census] Clause was the rule of periodic reapportionment by means of a decennial census." 12 Because "[t]he July 1787 debate over future reapportionment of seats in the House of Representatives did not include any dispute about proposed methods of determining the population," Stevens opined that the addition of the words "actual Enumeration" was merely a "stylistic change" that "did not limit Congress' authority to determine the 'Manner' of conducting the census." 13

In this Article, I pick up where the Justices' opinions in House of Representatives left off—discussing extensive historical detail relevant to the questions raised by Justices Scalia and Stevens but not presented to the Court in that case. In so doing, I disagree strongly with existing scholarship that concludes—without the benefit of most of the material discussed herein—that "the Founding Fathers have precious little

textual analysis, see Recent Cases, United States House of Representatives v. United States Department of Commerce, 112 HARV. L. REV. 566, 569-70 (1998) (arguing that a 1981 edition of Webster's Third New International Dictionary—which defines "actual" as "existing in fact" or in "reality," and "enumeration" as "counting" or "listing"—suggests that the Census Clause "places a valued premium on accuracy," and concluding that "the enumeration that least achieves this goal . . . is the most constitutionally suspect").


10. Id. at 347-48. Here, Scalia referred to "Thomas Jefferson's 1782 estimate of the population of Virginia" as an example of such a method. Id. This and many other methods of estimation known to the generation of the Framers are discussed in Section II infra.

11. Id. at 348.

12. Id. at 363 (Stevens, J., dissenting).

13. Id.
guidance to offer” on the meaning of the Actual Enumeration Clause. In my view, the relevant historical record leaves little or no doubt that the Framers understood that an “actual enumeration” would consist of an actual count and would not be based on statistical estimation.

This conclusion is of more than academic interest. An informed, original understanding of the constitutional requirement of an “actual enumeration” will help to determine the census methodologies available to Congress and to the Census Bureau in the future. Even more immediately, an original understanding of the Census Clause is relevant to the apportionment of seats in the House in the 2000 census. Despite the *House of Representatives* decision, the Census Bureau used a statistical estimation method called “hot-deck imputation” in the 2000 census apportionment count, and the use of that method shifted a seat in the House from Utah to North Carolina. Utah has challenged that method on both constitutional and statutory grounds, and the Supreme Court has scheduled oral argument in the case for March 27, 2002.

In Section I, I offer some context for the dispute by reviewing the history of the methods employed in the decennial census of the United States, from the first census of 1790 to the most recent census in 2000. After describing the methods of statistical estimation recently proposed and employed by the Census Bureau, I identify the contours of the...
The History of “Actual Enumeration”

historical inquiry by reciting the originalist arguments put forward in the *House of Representatives* and *Utah* litigation and by recounting the limited scholarly work on this issue that has been published to date.

The balance of the Article is devoted to uncovering and interpreting the relevant history, with particular focus on eighteenth-century usage of the phrase “actual enumeration” in the course of contemporaneous discussion of the “various methods of estimating unreachable people” hypothesized by Justice Scalia to “have been known” to the founding generation. I begin in Part A of Section II by identifying an extensive debate in eighteenth-century Britain concerning the state and direction of that country’s population. This discussion reveals that in the decades leading up to the Constitution, the Framers’ contemporaries in Britain not only had implemented various methods of estimating the population (including the equivalent of representative sampling by partial enumeration), but had expressly acknowledged the difference between such estimates and a full “actual enumeration.”

Part B of Section II turns to the eighteenth-century American usage of the constitutional language. Based on population assessments from the pre-constitutional era, on the records of the Constitutional debate, and on the history of the first census, I conclude that the Framers shared their British contemporaries’ understanding of an “actual enumeration.” Specifically, they understood the difference between an enumeration and a mere estimate, and expressly acknowledged that an enumeration would not yield a perfectly complete account of population; yet they accepted an enumeration as the constitutionally prescribed “method” of determining the population for purposes of apportionment. Accordingly, in light of the extensive history uncovered and addressed here, I conclude that the Framers’ prescription for an “actual enumeration” can only be understood to call for an actual, individualized count and to eschew statistical adjustments to that count.

I. CENSUS-TAKING UNDER THE CONSTITUTION

The decennial census is conducted pursuant to the constitutional requirement of an “actual Enumeration” of “the whole number of persons in each [s]tate” as the basis for apportionment of seats in the U.S. House of Representatives. In the Census Act, Congress delegated

responsibility for conducting the census to the Secretary of Commerce.\textsuperscript{22} The Secretary has the responsibility to conduct "a decennial census" of the "population" of each of the United States.\textsuperscript{23} The Secretary, in turn, is authorized to delegate the performance of his functions and duties to officers and employees of the Department of Commerce, such as the Director of the Census Bureau.\textsuperscript{24}

"From the very first census, the census of 1790," Congress required enumerators to "swear an oath to make 'a just and perfect enumeration' of every person within the division to which they were assigned."\textsuperscript{25} In 1810, Congress clarified that "the said enumeration shall be made by an actual inquiry at every dwelling-house, or of the head of every family within each district, and not otherwise."\textsuperscript{26} This requirement—that enumerators visit each home in person—"appeared in statutes governing the next 14 censuses."\textsuperscript{27}

The current Census Act, enacted in 1954, initially contained substantially similar language requiring enumerators to "visit personally each dwelling house in his subdivision" in order to obtain 'every item of information and all particulars required for any census or survey' conducted in connection with the census.\textsuperscript{28} In 1964, however, Congress repealed the requirement that enumerators personally visit each housing unit.\textsuperscript{29} Thus, in the most recent four censuses, the Census Bureau has relied initially on forms to be delivered and returned by mail, and has used personal visits only as a "followup" procedure where the forms were not returned by mail.\textsuperscript{30}

\begin{itemize}
\item \textsuperscript{21} 13 U.S.C. §§ 1–401 (1994).
\item \textsuperscript{22} Id. § 4.
\item \textsuperscript{23} Id. § 141(a).
\item \textsuperscript{24} Id. § 4 (providing that the Secretary may delegate "the performance of such functions and duties and the authority to issue such rules and regulations" delegated to the Secretary "to such officers and employees of the Department of Commerce as he may designate"); id. § 21 (stating that the Director of the Census is to be "appointed by the President" and "shall perform such duties as may be imposed upon him by law, regulations, or orders of the Secretary").
\item \textsuperscript{26} House of Representatives, 525 U.S. at 335 (quoting Act of Mar. 26, 1810, § 1, 2 Stat. 565–66).
\item \textsuperscript{27} Id.
\item \textsuperscript{28} Id. at 336 (quoting Act of Aug. 31, 1954, § 25(c), 68 Stat. 1012, 1015).
\item \textsuperscript{29} See id. at 337 (citing Act of Aug. 31, 1964, 78 Stat. 737).
\item \textsuperscript{30} See id.
\end{itemize}
Despite its extensive “effort to reach every household” either by mail or in person, “the Bureau has always failed to reach—and has thus failed to count—a portion of the population.”31 This “undercount” problem gives rise to the constitutional question addressed herein: whether the constitutional prescription for an “actual enumeration” should be read to prohibit statistical methods of estimating persons not actually counted by the methods set forth above. As explained below, the Bureau has implemented one such statistical method and has proposed another. The litigation spawned by these methods sets the stage for the historical inquiry that is the focus of this Article.

A. Proposed and Actual Estimation in the 2000 Census

1. The Census Bureau’s Method of Actual Enumeration

In executing the apportionment count in the 2000 census, the Census Bureau began by compiling a “Master Address File”—i.e., a comprehensive list of dwelling places within the United States—with the assistance of the United States Postal Service, tribal, state, and local governments, and canvasses of selected areas where other sources were deemed unlikely to yield highly accurate address lists.32 After this comprehensive file was in place, the Census Bureau employed a number of different procedures in attempting to contact every housing unit on the file.33

Three primary methods of enumeration were utilized in attempting to contact every household on the Master Address File. First, the majority of households (more than 80%) have city-style addresses (i.e., addresses that contain a house number and a street name) and were contacted through forms mailed to them through the United States Postal Service, which they were to fill out and mail back to the Census Bureau.34 This is known as the “mailout/mailback” procedure.35

31. Id. at 322.
34. Id. § IX-1.
35. Id. §§ II-2 to II-4, IX-1.
Second, for areas where addresses used for mail delivery are predominantly non-city-style (i.e., rural postal route addresses or other addresses that do not contain a house number and street name), enumerators used a counting mechanism known as the "update/leave" procedure. In performing that procedure, an enumerator would leave a census form at a housing unit for a member of the household to complete and mail back, and would update the entry for that housing unit in the Master Address File.

Finally, for housing units in remote and sparsely populated areas, the Census Bureau employed the "list.enumerate" procedure. Under this procedure, enumerators contacted the housing units in person, completed census questionnaires following interviews with one or more occupants of each unit, and recorded the addresses on the Master Address File. For all housing units listed on the Master Address File that were not enumerated through these procedures, the Census Bureau conducted a "Non-Response Follow-Up" (NRFU), in which enumerators attempted to contact persons living in those housing units (either by telephone or through a personal visit) and complete missing census questionnaires following an interview with a member of the household. During NRFU, several attempts were made to contact any housing units for which a completed census response had not been obtained, or for households that had been identified as vacant or non-existent. If an enumerator was unable to contact any of the occupants of a particular housing unit after multiple visits or telephone calls, he or she would attempt to complete the census questionnaire for that housing unit using information obtained

36. Id.
37. Id. § IX-1.
38. Id. Some individuals not enumerated through one of the procedures described above were able to obtain census forms from the local post office or by contacting a hotline through the "Be Counted" program. Id. §§ IX-2 to IX-9. Targeted efforts to improve coverage were implemented in difficult-to-enumerate areas. Id. Separate procedures were used by the Census Bureau to enumerate "special populations," such as military bases, group living situations, persons without a usual residence, etc. Id.
40. See Prewitt, supra note 39, at 8.
The History of "Actual Enumeration"

from a "proxy" or from some other "last resort" method (e.g., conversations with neighbors, personal observations, etc.).

As noted above, no matter how comprehensive the Bureau's efforts to reach every household by these methods, some households inevitably go uncounted. This "undercount" stems from a variety of sources: from individual reluctance to respond to Census Bureau inquiries, to errors in the Master Address File, and many other reasons.

2. The Census Bureau's Methods of Estimation

The Census Bureau's 1997 Report to Congress contained one proposed response to this undercount—the response that gave rise to the litigation in the House of Representatives case. The Bureau's proposal included three steps. First, the Bureau proposed to "send census forms to all households, as well as make forms available in post offices and in other public places." The Bureau anticipated "that 67 percent of households [would] return the forms." Second, the Bureau planned "to divide the population into census tracts of approximately 4,000 people

41. See id. During a second follow-up procedure known as "Coverage Improvement Follow-Up" (CIFU), the Bureau made further attempts to verify information for housing units that were identified as "vacant" or "delete" (i.e., of uncertain existence) during Non-Response Follow-Up, or to obtain population data for housing units still lacking population counts. CENSUS 2000 OPERATIONAL PLAN, supra note 33, at §§ IX-13 to IX-14. In addition, housing units that were added to the Master Address File during census operations, but which were not followed up on during NRFU, were also contacted through CIFU. Id.

42. See, e.g., CENSUS 2000 REPORT, supra note 1, at 5–6.


44. See, e.g., Hearing Before the Subcomm. on Census and Population of the Comm. on Post Office and Civil Service, 102nd Cong. 98–101 (Feb. 21, 1991) (statement of Stephen E. Fienberg) (listing a number of sources of census error); Affidavit of Barbara A. Bailar, Associate Director for Statistical Standards and Methodology at the United States Bureau of the Census, at 2 ¶5, Orr v. Baldridge, No. IP-81-604C (S.D. Ind. July 1, 1985); Memorandum from Deborah A. Harner and Kathryn F. Thomas, to Charles D. Jones, Chief of the Statistical Methods Division of the United States Bureau of the Census 1 (Nov. 4, 1982) (noting that clerical error produces incomplete data); PETER BOUPANE AND CLIFTON JORDAN, PLANS FOR COVERAGE IMPROVEMENT IN THE 1980 CENSUS, at 2, 5 (noting that undercounts are exacerbated by the difficulty of enumerating transient populations and by misunderstandings about who should be enumerated).


46. Id.
that [would] have 'homogeneous population characteristics, economic status, and living conditions':

The Bureau would then visit a randomly selected sample of nonresponding housing units, which would be "statistically representative of all housing units in [a] nonresponding tract." The rate of nonresponse follow-up in a tract would vary with the mail response rate to ensure that the Bureau obtain[ed] census data from at least 90 percent of the housing units in each census tract. For instance, if a census tract had 1,000 housing units and 800 units responded by mail, the Bureau would survey 100 out of the 200 nonresponding units to obtain information about 90 percent of the housing units. However, if only 400 of the 1,000 housing units responded by mail, the Bureau would visit 500 of the 600 nonresponding units to achieve the same result.47

Third, “[t]he information gathered from the nonresponding housing units surveyed by the Bureau would then be used to estimate the size and characteristics of the nonresponding housing units that the Bureau did not visit.”48 "Thus, continuing with the first example, the Bureau would use information about the 100 nonresponding units it visits to estimate the characteristics of the remaining 100 nonresponding units on which the Bureau has no information."49

The Supreme Court struck down this procedure in *House of Representatives* on statutory grounds. Specifically, the Court held that the Bureau’s proposed methodology was unlawful under section 195 of the Census Act which provides that “[e]xcept for the determination of population for purposes of apportionment of Representatives in Congress among the several States, the Secretary shall, if he considers it feasible, authorize the use of the statistical method known as ‘sampling’ in carrying out the provisions of this title.”50 Although the Court acknowledged that this provision’s “except-shall” structure reasonably could be read on its face “as either permissive or prohibitive with regard to the use of sampling for apportionment,” it held that any ambiguity was

47. *Id.*
48. *Id.* at 324–25.
49. *Id.* at 325.
clarified by the history of the Act.\footnote{52} Because "federal statutes have prohibited the use of statistical sampling where apportionment is concerned" for over 200 years, the Court held that Congress did not intend to overturn this approach in section 195.\footnote{53}

Despite this holding, the Census Bureau did not eliminate statistical estimation methods from the 2000 apportionment count entirely.\footnote{54} Rather, the Bureau employed a procedure known as "hot-deck imputation" to estimate the size of households not counted by the mailout-mailback and follow-up methods described above.\footnote{55} Under the hot-deck method, a housing unit not enumerated by such methods is estimated to have the same number of occupants as the geographically closest unit within the same census tract that was enumerated.\footnote{56} This estimate is derived from the Bureau’s adoption of the “statistical

\footnote{52. House of Representatives, 525 U.S. at 339.}
\footnote{53. Id. at 339–40.}
\footnote{54. In addition to implementing the “hot-deck imputation” method discussed below, the Bureau also continued to use statistical sampling techniques designed for purposes other than congressional apportionment, such as redistricting and congressional funding. See U.S. DEP’T OF COMMERCE, UPDATED SUMMARY: CENSUS 2000 OPERATIONAL PLAN 1 (1999). Under these procedures, a post-enumeration survey entitled the Accuracy and Coverage Evaluation ("ACE") surveyed a sample of some 300,000 housing units in an attempt to derive a more accurate picture of the population. Id. On March 6, 2001, the Bush Administration announced its decision not to implement the results of the ACE survey even for redistricting and funding purposes. Decision of the Secretary of Commerce to Release the Tabulations of Population Reported to States and Localities Pursuant to 13 U.S.C. § 141(c), 66 Fed. Reg. 14520 (Mar. 13, 2001).}
\footnote{55. See GRIFFIN, supra note 16; DSSD CENSUS 2000 PROCEDURE AND OPERATIONS MEMORANDUM SERIES #Q-34, supra note 16, at 1–15. The 2000 census was not the first census in which hot-deck imputation was used to estimate the size of unenumerated households. Hot-deck imputation was first used to supplement the apportionment count in the 1960 census. See Declaration of Howard Hogan, ¶ 16, State of Utah v. Evans, Civ. No. 2:01-CV-00292G (Nov. 1, 2001); Consolidated Memorandum, supra note 16, at ¶ 15. A similar method was used in the 1940 and 1950 censuses to estimate characteristics of the population (such as age), and not to estimate the actual population count for apportionment purposes. See ENCYCLOPEDIA OF THE U.S. CENSUS 195–97 (Margo J. Anderson ed., 2000); ROBERT M. JENKINS, PROCEDURAL HISTORY OF THE 1940 CENSUS OF HOUSING AND POPULATION 45–48, 68–73 (1985); CENSUS 2000 REPORT, supra note 1. The impact and extent of imputation in previous censuses is not clearly indicated by existing Census Bureau records. In 1980, the Bureau’s use of imputation shifted one seat in the House of Representatives from Indiana to Florida. Ort v. Baldrige, No. IP-81-604-C, slip op. at 2 (S.D. Ind. July 1, 1985). Other than before 1980, however, the Census Bureau has taken the position that its records do not establish whether imputation has had any other impact on apportionment except to shift a seat from Utah to North Carolina in the 2000 census. See Consolidated Memorandum, supra note 16, at ¶ 20; Declaration of Howard Hogan ¶ 50 n.9, State of Utah v. Evans, Civ. No. 2:01-CV-000292G (Nov. 1, 2001).}
\footnote{56. See DSSD CENSUS 2000 PROCEDURES AND OPERATIONS MEMORANDUM SERIES #Q-34, supra note 16, at 1–15; Declaration of Howard Hogan ¶ 17, State of Utah v. Evans, Civ. No. 2:01-CV-000292G (Nov. 1, 2001).}
principle of ‘homogeneity,’ or the tendency of households within a small geographic area to be similar in most characteristics.”

Hot-deck imputation was used to estimate the occupancy of all housing units that, at the conclusion of the follow-up procedures described above, were assigned an “unknown” status. In other words, imputation was employed where census enumerators were unable to determine (1) whether such units actually existed, (2) whether they were occupied or vacant, or (3) the number of persons residing therein. Like the methodology struck down on statutory grounds in *House of Representatives*, then, hot-deck imputation was designed to estimate the size of housing units for which there was no actual count.

The hot-deck method differed from the sampling method struck down in *House of Representatives* in two principal respects. First, imputation invoked statistical estimation on a smaller scale. The plan challenged in *House of Representatives* would have authorized the Bureau to count 90% of the housing units in each census tract by traditional methods of enumeration, and then use a statistical model to estimate the remaining 10%. The statistical imputation methodology employed in the 2000 census, by comparison, was used to estimate a much smaller percentage of the housing units that were not counted by traditional enumeration methods. Only about 0.43% of the total apportionment count was included as a result of statistical imputation; the vast majority of the apportionment count was produced by data compiled by traditional methods of enumeration.

Second, hot-deck imputation employs a different sample-selection mechanism than that struck down in *House of Representatives*. Hot-deck imputation relies on data derived from a non-random, individual “donor” household to estimate individual households that were not enumerated by the mailout-mailback and follow-up procedures noted above. The methodology at issue in *House of Representatives*, on the other hand, would have estimated the size of such unenumerated households by use of “a randomly selected sample of nonresponding housing units, which

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57. CENSUS 2000 REPORT, supra note 1, at 56.
60. See DSSD CENSUS 2000 PROCEDURES AND OPERATIONS MEMORANDUM SERIES #B-17, supra note 16, at 14.
would be ‘statistically representative of all housing units in [a] nonresponding tract.”

B. The Ensuing Litigation and the Contours of the Historical Inquiry

The lawsuits filed in the wake of these methods of estimation have sparked some interest in the original understanding of the Census Clause, but have shed precious little light on the matter. The principal focus of the briefs in the House of Representatives case was on the statutory question that was ultimately decided by the Court—whether section 195 of the Census Act should be construed as “permissive or prohibitive with regard to the use of sampling for apportionment purposes.” The constitutional question was certainly raised by the parties and by their amici, but the briefs failed to provide the Court with any comprehensive history of the Founding generation’s understanding of the notion of an “actual enumeration” and its reconcilability with methods of statistical estimation. Thus, Justice Scalia hypothesized in his concurrence that “various methods of estimating unreachable people” likely “must have been known” to the Framers, but the briefs of appellees and their amici had identified only scant support for that proposition—such as “Thomas Jefferson’s 1782 estimate of the population of Virginia based upon limited data and specific demographic assumptions,” cited in Scalia’s concurrence.

For their part, the briefs of appellants and their amici cited the apparent dearth of historical evidence of the original meaning of an “actual enumeration” as support for their position that “the phrase ‘actual Enumeration’ was not intended to constrain Congress’s choice of an appropriate methodology for determining the number of persons within each of the States.” Thus, the Solicitor General argued that there was no historical evidence to suggest “that the Framers were familiar with ‘estimation techniques’ and deliberately chose language that would preclude the use of such mechanisms.”

61. House of Representatives, 525 U.S. at 324.
62. Id. at 339.
63. Id. at 348 (Scalia, J., concurring).
64. Id.
66. Id. at 18.
identified Jefferson’s 1782 assessment of the Virginia population as an example of an estimation technique, the Solicitor General asserted that such a method “did not involve efforts to ascertain the population through actual inquiry of the people,” but only “involved attempts to utilize pre-existing data from various sources that had initially been compiled for other purposes.” Accordingly, the Solicitor General concluded that “[s]tatistical sampling as a probability method did not exist at the time the Constitution was drafted” and that “the Framers therefore could not have rejected its use.”

The Solicitor General also sought to challenge the logic of the distinction between an “estimate” and an “enumeration.” Because the Census Bureau does not and cannot execute a perfect count of all persons in each State, the Solicitor General asserted that the method of “ascertaining the numbers of persons within each State who can be specifically located and identified...will produce only an approximation of the numbers of persons actually residing within the States, not an exact count thereof.” In this sense, the Solicitor General concluded that “[t]he question before the Court” was whether the Constitution “requires the Bureau to employ that particular method of approximating the actual population—not whether...the Constitution prohibits estimation as such.”

Finally, the Solicitor General argued that any preference that the Framers might have had for an actual “count” over a mere “estimate” should simply be understood to elevate precision and accuracy over guesswork. “In common usage,” in other words, an instruction to “count” and not to “estimate” the “number of persons or objects at a particular location” would be understood only to “reflect a desire for a precisely accurate number,” and not to prescribe a particular method of assessing that number. In the Solicitor General’s view, however, “[t]hat distinction loses its significance...in situations (like the decennial census of population) where precise accuracy is unattainable.” In those situations, the Solicitor General argued that “population figures derived

67. Id.
68. Id.
69. Id. at 7.
70. Id.
71. Id. at 8 n.7.
72. Id.
73. Id.
The History of "Actual Enumeration"

through the use of sampling... more accurately reflect the actual populations of the States than... figures produced without sampling," so that the combination of a partial enumeration with a partial estimate is more faithful to any originalist preference for an actual "count."74

The briefing in Utah v. Evans75 has focused on similar issues. Although House of Representatives conclusively resolved the question whether section 195 was prohibitive or permissive (holding that it was the former), the Utah case still presents an important question of statutory interpretation: whether hot-deck imputation can be characterized as a "statistical method known as 'sampling.'"76 Utah has argued that it is, noting that the Bureau itself characterized imputation as sampling in an attempt to establish historical precedent for the sampling struck down in House of Representatives, and resting on the Bureau's own definition of "sampling" as the use of "information on a portion of a population" to "infer information" about unobserved portions or on the population as a whole.77 The Bureau has argued to the contrary, suggesting that Congress intended to prohibit only the narrow category of "random" sampling struck down in House of Representatives and not the more limited procedure of hot-deck imputation employed in the past few censuses.78

On the constitutional question, the Bureau has adopted arguments that mirror those asserted by the Solicitor General in House of Representatives. Thus, the Bureau argues that hot-deck imputation is consistent with the constitutional requirement of an "actual enumeration" because the Framers may have been familiar with methods of estimation that amounted to conjecture and guesswork, but there is no historical evidence that the Framers were familiar with estimation techniques as

74. Id.
77. See Brief of Plaintiffs in Support of Motion for Summary Judgment, Utah v. Evans, No. 2:01-CV-000292G (2001) ¶ 24 (citing CENSUS 2000 REPORT, supra note 1, at 23; Hearing Before the House Subcommittee on the Census, Committee on Government Reform, 106th Cong. 57 (June 22, 2000) (Testimony of Census Bureau Director Kenneth Prewitt) ("[I]n the apportionment number there will be a certain number of Census records which are put there through an imputed process. Those are not people with names. They are not people who filled out a form. They are people who our statistical processes lead us to believe by putting that Census record in there we have given the country a more accurate number.").
sophisticated as those now utilized by the Bureau. In addition, the Bureau contends that any assessment of population is in some sense an "estimate," so any supposed constitutional ban on estimation is meaningless. Finally, the Bureau suggests that any supposed constitutional distinction between an estimate and an actual count should be seen as a preference for accuracy, not a prescription of methodology.

C. Scholarly Writing on the Original Meaning of an Actual Enumeration

Current scholarly literature offers a similarly skeptical view of history's role in circumscribing the constitutionality of various methods of census-taking. In a 1998 workshop on this issue, a number of scholars concurred in the conclusion that "the Founding Fathers have precious little guidance to offer" on the question whether statistical estimation is a permissible method of taking an actual enumeration of population. But despite their sweeping conclusions, participants in this workshop offered little indication that they had engaged in any careful examination of the relevant historical sources. Instead, their consensus view that "the phrase 'actual Enumeration' does not 'seem laden with any great significance,'" was based on the notion that the Framers "knew nothing of sampling as such, and could not have rejected its use." A 1981 Note in the Harvard Law Review offered the same view: that "the Framers could not have contemplated today's sophisticated methods of statistical correction," and thus that "it would be foolish to read 'actual enumeration' as requiring a headcount if more accurate results can be achieved by using a headcount as modified by adjustment methods."

79. Id. at 52 (stating that "the type of 'estimation' about which the Framers were concerned was that based on conjecture, projections, political dealmaking or pure guesswork, not the limited use of a procedure designed to deal with inevitable errors or missing data during a census that is attempting to count every inhabitant").
80. Id. at 53 (arguing that a decision "[n]ot to impute a plausible value is to impute zero occupants for [unenumerated] households, which is the equivalent of not counting the individuals in those households").
81. Id. at 52–53.
82. The First American Census in Methodological Perspective, supra note 14.
83. Id.
84. Id.
85. Note, Demography and Distrust: Constitutional Issues of the Federal Census, 94 HARV. L. REV. 841, 854 (1981). In my view, the question of original intent is unfairly loaded when it is phrased in terms of whether the Framers envisioned a "headcount." From the very first census,
Most of the other scholarly writing on this issue has reached similar conclusions.86

Recent scholarship has also embraced the Solicitor General’s attempt to cast statistical estimation as logically inevitable and to characterize the Census Clause as ultimately resting on a preference for accuracy over conjecture. A recent Note in the Harvard Law Review on the House of

enumerators have been charged with acquiring data from members of households and others who may have firsthand knowledge of the numbers relevant to the census. See text accompanying notes 287–95, infra. The same approach to an “actual enumeration” of population was followed in eighteenth-century Britain. See text accompanying notes 158–69, infra. Thus, there is no historical basis for the premise that an actual enumeration requires a “headcount” in the sense of including only those persons who are visually verified and counted by the enumerator. Rather, the originalist notion of enumeration that I envision and argue for here is one that requires an actual count by means of data gathered for individual households from persons who have firsthand knowledge of the number of persons living in such households. As explained in detail below, historically this would have been understood as an “actual enumeration” despite the fact that many of those who were enumerated were never visually counted by the enumerator.

86. See David B. Goldin, Numbers Wars: A Decade of Census Litigation, 32 U. TOL. L. REV. 1, 13 (2000) (arguing that the conclusion that “Congress prohibited the use of sampling in connection with the census in 1790 is an anachronism, since the use of sampling had not yet been invented,” and asserting that the historical evidence could just as well be cited to support a ban on “the use of telephones and the Internet as to prohibit sampling”); Jeffery S. Crampton, Comment, Lies, Damn Lies and Statistics: Dispelling Some Myths Surrounding the United States Census, 1 DETROIT C. L. REV. 71, 86 (1990) (“There is no way the founders could have known about the sophisticated sampling techniques used today.”); Stephanie M. Zlasney, Casenote, U.S. Dep’t of Commerce v. U.S. House of Representatives, Article I, Section 2, Clause 3—Census Clause—Proposal To Use Statistical Sampling in the 2000 Census in Conjunction with Traditional Enumerated Method To Calculate the Population for Purposes of Apportionment Violates the Census Act, 10 SETON HALL CONST. L. J. 653, 690 (2000) (concluding that “the Framers could not have been aware of the rapid growth and diverse nature of the United States in the future,” and that they “were unaware of the statistical methods that would later emerge to remedy what has become known as the undercount”).

The lone holdouts that I have found in the academic literature are Jennifer M. Safavian, Down for the Count: The Constitutional, Political and Policy Related Problems of Census Sampling, 8 GEO. MASON L. REV. 477 (2000), and Daniel Garth Hazard, Note, U.S. Dep’t of Commerce v. U.S. House of Representatives—Constitutional Text: Out of Sight, Out of Mind, 32 U. TOL. L. REV. 89 (2000). Safavian, a former Chief Counsel and Deputy Staff Director of the Subcommittee of the House of Representatives that oversees the census, argues that “the use of sampling to determine the United States’ population is both politically questionable and constitutionally suspect,” Safavian, supra, at 478, and in so doing summarily covers some of the material that I address herein, see id. at 507–13 (discussing the debate over the Census Clause). Safavian’s inquiry thus intersects mine in this minimal respect, but her focus is on policy, not on original intent. Her examination of the history of the Census Clause, in other words, is offered in support of her conclusion that “[a] direct headcount would preclude the threat of political manipulation of the census—a factor critical to the Framers.” Id. at 513. She makes no attempt to examine the historical material relevant to the original understanding of an “actual Enumeration.” Id. (setting aside the question whether “the Framers could . . . have imagined the country as it is today, or the advances in statistical methods”). Hazard’s student Note provides only a description of the Court’s opinions in the case and of the arguments raised in the parties’ briefs.
Representatives case concludes, for example, that "the traditional headcount is itself no more than one category of statistical sample: one in which those who are 'enumerated' are taken to represent the whole number of persons, without any further statistical checks or controls." Another Note in the same journal argues that the Census Act "places a valued premium on accuracy," and that "[a]lthough no enumeration will count everyone, the enumeration that least achieves this goal—the enumeration that unnecessarily invites inaccuracy—is the most constitutionally suspect.

II. THE ORIGINAL UNDERSTANDING OF AN ACTUAL ENUMERATION

Thus, prevailing wisdom rejects the role of history in circumscribing the methods of census-taking that are available under the Census Clause. As set forth in detail above, this view of the Census Clause hinges on three principal points: (1) that the Framers did not understand the sophisticated methods of statistical correction available today and thus could not have intended to foreclose them; (2) that in the absence of any such knowledge, the Framers must have intended only to prescribe a principle of accuracy, and not any particular method of conducting the census; and (3) that any assessment of population is necessarily a mere estimate, so a supposed proscription of estimation is meaningless.

As an initial matter, the underlying premise of these assertions could certainly be questioned. The deconstructionist argument that statistical estimation is inevitable or that all counts are mere estimations depends on a fundamental logical flaw: that the Constitution is equally offended by the exclusion of those who cannot be enumerated as it is by the

87. Leading Cases, 113 HARV. L. REV. 349, 357 n.60 (1999); see also Goldin, supra note 86, at 15 n.127 (asserting that some form of statistical estimation is inevitable in that "the number of people in the United States cannot be confirmed by immediate experience," but is "dependent on complex scientific and management models and processes that are designed to ensure the taking of an accurate census insofar as humanly possible").

88. Recent Cases, supra note 8, at 570; see also Crampton, supra note 86, at 86 (asserting that "the intent of the framers was to gain an accurate count of the people for use in apportioning seats in the House of Representatives," and thus that they must have intended to sanction "the best means available for obtaining an accurate count"); Michael V. McKay, Note, Constitutional Implications of a Population Undercount: Making Sense of the Census Clause, 69 GEO. L.J. 1427, 1446 (1981) (arguing that the Census Clause "appears to mandate a complete count of the population," "is silent about census methodology," and "does not bar the Bureau from obtaining a complete count by means other than a physical headcount").
inclusion of those same persons by methods of statistical estimation. Such a construction of the Census Clause would nullify its plain language; the Framers could not have intended simultaneously to forbid the use of statistical estimates in the census while at the same time requiring their use. Instead, the plain language prescribes an “actual enumeration”—a census based on the numbers of persons that are counted “singly,” “separately,” “number by number,” or “distinctly.”

Thus, the Census Clause necessarily assumes that all persons who cannot be enumerated will be excluded from the apportionment. Exclusion of those persons accordingly does not imply that they are “estimated” out of existence; it simply means that, for whatever reason, they could not be “enumerated” and therefore included in the apportionment count. Inclusion of those same persons, on the other hand, would run afoul of the express constitutional command and cannot be deemed to be equivalent.

The search for evidence of the Framers’ contemplation of modern statistical methods is equally flawed. The relevant question in the search for original understanding is not whether the Framers of the Constitution specifically “rejected” or even “contemplated today’s sophisticated methods of statistical correction.” Instead, the question is simply


90. Moreover, the argument that estimation is inevitable applies with equal force to the “gross statistical estimates” that were called into constitutional doubt in House of Representatives. The Bureau proposed to conduct those estimates to correct for what it perceived as an inevitable undercount of population in some areas and among some groups. See House of Representatives, 525 U.S. at 320.

91. Note, supra note 85, at 854; see also Tashjian v. Republican Party of Conn., 479 U.S. 208, 226 (1986) (holding that the so-called “Qualifications Clause” of Article I, § 2 applies to primary elections notwithstanding the fact that the Framers did not “contemplate the effects of that provision upon the modern system of party primaries”); United States v. Classic, 313 U.S. 299, 315–16 (1941):

[In determining whether a provision of the Constitution applies to a new subject matter, it is of little significance that it is one with which the framers were not familiar. For in setting up an enduring framework of government they undertook to carry out for the indefinite future and in all the vicissitudes of the changing affairs of men, those fundamental purposes which the instrument itself discloses.

Even if this premise were accepted as the proper starting point, it would not sustain the Census Bureau’s current practice of hot-deck imputation. As discussed at notes 128–41, 211–52, infra, the Framers certainly were familiar with methods of statistical estimation that were at least as “sophisticated” as the current practice of assigning an unenumerated household the population count of its nearest neighbor.
whether the Framers would have understood the words “actual enumeration” to foreclose estimation and to require an actual count. If they did, the subsequent development of more sophisticated methods of estimation might provide the impetus for a constitutional amendment, but it does not provide a basis for the Court to rewrite the existing constitutional language.

My approach here, however, is not to quarrel with the premise of this inquiry, but rather to refute its conclusions. In this Section, I offer a detailed historical response to the prevailing skepticism toward history’s role in circumscribing the constitutionally permissible methods of census-taking. In so doing, I demonstrate that during the crucial period of the ratification of the Constitution, the words “actual enumeration” were used on both sides of the Atlantic to describe an actual, individualized count and to contrast such a count with a mere estimate. Various methods of estimation were employed where enumerations were impracticable or incomplete, and the distinction between the two approaches was widely acknowledged. On one hand, both Americans and Britons in the founding era understood that some broad estimates of population would not be as reliable as an actual enumeration of the full population, particularly where they were based on non-representative data acquired by enumeration. On the other hand, they also acknowledged that an actual enumeration itself was not perfect—that some persons would be omitted from official enumeration returns as a result of the negligence of the enumerators or the recalcitrance of those being counted.

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92. For a contrary view in the academic literature, see Recent Cases, supra note 8, at 571 (arguing that “[t]imes change,” and that “methods of traditional enumeration” must evolve in order to “overcome the diminished capacity to produce an accurate enumeration”); id. at 571 n.52 (citing Oliver Wendell Holmes’ aphorism that “[i]t is revolting to have no better reason for a rule of law than that so it was laid down in the time of Henry IV,” and that “[i]t is still more revolting if the grounds upon which it was laid down have vanished long since, and the rule simply persists from blind imitation of the past”).

93. Moreover, if the premise of the skeptical view were accepted, it would embroil the federal courts in an endless series of subjective inquiries into which estimation procedures are of comparable reliability to those of the Framers’ day, and which methods are sufficiently accurate to pass constitutional muster. It is difficult to imagine any workable standard for choosing between competing experts as they argue about whether a particular method of estimation meets some undefined minimum level of reliability. See House of Representatives, 525 U.S. at 348–49 (Scalia, J., concurring) (“The prospect of this Court’s reviewing estimation techniques in the future, to determine which of them so obviously creates a distortion that it cannot be allowed, is not a happy one.”). This cannot be what the Framers of the Census Clause intended.
The History of "Actual Enumeration"

With the backdrop of this history, there can be little doubt that the Framers understood an "actual enumeration" to encompass an individualized count and to eschew methods of estimation. In light of their clear understanding of the shortfalls of the practice of counting the population by an enumeration, and of their conception of various methods of estimating populations that could not be fully enumerated, the Constitutional proscription of methods of estimation could hardly have been more clearly stated than by the requirement of an "actual enumeration." 94

A. Enumerations and Estimates in Eighteenth-Century Britain

Throughout the latter half of the eighteenth century, an extensive, widely published debate raged in England over whether the British population had fallen since the Glorious Revolution of 1688. 95 Interest in this issue was fueled primarily by concerns related to matters of defense. It was generally acknowledged "that the strength of a state consists in the number of [its] people," 96 and that population "gives force and strength

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94. To be sure, the Census Clause goes on to vest in Congress the authority to effect the actual enumeration "in such Manner as [it] shall by Law direct," U.S. CONST. art. I, § 2, cl. 3, but Congress's discretion is limited by "the constitutional language." Wisconsin v. City of New York, 517 U.S. 1, 19-20 (1996). Thus, Congress's constitutional authority to direct the "manner" of the taking of the census leaves it free to decide which enumerative methods it will embrace (such as whether to send questionnaires by mail and whether and to what extent to require follow-up visits by individual enumerators), but this language cannot be read to trump the requirement of an "actual enumeration" and to permit a census by non-enumerative methods such as statistical estimation.


to repel the attacks of foreign enemies." In light of "new incumbrances and difficulties" as well as a new "foreign war," the general sentiment was that the question of the state and direction of Britain's population was of utmost significance.

Those who concluded that the population was in decline called for the "encouragement of population" as "one of the first objects of policy." On the other hand, those who painted a more optimistic picture saw it as their duty to use their "utmost endeavours to stop the effects of [the] misrepresentations" of their adversaries. In the optimists' view, there was "surely" no less opportune time to "depress the spirit of the nation" than a time "when we are surrounded by numerous and powerful enemies, through whom we must fight our way, or sink into the most humiliating state of insignificance, or perhaps contempt, amongst the nations of Europe."

Despite the stridency of the rhetoric, neither side of the debate was able to offer any concrete, verifiable support for its position. There would be no census of the British population until 1801. In 1753, Thomas Potter had introduced a bill in Parliament calling for the "Taking and Registering an Annual Account of the Total Number of People... from every Parish and Extraparochial Place in Great Britain." But the bill provoked vocal, extensive opposition. Opponents of Potter's bill offered arguments reminiscent of modern concerns with census-taking. They complained, for example, that the requirement of

97. UNCERTAINTY OF THE PRESENT POPULATION OF THIS KINGDOM 1 (London 1781), reprinted in GLASS, CONTROVERSY, supra note 95; see also RICHARD PRICE, AN ESSAY ON THE POPULATION OF ENGLAND, FROM THE REVOLUTION TO THE PRESENT TIME 23 (London 1780), reprinted in GLASS, CONTROVERSY, supra note 95 (expressing the concern that "it appears, that between the years 1761 and 1777 a destruction has taken place of at least 55,771 houses having less than 8 windows; which is equal to the loss of above a quarter of a million of those inhabitants who furnish recruits for our navy and army, and trading ships; and who, therefore, constitute the main strength of the kingdom").

98. PRICE, supra note 97, at 32.

99. Id. at 118.

100. WILLIAM WALES, AN INQUIRY INTO THE PRESENT STATE OF POPULATION IN ENGLAND AND WALES 2 (London 1781), reprinted in GLASS, CONTROVERSY, supra note 95.

101. Id.

102. See GLASS, NUMBERING THE PEOPLE, supra note 95, at 5 (asserting that "[t]he arguments put forward on both sides were faulty and the evidence drawn upon was often unreliable"); id. at 12 (noting that "a lengthy debate on the absolute growth or decline of the population of England and Wales could be maintained only because of the inadequacy of contemporary population statistics").

103. See infra notes 170-87 and accompanying text.

104. Geo. 3, ch. 357.d.10(40) (1753) (Eng.).
The History of "Actual Enumeration"

"enter[ing] every house... to demand an account of the number of persons who reside in it" would require "infinite labour in some large country parishes," as the officers charged with conducting the count "must often call several times at a farm house, before they can find any body at home to given them a proper answer." Potter's opponents also complained that a census would result in both under- and over-counting, as those who were traveling or who owned two different houses could be "twice reckoned in the account, or entirely left out of it." In addition, the bill's opponents noted the superstitious view held by many that an enumeration might result in some sort of pestilence, and argued that proponents of the census had ulterior motives of establishing the basis for "the imposition of new taxes," to the extent that the proposed census was "totally subversive of the last remains of English liberty." In light of these objections, or perhaps in the absence of any equally vocal or articulate supporter, the bill was allowed to lapse after a second reading in the House of Lords.

In the absence of eighteenth-century census data, both sides of the debate simply drew their own inferences and offered competing estimates based on the limited data that had been amassed. In so doing, the participants in the debate shed significant light on the original understanding of the Census Clause in two important respects. First, participants in the debate indicated their awareness of various methods of estimating populations—so much so that the debate is given credit for "stimulat[ing] demographic inquiries and form[ing] the background... of the development of regular censuses and civil vital registration in the nineteenth century." Second, and more importantly for present purposes, the participants in the debate consistently used the

105. XIV HANSARD'S PARLIAMENTARY HISTORY, 1747-1753 1325 (1813).
106. Id. at 1334.
107. Id. at 1333.
108. Id. at 1330. Such superstitious concerns are undoubtedly traceable to the Old Testament account of the plagues visited upon the ancient Israelites following King David's attempt to survey his people. See 2 Samuel 24:1-25; 1 Chronicles 21:1-27.
109. XIV HANSARD'S PARLIAMENTARY HISTORY, supra note 105, at 1323.
110. Id. at 1320.
111. See GLASS, NUMBERING THE PEOPLE, supra note 95, at 18 (asserting that it was "unfortunate that the Bill should have been introduced by Thomas Potter," who "behaved rather arrogantly in the House").
112. XIV HANSARD'S PARLIAMENTARY HISTORY, supra note 105, at 1319, 1365.
113. Id.
term "enumeration" and the phrase "actual enumeration" to refer to an actual count—and in express contrast with methods of estimation.

1. Eighteenth-Century Estimates of a Declining British Population

One of the early advocates of the view that Britain’s population was falling (or at least stagnant) was William Brakenridge.\textsuperscript{114} In a series of papers published in the \textit{Philosophical Transactions of the Royal Society}, Brakenridge argued first that the population of England and Wales was increasing only slightly,\textsuperscript{115} and later that it actually was declining.\textsuperscript{116} Brakenridge estimated the population of England and Wales by first calculating an “average” number of persons per household—based on “an exact account of the numbers in each house in a certain parish in London.”\textsuperscript{117} On the basis of this exact account, Brakenridge asserted that the number of persons “exactly come to six in a house, empty and full together, for there is seldom above one in twenty empty.”\textsuperscript{118} Brakenridge also attempted to explain—albeit without using such modern statistical terminology—that his non-random sample was nevertheless representative, “as in that parish [chosen for the actual count] the people are in a middle condition” in the sense that they “are in a middle state with regard to numbers, between the very great families and those in the lowest rank.”\textsuperscript{119}

Next, Brakenridge sought to apply this average of six per house to the total number of houses in England and Wales. In order to assess the total number of houses, Brakenridge “applied to one of the Public Offices”—apparently the Window Tax Office—to acquire that office’s “account . . . of all the houses throughout England and Wales, in order

\begin{itemize}
  \item \textsuperscript{114} See \textit{Glass, Numbering the People}, \textit{supra} note 95, at 51 (summarizing Brakenridge’s estimates and contributions to the debate).
  \item \textsuperscript{115} See William Brakenridge, \textit{A Letter to George Lewis Scot, Esq., F.R.S., Concerning the Number of People in England}, 49 \textit{Philosophical Transactions of the Royal Society} I 268 (1755), reprinted in \textit{Glass, Controversy}, \textit{supra} note 95.
  \item \textsuperscript{116} See William Brakenridge, \textit{A Letter to George Lewis Scot, Esq., Concerning the Present Increase of the People in Britain and Ireland}, 49 \textit{Philosophical Transactions of the Royal Society} II 877 (1756), reprinted in \textit{Glass, Controversy}, \textit{supra} note 95.
  \item \textsuperscript{117} See William Brakenridge, \textit{A Letter from the Reverend William Brakenridge, D.D. and F.R.S. to George Lewis Scot, Esq., F.R.S., Concerning the Number of Inhabitants Within the London Bills of Mortality}, 48 \textit{Philosophical Transactions of the Royal Society} II 796 (1755), reprinted in \textit{Glass, Controversy}, \textit{supra} note 95.
  \item \textsuperscript{118} Id.
  \item \textsuperscript{119} Id.
\end{itemize}
for some Assessment upon them."\textsuperscript{120} In 1710, the Window Tax Office reported 729,048 houses in England and Wales. Before arriving at his final estimate of the population in 1710, Brakenridge noted a concern that "a number of Cottages were omitted" from the accounts taken by the Window Tax Office, on the ground that such cottages "might be improper for that Assessment."\textsuperscript{121} With no explanation other than his personal view that "the Surveyors, if they had any care of the Public Revenue, would never omit above one in Five," Brakenridge proposed an adjustment to the window tax returns "one-fourth part of that number more," so that "those omitted will be about 182,262, and the whole number of houses could not exceed 911,310."\textsuperscript{112} On this basis, Brakenridge concluded that "if we allow six persons to a house at an average, according to what has been mentioned, the number of persons through England and Wales, before the year 1710, could not be above 5,467,860."\textsuperscript{123}

To gauge the change in the population over time, Brakenridge subsequently used this same methodology using window tax returns for 1750.\textsuperscript{124} Brakenridge first noted that "from the survey lately made of the window lights, after the year 1750, there are about 690,000 houses charged to that Tax in England and Wales, besides cottages that pay nothing."\textsuperscript{125} Although he conceded that "the number of cottages [was] not accurately known," Brakenridge asserted that "from the accounts given . . . they cannot amount to above 200,000."\textsuperscript{126}

Brakenridge argued in favor of this adjustment on the ground that it was consistent with a "late survey" of Middlesex, London, Westminster, and Southwark, which had shown a number of cottages and uninhabited houses in "nearly the same proportion" as the adjustment he had used.\textsuperscript{127}

\textsuperscript{120} Brakenridge, supra note 115, at 270. The window tax was an assessment that "increased with the increasing number of windows," but that exempted "houses with fewer than eight windows" as well as "[w]indows in houses on farms under 200l. a year." J.R. McCulloch, A Treatise on the Principles and Practical Influence of Taxation and the Funding System 273 (D.P. O'Brien ed., 1975). As noted infra notes 146, 162, and 166, these exemptions called into question the reliability of window tax returns as a comprehensive record of the number of houses.

\textsuperscript{121} Brakenridge, supra note 115, at 270.

\textsuperscript{122} Id.

\textsuperscript{123} Id. at 271.

\textsuperscript{124} See Brakenridge, supra note 116, at 887.

\textsuperscript{125} Id.

\textsuperscript{126} Id.

\textsuperscript{127} William Brakenridge, A Letter to the Right Honourable the Earl of Macclesfield, President of the Royal Society, from the Rev. William Brakenridge, D.D. F.R.S. containing an Answer to the
And again, Brakenridge sought to justify the representative nature of the survey, arguing that in the surveyed area "the poor are as numerous as in most places in the kingdom." On this basis, Brakenridge concluded that there were about 890,000 houses in England and Wales in 1750, and thus estimated that the total population had decreased in the period since 1710 to about "5,340,000 people."

Brakenridge's approach was subsequently advanced by Richard Price, the most "dominant figure" to advocate the view that the population was in decline. Price was "generally considered the most authoritative writer of his time on life assurance and annuities," and he relied on this expertise in formulating his initial estimates of the purportedly declining population of London. In his first publication on this issue, a letter to Benjamin Franklin in 1769, Price based his estimates of the population of London on the "Table of Observations," which established "the number that die annually at all ages, out of a given number alive at those ages," and on the "bills of mortality," which recorded annual births in a particular locality. According to Price, "the number of inhabitants in a place" could be determined by multiplying "the expectation of an infant just born" (provided by the Table of Observations) by the "number of yearly births" (provided by the bills of mortality). By this method, Price concluded that the population of London had declined during the period of 1737 to 1769—specifically, that "the number [of inhabitants] then was 735,840, or 84,260 greater than the number at present."

Price offered more extensive estimates in subsequent publications, some of which were summarized in his Essay on the Present State of Population in England and Wales. There, Price concluded that from 1690 to 1777 the population of England and Wales had "decreased near a

Account of the Numbers and Increase of the People of England, by the Rev. Mr. Forster, 50 PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY I 471 (1758), reprinted in GLASS, CONTROVERSY, supra note 95.

128. Id.
129. Brakenridge, supra note 116, at 887.
130. GLASS, NUMBERING THE PEOPLE, supra note 95, at 53.
131. Id.; see also W. MORGAN, A REVIEW OF DR. PRICE'S WRITINGS ON THE FINANCES OF GREAT BRITAIN 5 (1795).
133. Id. at 97.
134. Id. at 107.
135. PRICE, supra note 97.
The History of "Actual Enumeration"

quarter" and was "short of five millions" in 1777.\textsuperscript{136} Price's estimate followed Brakenridge's approach discussed above. First, he calculated an "allowance"—based on "surveys" conducted in various towns and parishes conducted during the 1750s and 1760s—of something less than five persons per house.\textsuperscript{137} Second, Price assessed the number of houses at the relevant time periods based on the 1777 returns of the British "window tax" and the 1690 returns of the "hearth tax."\textsuperscript{138} Because the window tax returns showed the "number of houses in England and Wales in 1777 to be 952,734,"\textsuperscript{139} while the hearth tax returns indicated that "[t]he number of houses in England and Wales was at the Revolution 1,319,215,"\textsuperscript{140} Price concluded based on his "allowance" that "[o]ur people, therefore, since that aera, have decreased near a quarter."\textsuperscript{141}

2. The Critical Response: Alternative Estimates and the Contrast with an "Actual Enumeration"

The estimates of a decline in the population put forward by Brakenridge and Price elicited a series of critical responses. Brakenridge's principal critic—Richard Forster—asserted that without data as to the "actual number of people," Brakenridge's "reasoning" was "not much better than groping in the dark."\textsuperscript{142} Despite this skepticism for Brakenridge's method of estimation, however, Forster himself proceeded

\begin{itemize}
\item \textsuperscript{136} \textit{Id.} at 14, 18.
\item \textsuperscript{137} \textit{Id.} at 5–8.
\item \textsuperscript{138} \textit{Id.} at 2–5. The window taxes, described at \textit{supra} note 120, "were preceded by, and may indeed be regarded as, a substitute for hearth-money, or the old duty on hearths or fireplaces." \textit{McCulloch, supra} note 120, at 273. The hearth tax was "charged upon every hearth in all houses paying to church and poor," and officers "engaged in its collection [were authorized] to enter houses to ascertain the number of fire-places." \textit{Id.} at 274. In light of the invasion of privacy occasioned by this procedure, the hearth tax was abolished at the Glorious Revolution, and soon thereafter was replaced by the window tax. \textit{Id.} For further discussion of the hearth and window taxes, see F.M. Eden, \textit{An Estimate of the Number of Inhabitants in Great Britain and Ireland} 2025 (1800), and W.R. Ward, \textit{The Administration of the Window and Assessed Taxes} 1696–1798, in \textit{The English Historical Review} 522–42 (J.G Edwards & Richard Parcs eds., 1952).
\item \textsuperscript{139} \textit{Price, supra} note 97, at 14.
\item \textsuperscript{140} \textit{Id.} at 17–18.
\item \textsuperscript{141} \textit{Id.} at 18.
\end{itemize}
to offer his own competing (and higher) estimate using the same general methodology. First, Forster challenged Brakenridge’s assessment of six persons per house, insisting on this point that Brakenridge’s numbers were actually too high. Based on Forster’s own survey of the parish of Great Shefford, Forster asserted that Brakenridge’s allotment of six persons per house was “too big.” Forster’s survey indicated an average of “not quite 4¾ to a house,” and he accordingly asserted that “5 to a house . . . is as much as ought to be allowed.”

Forster insisted, however, that Brakenridge’s estimates nevertheless were much “too small.” He based this conclusion on his opinion that Brakenridge had significantly underestimated the number of houses, arguing “that more than two thirds of all the houses are downright cottages,” and thus would have been “excluded” from the window tax returns. Initially, Forster based his opinion as to the number of cottages on his survey of the parish of Great Shefford. In subsequent writings, however, Forster acknowledged the need to broaden his survey beyond a single parish, and to draw a distinction between the “country” and the “cities and flourishing towns.” Forster recognized, in other words, that both his and Brakenridge’s estimates initially relied on “too few data,” and he eventually argued in favor of his own view based on surveys of “ten parishes, widely scattered through Southern England.” Ultimately, Forster estimated that the total population of England and Wales in 1750 was approximately 7,509,608, a number that he claimed would be “found nearer the truth, than anything hitherto advanced.”

Price’s estimates also drew heavy fire. One early critic was Arthur Young. Young published his Reply to Dr. Price in 1772. Young’s
Reply complained that Price’s “positive assertions... on the number of the people... are by no means attended with any but conjectural proofs,” and are “supported” only “by arguments; which, if you approve, you may accept; and if not, reject.” More specifically (and significantly for present purposes), Young complained that Price’s assessment of “the number of houses” was “not from an actual enumeration (for none was ever yet made) but calculated from the hearth tax.”

William Eden expanded on this same objection. Eden “considered the notion of any progressive decrease in the numbers of the people as a phantom, which has in all ages haunted the joyless imaginations of some speculative men, but which has not at present any solid existence.” And like Young, Eden couched his skepticism in terms that drew an explicit contrast between Price’s estimates and an “actual enumeration”:

Enquiries then concerning the causes of population must not rashly be admitted to prove any thing, farther than they are supported by facts. We are not... to infer a general depopulation from partial instances. The most decisive fact would be an actual enumeration of the whole people at stated periods; but, as enumerations are perhaps impracticable in great states and in truth have not been attempted with regard to the country and periods now in question, recourse must be had to inductions from the comparison of collateral circumstances at different times.

Similarly, Eden argued that the various “presumptions to be collected from all the circumstances” was “a subject, with respect to which mankind have differed, and will continue to differ in every period and in every country, where they have no actual enumerations to put an end to uncertainty and to force assent.” Finally, Eden criticized the building blocks of Price’s conclusions, noting that they “were founded on conjectural estimates, and not on actual enumerations.”

152. Id. at 323.
153. Id. at 324 (emphasis added).
154. WILLIAM EDEN, LETTERS TO THE EARL OF CARLISLE, FROM WILLIAM EDEN, ESQ. 179 (1780), reprinted in GLASS, CONTROVERSY, supra note 95.
155. Id. at 184–85 (emphasis added).
156. Id. at 187 (emphasis added).
157. Id. at xxii (emphasis added).
Others of Price's critics conducted their own localized "enumerations" in an effort to undermine Price's estimates. One of those was John Howlett.\textsuperscript{158} Howlett claimed to have amassed "a sufficient number of actual enumerations of the inhabitants of parishes of every description" to call into question Price's estimates of the number of cottages not included in the window tax returns.\textsuperscript{159} In so doing, Howlett expressly contrasted such actual enumerations with the "estimates" Price and others had offered, and expressly noted the "infinitely greater, but necessary trouble" of the former as compared to the latter.\textsuperscript{160}

Price himself also acknowledged the distinction between an estimate and an enumeration. In a subsequent response to Eden and others, Price acknowledged that the reliability of his estimates "depend[ed] on the proportion of the houses charged and chargeable (and consequently entered in the books of the assessors) to the whole number of houses in the kingdom."\textsuperscript{161} Because not all houses were entered into the window tax returns, Price accepted the notion that the correct "proportion" could be best determined by taking "careful enumerations" of the number of houses "in a great variety of parishes and towns in different parts of the kingdom."\textsuperscript{162} But although Price was "not possessed of many such accounts,"\textsuperscript{163} and although he acknowledged that some of his critics had "collected several accounts of enumerations of houses" in an effort to support their view that the number of houses had increased,\textsuperscript{164} Price insisted that this was "an apparent increase only, owing to the conversion of houses holding two or more families, and formerly charged as single houses, into apartments having no communication, and therefore now charged as so many separate houses."\textsuperscript{165} In Price's view, this "apparent increase" resulting from the "conversion of houses" flowed from the fact that the window tax had been extended to smaller houses with fewer

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159. Id. at 565 (emphasis added).

160. Id. at 564.

161. RICHARD PRICE, OBSERVATIONS 304 (n.d.), reprinted in GLASS, CONTROVERSY, supra note 95.

162. Id.

163. Id.

164. Id. at 316.

165. Id. at 317.
windows, which had been previously "excused" from the tax.\textsuperscript{166} Because
the division of "single houses holding more than one family into several
tenements having each of them few windows" would ensure that "the tax
upon them might be either lessened or entirely avoided," Price insisted
that the supposed increase in the number of houses indicated by the
"enumerations" cited by Eden and others was simply misleading.\textsuperscript{167}

Price's critics also discussed the possibility of a "census" or
"enumeration" to resolve the controversy. And again, the context of this
discussion drew a distinct contrast between a mere estimate and an actual
enumeration. William Wales, for example, agreed that the proposal for a
"public census . . . would certainly be very agreeable to every speculative
mind," but expressed concern that such an "enumeration" might give
comfort to England's enemies who "have always been used to estimate
us at seven or eight millions":

If . . . such an enumeration should take place, [and] we should be
found short of the number which they have been used to take us at,
they might probably, instead of reflecting that they have a stronger
adversary to contend with than formerly, only consider that we are
weaker than they had imagined, and take fresh courage from that
consideration, and especially, as such an enumeration would
determine nothing with respect to our number at any former time.\textsuperscript{168}

Thus, Wales drew an express contrast between the "estimate" of
population that had been offered and the "enumeration" of precise
numbers that was being proposed. In fact, Wales gave a further
indication of this understanding of an enumeration in prescribing the
method that he would favor "if such a proceeding should be thought
advisable":

I am clearly of opinion the most eligible persons to perform it are
the parochial clergy; and, by them, it would be performed in a very
few weeks. I have heard the opinions of the ministres of some of the
most extensive parishes in England, who think it might be done,

\textsuperscript{166} Id.
\textsuperscript{167} Id. at 318.
\textsuperscript{168} WALEs, supra note 100, at 77–78. (emphasis added). Wales used the phrase "actual
enumeration" elsewhere in this same publication in obvious reference to physical counts that had
been conducted on a localized basis. See id. at 67 (listing a "few following actual enumerations"
from ten different towns at two different time periods as being "all that have come to [his]
knowledge"); id. at 69 (referring to the "actual enumerations" of the "number of inhabitants in ten
cities, towns, and villages").
even in their parishes, with ease and certainty, in two months; with
the addition of age, situation and profession of each individual.169

Again, Wales surely shared his contemporaries' understanding that an
enumeration would require an actual, individualized count, and not an
estimate. If such an enumeration were to take place, he foresaw it being
accomplished by "parochial clergy," and thought that they could
complete the enumeration within a "few weeks" or perhaps "two
months" if the count extended not only to numbers but to the "age,
situation and profession of each individual." To Wales, an enumeration
was not an estimate; it was something that would proceed within local
parishes and be focused on "each individual."

3. The 1800 Census Act and the Enumeration of the Population in 1801

Toward the close of the eighteenth century, the idea of a census by
actual enumeration began to take root. Due in no small part to the above
debate, the "climate of opinion" regarding the value of an actual
enumeration had changed dramatically from the time the 1753 Bill was
abandoned.170 "[A]lmost all of those associated with the debate on the
trend of population had drawn attention to the value of reliable
enumerations," and "many local enumerations had been carried
out... without resulting in pestilence or destroying the last remains of
British liberty."171

In 1796, John Rickman, who would eventually be appointed to
supervise the first British census, published an influential memorandum
advocating a "general enumeration of the people of the British
empire."172 Rickman's memorandum acknowledged many of the
concerns that continue to dominate today's census debates, and it did so

169. Id. at 78.
170. GLASS, NUMBERING THE PEOPLE, supra note 95, at 90 (asserting that "[i]t was perhaps
unfortunate that the 1753 Bill... was presented to Parliament before the population controversy
flourished").
171. Id.
172. Id. Glass was unable to find the manuscript of Rickman's "original memorandum," but he
explains that he examined "excerpts" of it "in W.C. Rickman's memoir of his father," id. at 96 n.5,
and Glass includes an "annotated version of the memorandum" in an appendix to NUMBERING THE
PEOPLE. See generally JOHN RICKMAN, Thoughts on the Utility and Facility of Ascertaining the
Population, in THE COMMERCIAL AND AGRICULTURAL MAGAZINE 391 (June 1800), reprinted in
GLASS, NUMBERING THE PEOPLE, supra note 95, at 106. This "version" is the one cited below.

32
The History of "Actual Enumeration"

again using the term "enumeration" advisedly. After arguing at some length in favor of the "utility of the knowledge of British population," Rickman described his understanding of the history and nature of an actual enumeration. Rickman described, for example, the "Census of Roman Citizens," which was conducted "by collecting them in their respective municipia, and firmly enumerating all who made their appearance," as well as an enumeration in England in the "24th year of Elizabeth (in fear of Spanish invasion) . . . of all men able to bear arms." But although Rickman generally advocated in favor of a census, he also acknowledged that a complete enumeration would be "fraught with trouble and expence" and in any event would result in an undercount, "as actual enumeration must always be under the real number." Thus, Rickman indicated that he would settle for a "partial enumeration" in "three or four distant parishes in each county," from which "the population of the whole nation" could be "ascertain[ed] by a simple arithmetical operation."

Ultimately, Rickman's memorandum found its way into the hands of Charles Abbot, and Abbot subsequently introduced a "Population Bill" on November 19, 1800, which called for a full enumeration of the British population. Both the parliamentary history and the text of the 1800 Act carry forward the above usage of the term "enumeration." In his speech in the House of Commons, Abbot complained of the inadequacy of the existing "inquiries and estimates" of population, which rested on partial "numerations of the people," which constituted "imperfect data." In order to "substitute certainty for conjecture," Abbot's bill called for a

173. RICKMAN, supra note 172, at 106-10.
174. Id. at 110 (emphasis added).
175. Id. at 111.
176. Id.
177. Id. at 112. At about the same time, Frederick Morton Eden published his own work offering a final "estimate" of the population and arguing in favor of an actual enumeration. See FREDERICK MORTON EDEN, AN ESTIMATE OF THE NUMBER OF INHABITANTS IN GREAT BRITAIN AND IRELAND (1800), reprinted in GLASS, CONTROVERSY, supra note 95. Eden argued that "[t]he proposed enumeration of the people [would] supersede the use of ingenious guesses and plausible speculations, drawn from such data; and . . . prove, beyond the possibility of doubt, that, among the distresses of the times, we have not to deplore a declining population." Id. at 3 (emphasis added).
178. See GLASS, NUMBERING THE PEOPLE, supra note 95, at 90.
180. XXXV THE PARLIAMENTARY HISTORY OF ENGLAND, FROM THE EARLIEST PERIOD TO THE YEAR 1803 599-600 (1819).
complete enumeration of the "total Number of Persons within the Kingdom of Great Britain."181 Specifically, the bill required "[o]verseers" of the census to "take an Account in Writing of the Number of Persons at that Time being within the Limits of such Parishes, Townships, and Places . . . by proceeding together or separately from House to House, or otherwise, as they shall judge expedient for the better Execution of this Act," and to "prepare an Answer or Return to the said Questions, according to the Form prescribed in the said Schedule."182

Abbot's bill was enacted into law and Britain's first census was taken on March 10, 1801.183 The 1801 enumeration was less than perfect. In fact, it resulted in the undercount that Rickman had said was inevitable.184 Despite the penalties prescribed in the Act, several parishes failed to send in their returns, so that the "population was probably larger than was shown by the returns."185 By the beginning of the nineteenth century, however, England and Wales finally had a report of an enumeration of population—of 9.168 million.186 Significantly, the individualized counts required by the Population Act were widely reported as "enumeration abstracts."187

4. The British Debate and the Original Understanding of an "Actual Enumeration"

The eighteenth-century debate over the state of the British population provides powerful support for the position put forward by Justice Scalia in his House of Representatives concurrence and thoroughly undermines the threefold premise of the scholarly criticism of his view. First, the history of the British debate puts to rest the notion that statistical estimation would have been viewed as anachronistic to the Framers' generation. The eighteenth-century conception of statistical estimation may not have been as sophisticated as it is today, but the participants in the British population controversy grappled with the same issues and concerns that are presented by "modern" methods such as the "hot-deck"

181. Census Act, 41 Geo. 3, c. 15 (1800) (Eng.).
182. Id. § 4.
183. See GLASS, NUMBERING THE PEOPLE, supra note 95, at 91.
184. See supra text accompanying note 176.
185. See GLASS, NUMBERING THE PEOPLE, supra note 95, at 93.
186. Id.
187. Id.
imputation methodology employed by the Census Bureau.\textsuperscript{188} At a minimum, the Framers' generation would have understood the possibility of a method as crude as the "hot deck" assumption that a household has the same number of occupants as its nearest neighbor.

As demonstrated above, eighteenth-century theorists had proposed the possibility of population estimates based on a per-household allotment derived from partial enumerations, and they specifically had argued about whether a representative survey was necessary to sustain a reliable estimate. Forster's criticisms of Brakenridge's estimates raised this issue, and Price's critics pressed the same concern. One was skeptical that the "number and variety of places" from which the various existing surveys were "collected" might not have been "sufficient to form a satisfactory average,"\textsuperscript{189} but concluded that an estimate "arising from the aggregate of correct and well-authenticated information from two or three principal towns, and thirty or forty villages and country-parishes in every province throughout the nation, and taken perfectly at a venture," would produce results as reliable as "the most correct and accurate survey."\textsuperscript{190}

\textsuperscript{188} GLASS, NUMBERING THE PEOPLE, supra note 95, at 67 (explaining that although the "samples" drawn by the participants in the eighteenth-century population controversy "were not well-designed," "representativeness" was the aim of much of the work," and "field surveys were certainly carried out"); see also H. WESTEGARD, CONTRIBUTIONS TO THE HISTORY OF STATISTICS 84-85 (1932), reprinted in STUDIES IN THE HISTORY OF STATISTICS AND PROBABILITY, (Maurice Kendall & R.L. Plackett eds., 1977) (characterizing Frederick Morton Eden's estimates of the British population as being based on a method of "sampling to find the average number of inhabitants in each house").

At or about the same time these methods were being explored in Britain, early statistical theorists were at work on similar methods in France. A Frenchman by the name of LaPlace proposed a method of estimating the population in France by "carefully enumerating at a given time, the inhabitants of several communities" and then by extrapolating the actual enumeration of these communities to "the entire country." STEPHEN M. STIGLER, THE HISTORY OF STATISTICS-THE MEASUREMENT OF UNCERTAINTY BEFORE 1900 164 (1986) (citing Pierre Simon LaPlace, A PHILOSOPHICAL ESSAY ON PROBABILITIES 100-01 (F.W. Truscoll & F.L. Emory, trans., 1951)). This approach initially was lauded for "its potential for great saving of time and effort at little or no cost in accuracy," id. at 164, but within a few years it was rejected on the ground that "there is only one way of attaining exact knowledge of the population and the elements of which it is composed, and that is an actual and complete census, the formation of a register of the names of all inhabitants, together with their ages and professions," id. at 165 (citing Baron D. Keverberg, Notes, in 4 NOUVEAUX MÉMOIRES DE L'ACADÉMIE ROYALE DES SCIENCES ET BELLES-LETTRES DE BRUXELLES 175-92) (emphasis added).

\textsuperscript{189} UNCERTAINTY OF THE PRESENT POPULATION OF THIS KINGDOM 22 (1781), reprinted in GLASS, CONTROVERSY, supra note 95.

\textsuperscript{190} Id. at 31-32.
The eighteenth-century debate also foreshadowed the modern concern regarding the manipulability of statistics. Forster expressly acknowledged that an estimate “built” upon “a small mistake” in an assumption “will be extremely wide of the truth.” Subsequent critics of Richard Price came even closer to expressing the modern concern, noting that “it is easy... to produce opposite inferences” where statistical estimation is involved, that “it surely is neither unfair nor unreasonable to presume that each inference is inconclusive and fallible,” and that “the selection of different periods” for Price’s survey would have “impl[ied] an increased and progressive population.”

More importantly, the eighteenth-century debate in Britain demonstrates usage of the term “enumeration” and of the phrase “actual enumeration” that connotes an actual, individualized count and eschews an estimate. Consider Young’s criticism that an actual enumeration of the number of houses had never been attempted. If such an enumeration had never been attempted, Young must have understood an enumeration to require an individualized, contemporaneous count. Price’s assessment of the number of houses had been based on the public records of the window tax, but even those records lacked the contemporaneous, individualized reckoning apparently contemplated by Young. Wales’s contemplated method of an “enumeration” also underscores its individualized nature; he expressly stated that an enumeration would focus on “each individual.” Finally, the individualized focus of an enumeration was carried forward in the 1801 census itself, where the “enumeration abstracts” reported the (necessarily imperfect) counts compiled on individualized forms completed as the overseers “proceed[ed] together or separately from House to House.”

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191. See U.S. Dep’t of Commerce v. U.S. House of Representatives, 525 U.S. 316, 348–49 (1999) (Scalia, J., concurring) (asserting that the power “to select among various estimation techniques... is to give the party controlling Congress the power to distort representation in its own favor,” and that a “genuine enumeration may not be the most accurate way of determining population, but it may be the most accurate way of determining population with minimal possibility of partisan manipulation”).
192. Forster, supra note 148, at 461.
193. EDEN, supra note 154, at xxxiv.
194. Id.
195. Id. at 186.
196. See supra text accompanying note 153.
197. See supra text accompanying note 169.
198. See supra text accompanying note 182.
By the same token, participants in the eighteenth-century population controversy also drew an unmistakable distinction between an “actual enumeration” and a mere “estimate.” Price’s assessments of the population—built on a per-house “allowance” calculated from his various “surveys”—were broadly acknowledged to be founded on “conjectural estimates,” not on “actual enumerations.” Even Price himself acknowledged this distinction, noting that only “careful enumerations[] would shew how far [his estimate] deviates from truth,” and acknowledging that he was “not possessed of many such accounts.”

The skeptical response to all of this would be to say that the talk of an enumeration as an individualized count and not an estimate merely conveys a preference for accuracy over conjecture, and does not suggest that an enumeration was understood to presuppose any particular method of assessing the population. Under the approach espoused by the Solicitor General in House of Representatives and concurred in by a number of scholars, a call for an “actual enumeration” could be satisfied by a partial enumeration of the population supplemented by estimates of households that could not be counted—so long as that method could be shown to improve the accuracy of the resulting assessment of population.

Again, however, the British population debate belies this understanding of an “actual enumeration.” To be sure, some of those who distinguished estimates from actual enumerations did so in the context of criticism of the “conjectural” nature of the former, and of hope that the latter would “put an end to uncertainty and to force assent.” But this was only a policy argument that a full enumeration would be more accurate than a gross estimate; it was not intended to suggest that an “enumeration” leaves open the possibility of any method of assessing the population that happens to improve accuracy.

In fact, the above debate indicates an understanding of an enumeration as a specific method of assessing the population. John Rickman expressly spoke of an “actual enumeration” as a “method . . . fraught with trouble and expence,” and his concerns led him initially to advocate a different “mode by which all useful purposes might be obtained with little trouble indeed.” Rickman’s predecessors expressed similar concerns about the

199. Price, supra note 161, at 304.
200. See supra text accompanying notes 69–74.
201. See supra text accompanying notes 152–56.
202. Rickman, supra note 172, at 397.
method of enumeration. William Eden suggested that "enumerations are perhaps impracticable in great states," and John Howlett noted that the decision "actually to enumerate the inhabitants" of a certain parish would involve "infinitely greater . . . trouble" than that presented by an estimate based on a survey designed to "ascertain[] the proportion between the number of taxed houses and the number of people in an adequate number of places." William Wales thought that an enumeration could be completed within a few weeks or a couple of months, but even he clearly understood that an enumeration contemplated an individualized reckoning.

Moreover, participants in the British debate expressly discussed the possibility of partial enumerations supplemented by estimates, and they understood the difference between such an approach and a full "actual enumeration." Eden, for example, noted the difference between data drawn "from partial instances" and "an actual enumeration of the whole people," and Howlett seemed to have the same distinction in mind when he claimed to have conducted "a sufficient number of actual enumerations of the inhabitants of parishes of every description" to undermine Richard Price's estimates. Rickman similarly contrasted a "partial enumeration," which he proposed to use to derive an estimate of the full population, with an "actual enumeration," which he discounted as being too costly and as "attempt[ing] an accuracy not necessary, or indeed attainable."

Finally, and perhaps most tellingly, the above discussion indicates a recognition of the fact that although an actual enumeration generally would be more accurate than a gross estimate, an enumeration itself was not perfect and would result in an inevitable undercount. Rickman's concern that an "actual enumeration" is "fraught with trouble" is expressly directed at this point. He acknowledges that such an enumeration "attempts an accuracy not necessary, or indeed attainable"

203. EDEN, supra note 154, at 185.
204. Howlett, supra note 158, at 564.
205. WALES, supra note 100, at 77–78.
206. EDEN, supra note 154, at 185.
207. Howlett, supra note 158, at 565.
208. RICKMAN, supra note 172, at 398.
209. Id. at 397.
in that it fails to count everyone: in Rickman's words, an "actual enumeration must always be under the real number."²¹⁰

All of this convincingly demonstrates the error and arrogance of the conventional view that the generation of the Framers could not possibly have been sophisticated enough to understand the pitfalls inherent in a simple enumeration, or of the possibility of less pedestrian methods of assessing the population. Their statistical methods may not have been as sophisticated as those presented by modern statisticians, but they surely understood the difference between an enumeration and an estimate and acknowledged that the former method would likely yield an undercount.

B. Enumerations and Estimates in Early America

Although the Framers' specific knowledge of the English debate is not necessary to establish the original usage of the constitutional language, at least some of them surely were familiar with some of the writings quoted above. Richard Price, "who was the dominant figure in the controversy,"²¹¹ was "one of the better known writers of the eighteenth century."²¹² The Framers must have been aware of a debate of such significance that it occupied an entire chapter of a review of England in the eighteenth century,²¹³ and even found its way into the literature of the day.²¹⁴ Indeed, Benjamin Franklin was the addressee of Richard Price's

²¹⁰ Id.
²¹¹ GLASS, NUMBERING THE PEOPLE, supra note 95, at 53.
²¹² Id. at 12.
²¹³ See 1 F.A. WENDEBORN, A VIEW OF ENGLAND TOWARDS THE CLOSE OF THE EIGHTEENTH CENTURY 126 (London 1791); see also JOHN MITCHELL, THE PRESENT STATE OF GREAT BRITAIN AND NORTH AMERICA, WITH REGARD TO AGRICULTURE, POPULATION, TRADE, AND MANUFACTURES, IMPARTIALLY CONSIDERED 108–18 (1767) (discussing the debate).
²¹⁴ See OLIVER GOLDSMITH, The Deserted Village, in POEMS, PLAYS, AND ESSAYS, 23–25 (1844) (stating as follows in a preface to the poem: "In regretting the depopulation of the country, I inveigh against the increase of our luxuries"). Another historian has concluded that there is "no doubt that Price gave comfort, if not actual aid, to the colonists":

Before Independence, he was an outspoken supporter of their rights as Englishmen. Afterward, he continued to speak out in admiration, both of American ideals and of the favorable conditions which existed for American population increase. His Observations on the Nature of Civil Liberty brought him far more of a colonial following than his Observations on Reversionary Payments. The former prompted Congress in 1778 to offer Price American citizenship. But it was his mathematical talents that the members had in mind when they asked him to organize the finances of the new nation. He was doubtless well advised to decline, considering the unsettled conditions at the time.

CASSEY, supra note 95, at 197.
first published letter on the dispute, and Franklin's own correspondence indicates that he and his contemporaries were aware of, and even participated in, the British discussion on issues of population.

More significantly, there is extensive independent evidence suggesting that Americans in the Founding era shared their British contemporaries' understanding of the words "actual enumeration." The first decennial census of 1790 has been widely lauded as a significant innovation, but it was hardly the first attempt to assess the size of the population in America. In fact, the colonization of America "was accompanied from the beginning by efforts to collect and record population data." During the colonial period, the populations of the various colonies were estimated and enumerated primarily as a result of inquiries from the British Board of Trade, who wished to assess the strength of the colonies for taxation and military purposes. Under the Articles of Confederation, the interest in population stemmed from an effort to establish a more equitable basis for apportioning the financial burden of the war and other expenses of the new nation. As set forth in detail

215. See Price, supra note 96, at 89.

216. See Thomas Percival, Letter from Thomas Percival, to Benjamin Franklin (June 21, 1774), reprinted in 21 THE PAPERS OF BENJAMIN FRANKLIN 232 (William B. Willcox ed., 1978). The cited letter from Percival to Franklin refers to an enclosed copy of a paper that Percival had written and intended to "soon send to Dr. Price" concerning Percival's "Enumerations" of Manchester. Id. Percival closes by expressing his thanks to "those Gentlemen who have generously contributed towards the Expence of our Enumerations" and by asking Franklin to "oblige [him] by presenting [his] most friendly respects" to "Dr. Price" when Franklin sees him. Id.

217. The French statistician Moreau de Jonnes, for example, praised what he viewed as "a people who instituted the statistics of their country on the very day when they founded their government, and who regulated by the same instrument the census of inhabitants, their civil and political rights, and the destinies of the nation." See A. ROSS ECKLER, THE BUREAU OF THE CENSUS 5 (1972).

218. CASSELY, supra note 95, at 1-2; see also ECKLER, supra note 217, at 4 (stating that "[e]nough censuses were taken in the colonial period and the years of the Confederation in North America to provide a good deal of experience with such operations, even though the results were of uneven quality").

219. See ECKLER, supra note 217, at 4; see also Franklin B. Dexter, Estimates of Population in the American Colonies, 1887 AM. ANTIQUARIAN SOC'Y 22 (Oct. 1887) (providing an extensive historical discussion of the various estimates and enumerations in colonial America); TIMOTHY PITKIN, A STATISTICAL VIEW OF THE COMMERCE OF THE UNITED STATES OF AMERICA 582 (1835) (explaining that "[b]efore the revolution, the Board of Trade occasionally called upon the Governors to give an account not only of the trade and manufactures, but also the number of inhabitants of the colonies over which they presided").

220. PITKIN, supra note 219, at 582. An early draft of the Articles of Confederation would have required a triennial census to determine "a true account" of the population for this purpose, see THE PAPERS OF JAMES MADISON 27-28 (Henry D. Gilpin ed., 1844), but this standard was rejected in the final document in favor of a provision requiring that costs of the war be paid from a common fund.
The History of "Actual Enumeration"

below, the notion of an "actual enumeration" was widely understood during this period to contemplate an individualized count and not a mere estimation.

This understanding is also consistent with the meaning apparently ascribed to the phrase during the debate over the Census Clause of the Constitution and throughout its implementation under the first Census Act in 1790. Indeed, correspondence from Washington, Jefferson, and others during this latter period further confirms that the Framers understood that an actual enumeration would result in an undercount but accepted such an imperfect count as the method prescribed by the Constitution.

1. Enumerations and Estimates in America Before the Constitution

Although some censuses were taken in America prior to the ratification of the Constitution, 221 colonial populations were more frequently assessed by means of various methods of estimation. 222 In light of the cost and difficulty of conducting an actual enumeration, "[c]olonial governors looking for data . . . often had to resort to estimates in order to satisfy the Board of Trade." 223 Such estimates were based on

"supplied by the several [States] in proportion to the value of all land within each State," 1 MERRILL THE DOCUMENTARY HISTORY OF THE RATIFICATION OF THE CONSTITUTION 149 (Merrill Jensen ed., 1976). When it became clear that this standard was unworkable and invited manipulation by the States as to the subjective value of land within their boundaries, an amendment was proposed in 1783 to amend the Articles to require a triennial census and to require each state to contribute "in proportion to the whole number of white and other free citizens and inhabitants of every age, sex and condition, . . . and three fifths of all other persons not comprehended in the foregoing description, except Indians, not paying taxes, in each state." 2 Id. at 149–50 (setting forth the proposed amendment); see also HYMAN ALTERMAN, COUNTING PEOPLE: THE CENSUS IN HISTORY 182–83 (1969). This amendment was never ratified, but the proposed language formed the basis—in part—of the Census Clause of the Constitution. See id. at 183.

221. One author has concluded that 39 censuses were taken during the colonial period. See DAN HALACY, CENSUS: 190 YEARS OF COUNTING AMERICA 29 (1980).

222. See Dexter, supra note 219, at 22 (explaining that "under the colonial regime, there was but little systematic collection by authority of trustworthy population-statistics," noting that there were "scattered estimates of the numbers of inhabitants from time to time in the several colonies," and warning that "such estimates" were "often intentionally misleading, when officials, on the one hand of the boastful, or on the other hand of the timid type, thought to serve some interest by exaggeration or by understatement").

223. CASSEDY, supra note 95, at 72; see also PITKIN, supra note 219, at 582 (explaining that "[t]he number of inhabitants in this country, prior to its separation from Great Britain, rests principally on conjectural estimates").
"documents [such] as land records, militia muster rolls, polling lists, and general lists of titheables."\(^{224}\)

Historians writing in the nineteenth and early twentieth centuries consistently have acknowledged the distinction between genuine "enumerations" taken during the colonial period and mere "estimates" of population. In his 1835 *Statistical View of the Commerce of the United States of America*, for example, Timothy Pitkin noted that the various colonies had taken two different approaches in responding to inquiries from the Board of Trade: "In some of the colonies, in order to answer these calls, *actual enumerations* were made—this took place in Connecticut in 1756 and in 1774, and we believe in Massachusetts; while in others, *estimates* were made, founded upon the number of taxable polls, or the number of the militia."\(^{225}\) Pitkin further noted that an estimate of population in "1749 or 1750" offered an assessment of the population of Connecticut (of 80,000) that was "too low," as that "colony in 1756, by *actual enumeration*, contained one hundred and twenty six thousand nine hundred and seventy five white inhabitants."\(^{226}\) Pitkin used similar terminology in describing the period of the Articles of Confederation, noting that the population of the several States had been estimated under the Articles for the purpose of apportioning the war debt, but that "New Hampshire complained that her [estimated] number was too high; and in 1782, caused an actual enumeration to be made."\(^{227}\) A 1909 history published by the United States Census Bureau\(^{228}\) acknowledged this same distinction in indicating that some of the early

\(^{224}\) CASSEDY, supra note 95, at 72-73; see also PITKIN, supra note 219, at 582-83 (noting that "estimates" during the colonial period were "founded upon the number of taxable polls, or the number of the militia"). In 1763, for example, Governor Bernard of Massachusetts compiled an estimate of population based in part on tax records indicating that there were about 32,000 houses in that colony in 1761. CASSEDY, supra note 95, at 73 (citing BENTON, EARLY CENSUS MAKING 45-60 (n.d.)). By assuming a range of between five and five and a half residents per house (assumptions adopted in contemporaneous estimates in Britain, see supra text accompanying notes 114-41), Bernard calculated an estimate ranging from 160,000 to 176,000. CASSEDY, supra note 95, at 73. Because the estimate was based on tax records of the number of houses (which were assumed to be underinclusive), however, Bernard concluded that the true population was probably closer to 200,000. Id.

\(^{225}\) PITKIN, supra note 219, at 582-83 (emphasis added).

\(^{226}\) Id. at 583.

\(^{227}\) Id.

population assessments were rendered "upon the basis of enumerations" and others were based on mere "estimates." 229

Colonial-era documents indicate that the generation of the Framers used the same terminology of "enumeration" to refer to an individualized count and to distinguish such a count from a mere estimate. The General Assembly of Connecticut, for example, indicated its understanding of the significance of an "enumeration" in its 1755 response to the Board of Trade's "Queries relating to His Majesty's Plantations on the Continent of America." 230 In response to the Board's query relating to the "number of inhabitants, whites and blacks," the Connecticut General Assembly conducted a "Census of 1756." 231 The public records of that census reported the numbers of "Whites," "Negroes," and "Indians" by each town within each county in the Colony, and these individualized returns were characterized as an "enumeration." 232

The Connecticut response to the Board of Trade clearly contemplated a difference between the method of individualized "enumeration" conducted in the 1756 census and the "method" of mere estimation. It noted that an earlier report in 1749 included only an estimate—and that "according to the method of computation then taken" the population "amounted to 70,000 whites and 1000 blacks." 233 Because the Board's inquiry asked for "a more careful and particular enquiry," however, the Connecticut General Assembly authorized an individualized "enumeration," which found "the whole number of...present

229. Id; see also id. at 4 (distinguishing population assessments that were "partly estimated" from those that were the result of enumeration); id. at 5 (noting that population information recorded in colonial Connecticut was "furnished more often from estimates than from enumerations"); id. at 6 (distinguishing colonial "estimates" of population in New York, Vermont, New Jersey, Pennsylvania, Delaware, and Maryland from "censuses" of population based on a "thorough enumeration"). Similarly, when more modern historians have addressed this issue, they have drawn the distinction between an "enumerative" census (which is based on an actual count of the population) and an "estimate" of the population (which is based on statistical inferences drawn from a "partial enumeration" of a portion of the population). See A.B. Wolfe, Population Censuses Before 1790, 27 J. AM. STAT. ASS'N, No. 180, at 357, 364 (1932) (explaining that the "[population] figure[s] reported to the government" in Italy in the eighteenth century and earlier were "based not on actual enumeration but on estimate[s], or a mixture of the two").


231. Id. at 619.

232. Id. at 617.

233. Id. at 618.

234. Id. at 623.
inhabitants, men, women and children, (some small errors excepted) to be 128,212 whites, 3,587 blacks.\textsuperscript{235}

Similar terminology was used to describe the colonial assessments of the New Hampshire population. Jeremy Belknap's discussion of the estimates and enumerations in that colony provides further evidence of the founding-era distinction between the two concepts:

The late Governor Wentworth was ordered by the British ministry to take an exact survey; but having no fund to pay the expense, and no law to compel obedience to the order, he was subjected to the inconvenience of delay and disappointment. The number of the people however, in 1767, was estimated at 52,700. Another estimate was made in 1774, of which I have met with no official account; but have been informed that it was 85,000. This was too high. The estimate given to Congress by the delegates of New Hampshire, at the commencement of the revolution, was still more extravagant. A survey taken in 1775, partly by enumeration and partly by estimation, for the purpose of establishing an adequate representation of the people, made the whole number 82,200.\textsuperscript{236}

James Freeman used similar language in a letter to Belknap on the New Hampshire assessments.\textsuperscript{237} Freeman's commentary arose in the context of his discussion of the reliability of population "estimates" for one period of time based on an "actual enumeration" at other periods:

The inhabitants of a country augment, as far at least as depends upon natural increase, in the same manner as a sum of money put out upon compound interest. . . . Professor Wigglesworth, in his Calculations of American Population, has explained the manner of constructing tables, from which the annual increase of inhabitants, by natural population, may be estimated for a series of years, provided their number at the beginning and end of the series, be ascertained by actual enumeration, or by any other accurate mode.\textsuperscript{238}

Some of the Framers themselves used the constitutional terminology in this same sense during the pre-constitutional period. John Adams

\textsuperscript{235} Id.
\textsuperscript{236} JEREMY BELKNAP, III THE HISTORY OF NEW HAMPSHIRE 233–34 (1792) (emphasis added).
\textsuperscript{238} Id. at 468–69 (emphasis added).
expressed his understanding of an "enumeration" in his correspondence with a "Mr. Calkoen," whom Adams identified as "the giant of the law in Amsterdam" of that era. Calkoen's letters had expressed interest in "an exact and authentic information on the present situation of American affairs," including specifically the question of whether "America, notwithstanding the war, daily increases in strength and force." Adams responded by asserting that "[t]he only certain way of determining the ratio of the increase of the population is, by authentic numerations of the people and regular official returns." Although such "authentic numerations" had been "generally omitted" during the war, Adams noted that "some States have made these returns."

In this same series of letters, Adams also indicated his understanding of the difference between these "authentic numerations" and mere "estimates" of population. Specifically, in response to Calkoen's further inquiry as to "[w]hether we have any information that we can rely on, concerning the population," Adams noted a number of "estimates" of population in the various colonies based on some degree of "speculation," and expressly contrasted such estimates with "authentic lists of the population" based on various attempts at "numbering the people."

James Madison expressed a similar understanding of the notion of an "actual enumeration" during the period of the Articles of Confederation. Although the Articles provided that the war debt was to be apportioned among the States from a common fund "supplied by the several [States] in proportion to the value of all land within each [State]," "this method

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239. 7 THE LIFE AND WORKS OF JOHN ADAMS 265 (Charles Francis Adams ed., 1852). The "Mr. Calkoen" apparently was Hendrik Calkoen, a lawyer in Amsterdam with whom Adams had dined during a visit to Amsterdam in August, 1780. See 2 DIARY AND AUTOBIOGRAPHY OF JOHN ADAMS 446-47 & n.3 (L.H. Butterfield ed., 1961). A few days after Adams and Calkoen had dined together, Calkoen addressed a series of letters to Adams asking "about the United States and its resources," and Calkoen used Adams' responses "to spread 'just sentiments of American affairs' in the Netherlands." Id. at 447 n.3.

240. 7 THE LIFE AND WORKS OF JOHN ADAMS, supra note 239, at 266.

241. Id. at 272.

242. Id.

243. Id.

244. Id. at 302-03.

245. Id. at 303-04.

of apportioning taxes was never put into operation."247 As Madison explained, a measure of the "valuation of land throughout the United States" was "under present circumstances manifestly unattainable."248 Thus, the Continental Congress enacted a resolution requiring that the debt be apportioned "according to the number of Inhabitants, of all ages, including negroes and mulattoes in each colony."249 The resolution recognized, however, that such number could not "at present, be ascertained,"250 and thus the Congress adopted "quotas" for apportionment based on estimates of the population of the several States.251 Madison’s discussion of this method of apportioning the debt drew the familiar distinction between an estimate and an enumeration: he explained that "no actual numera tion of the inhabitants of each State hath yet been obtained by Congress," and thus concluded that a "computed number" would have to "form[] the basis of the first requisition" of the States.252

In light of the above, there can be no doubt that Americans in the colonial era understood the difference between an individualized "enumeration" of the population and a mere "estimate" (or, in Madison’s words, a "computed number"). An enumeration was understood to be expensive and inconvenient, and methods of estimation were seen as less costly alternatives. Franklin and Adams used the constitutional term in the sense of an actual, individualized count (not an estimate), and historical accounts of the Connecticut and New Hampshire responses to the British Board of Trade reflect the same understanding.

What of the notion that this distinction might merely reflect a preference for accuracy over speculation, and not a prescription for a particular method of census-taking? The above discussion does suggest that colonial enumerations were generally thought to be more accurate than mere estimates, but this history does not leave room for an understanding of an "enumeration" as shorthand for an accurate count,

247. RICHARD FRANCIS UPTON, REVOLUTIONARY NEW HAMPSHIRE 137 (1971).
249. Id. at 221–22.
250. Id.
251. Id.; see also Samuel Livermore, Letter from Samuel Livermore to Meshech Weare (Nov. 6, 1781), in 18 LETTERS OF DELEGATES TO CONGRESS, 1774–1789 182–85 (Paul H. Smith ed., 1991) (explaining that the quotas were "founded on the supposed number of inhabitants in the several states," a number that Livermore decried as being based on "erroneous pioneer guess-work").
252. 22 JOURNALS OF THE CONTINENTAL CONGRESS, supra note 248, at 159.
and not a prescription of method. The original understanding of an enumeration as a method of census-taking is stated quite explicitly above. The Connecticut response to the Board of Trade, for example, expressly contrasted the individualized “enumeration” conducted in the 1756 census and the “method” of mere estimation. James Freeman’s commentary on the New Hampshire estimates was similarly explicit, characterizing an “actual enumeration” as a “mode” of assessing the population. Freeman recognized that other “mode[s]” of assessing the population might well be “accurate,” but in context his statements indicate that he well understood that an “actual enumeration” was not simple shorthand for accuracy. Indeed, although Freeman apparently believed that the estimates he had in mind would be “accurate,” he also understood that such estimates were a “mode” different from that of an “actual enumeration.”

The New Hampshire history quoted above is also telling in this regard. It indicates that Americans in the founding era understood the possibility of an assessment of population “partly by enumeration” and “partly by estimation.” In this context, both an “enumeration” and an “estimate” are clearly understood as methods by which the population may be assessed.

Significantly, this “partial” approach is precisely the “method” adopted by the Census Bureau in its proposed and actual methods of making statistical adjustments to the apportionment count. Under “hot-deck imputation,” for example, the Bureau enumerates as many households as it can by gathering actual data on questionnaires by mail, by in-person visits, and from “proxies” such as neighbors, and supplements this count derived “partly by enumeration” with additional figures derived “partly by estimation.” Surely this approach contravenes the constitutional prescription for an “actual enumeration,” regardless of whether the partial estimates might be deemed to improve the overall “accuracy” of the count.

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253. See supra text accompanying notes 234–35.

254. See supra text accompanying notes 237–38.

255. There is reason to believe that hot-deck imputation may produce an overcount rather than accurately correcting for any undercount. This risk was especially acute in the 2000 census, in which the Bureau used imputation to estimate the number of persons living in housing units that had not even been verified to exist, even after several attempts at verification. DSSD CENSUS 2000 PROCEDURE AND OPERATIONS MEMORANDUM SERIES #Q-34, supra note 16, at 23. Many of the units subjected to imputation may well turn out not to exist, to be unoccupied, or, to cite one instance testified to by a former Director of the Census Bureau, may turn out to be storage units. Hearing Before the House Subcommittee on the Census, Committee on Government Reform, 106th Cong. 57
2. The Constitutional Debate and the Census Clause

Various critics of the originalist construction I propose here have pointed to the apparent absence of any specific debate over the terminology of an "actual enumeration" in the constitutional convention in support of the view that the Census Clause merely enshrines a general goal of accuracy and does not prescribe any particular methodology. Justice Stevens' dissenting opinion in the *House of Representatives* case expresses a variant of this point, suggesting that "[t]he July 1787 debate over future reapportionment of seats in the House of Representatives did not include any dispute about proposed methods of determining the population," and thus that the addition of the words "actual Enumeration" was merely a "stylistic change" that "did not limit Congress' authority to determine the 'Manner' of conducting the census."

It appears to be true that the constitutional debate did not focus expressly on the words "actual enumeration" or include any "dispute about proposed methods of determining the population." But the absence of such discussion does not suggest that the participants in the debate understood the Census Clause to vest in Congress unfettered discretion to choose any possible method of assessing the apportionment count. If an "actual enumeration" had a settled, widely acknowledged meaning (as the history unfurled here suggests), then there would have been no particular reason for the Framers to engage in any "dispute about" the method contemplated by the Census Clause.

Indeed, the well-settled understanding of an "actual enumeration" is entirely consistent with the views expressed in the debate that did take

(June 22, 2000) (Testimony of Census Bureau Director Kenneth Prewitt). Thus, the method of hot-deck imputation may well produce an overcount instead of correcting for any undercount.

Moreover, even if the use of hot-deck imputation improves the overall "numerical accuracy" of the census, the Census Bureau has acknowledged that it is unable to establish whether this method of estimation improves the "distributive accuracy." Consolidated Memorandum, *supra* note 16, at 15, ¶ 35 ("[T]he Census Bureau focused on achieving numeric accuracy because it is difficult to predict in advance the effect of census operations on distributive accuracy. . . . Imputation furthers numeric accuracy."). In other words, although imputation increases the total population count, and thus makes the "net undercount" appear to be smaller, there is no reason to believe that the estimates added to the apportionment count by imputation accurately reflect the true population as distributed across the 50 states. *Id.* Since this is the only sense of "accuracy" that really matters for apportionment purposes, the Bureau has essentially conceded that it cannot establish that its statistical adjustments to the individualized count advance the relevant goal of accuracy.

place over this clause. The broader contours of this debate—which were not explored in the concurrence and dissents in *House of Representatives* and have not been addressed in existing scholarship on this issue—indicate that the Framers favored a “permanent and precise” rule for apportionment and expressly rejected an alternative (i.e., wealth) that necessarily would have turned on an “estimate.” Such an approach was deemed necessary in light of the fact that a standard that preserved discretion in the hands of the political officers controlling the census would encourage an unseemly manipulation—as “those who have power in their hands will not give it up while they can retain it,” but “will always when they can rather increase it.”

These considerations initially were presented in the context of the debate over whether to reapportion seats in Congress on the basis of an assessment of the States’ wealth, as opposed to (or in addition to) their population. Although an early proposal would have permitted reapportionment “according to the principles of wealth & population,” the wealth criterion was soon abandoned, primarily on the ground that any assessment of wealth would have introduced too much discretion:

> Mr. Sherman thought the number of people alone the best rule for measuring wealth as well as representation; and that if the Legislature were to be governed by wealth, they would be obliged to estimate it by numbers. He... had been convinced by the observations of (Mr. Randolph & Mr. Mason) that the periods & the rule of revising the Representation ought to be fixt by the Constitution.

> William Paterson similarly objected to a standard calling for an “estimate for the future according to the Combined rule of numbers and wealth, as too vague.” George Mason echoed these same concerns, noting that any assessment of the wealth of the States would “require[] of the Legislature something too indefinite & impracticable.”

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258. *Id.; see also* Franklin v. Massachusetts, 505 U.S. 788, 791 (1992) (explaining that the requirement that a new census be conducted every ten years was designed “to ensure that entrenched interests in Congress did not stall or thwart needed reapportionment”).
259. *See 1 The Records of the Federal Convention of 1787, supra* note 257, at 582.
260. *Id.* (emphasis in original).
261. *Id.* at 561.
262. *Id.* at 582; *see also* *id.* at 583 (James Wilson indicating that he “considered wealth as an impracticable rule”).
Alexander Hamilton offered a similar argument in Federalist No. 36. In responding to the concern that the Constitution would invite “abuse of th[e] power of taxation,” Hamilton argued that the method for apportioning taxes to the States “by the numbers of each State” provided a significant check against such abuse. In Hamilton’s words, “[a]n actual census or enumeration of the people must furnish the rule; a circumstance which effectually shuts the door to partiality or oppression.”

The Framers’ concern as to the imprecision and manipulability of estimates of wealth surely would have been understood to apply to estimates of population. In fact, the debates at the Constitutional Convention include express reference to the possibility of an “estimate” of population, and a clear understanding of the difference between such an estimate and a count of actual numbers. Nathaniel Gorham indicated this understanding—again in the context of an argument that “supported the propriety of establishing numbers [i.e., numbers of persons as opposed to some measure of wealth] as the rule” for reapportionment. Gorham explained that in Massachusetts, “estimates had been taken in the different towns” in an attempt to ascertain the population of those towns. Because these “estimates” were later deemed an accurate measure of wealth, Gorham argued that population was a sufficient proxy for wealth. As Gorham put it, “persons had been curious enough to compare these estimates with the respective numbers of people; and it had been found even including Boston, that the most exact proportion prevailed between numbers and property.”

Gorham’s understanding of the difference between an “estimate” and an actual count of the population was surely shared by his colleagues. When the first Continental Congress debated the possibility of using population to apportion representation in 1774, John Adams had lamented the lack of actual population counts, warning that “[i]t will not do . . . to take each other’s Words” on the matter—that population counts “ought to be ascertained by authentic Evidence.” This deficiency had

263. THE FEDERALIST NO. 36 (Alexander Hamilton).
265. Id. (emphasis added).
266. 1 THE RECORDS OF THE FEDERAL CONVENTION OF 1787, supra note 257, at 587.
267. Id.
268. Id.
269. 2 DIARY AND AUTOBIOGRAPHY OF JOHN ADAMS, supra note 239, at 123–24.
not been cured by the time of the Constitutional Convention in 1787.270 The records of the Constitutional Convention contain a few scattered and partial estimates of population," but there was no actual count based on "authentic evidence."

Thus, the initial allocation of representatives in the Census Clause272 was based on "estimates" of the population of the several States, not on actual counts,273 and the Constitutional prescription for an "actual enumeration" must be understood in this context to call for the latter. Indeed, if the Framers had intended to leave open the possibility of any method of assessing the population so long as it advanced the goal of accuracy, it seems unlikely that they would have abandoned the language proposed (but ultimately rejected) under the Articles of Confederation calling for "a true account" of the population in each census,274 or the similar language in place under the New England Confederation requiring "a true, and just account" of population.275

Indeed, the Census Clause's requirement of an "actual enumeration" provides independent textual support for the conclusion that the Constitution prescribes the methodology of the census, and is not a mere aspiration for accuracy. An "actual" enumeration would have been understood in the Founding era to contemplate an enumeration "really in act," not just "purely in speculation."276 The use of this binary adjective leaves little doubt that the Framers were talking about a method of assessing the population. An actual enumeration can be read to foreclose enumerations that are not "really in act." By contrast, it simply makes no linguistic sense to speak of "actual" accuracy—since the goal of

271. Id. (emphasis added).
272. See U.S. CONST. art. I, § 2, cl. 3 (allocating specific numbers of representatives to the several states "until [the] enumeration" to be conducted "within three Years after the first Meeting of the Congress of the United States").
273. See THE DOCUMENTARY HISTORY OF THE RATIFICATION OF THE CONSTITUTION, supra note 220, at 298 (noting that in early 1788 Charles Cotesworth Pinckney published the "estimates" that "he said the Convention had used" in making the initial apportionment of representatives); see also BUREAU OF THE CENSUS, U.S. DEP'T OF COMMERCE, HISTORICAL STATISTICS OF THE UNITED STATES, 1789-1945 16 (1949) (explaining that estimates of the population of the colonies were "based on materials ranging from relatively complete enumerations . . . to fragmentary data").
274. See THE PAPERS OF JAMES MADISON, supra note 220, at 27–28.
276. See SAMUEL JOHNSON, A DICTIONARY OF THE ENGLISH LANGUAGE (3rd ed. 1773) (defining "actual").
accuracy does not involve a binary distinction, but a more nuanced aspiration for the greatest precision possible under the circumstances.

In light of the above, it is hardly surprising that the Framers failed to engage in any dispute about whether the Constitution would call for an individualized, actual count, since the alternative of an estimate would obviously have undermined their stated goals. Under the circumstances, the Framers can hardly be deemed to have been agnostic or apathetic about the "method" by which representation in the House would be apportioned among the States. An "actual enumeration" as understood in the founding era is the only method that is consistent with the Framers' goal of a "precise" standard that does not depend on "estimates" and does not present an opportunity for manipulation.

3. The First Decennial Census

The final chapter of the history presented here is the adoption and implementation of the first Census Act. At least one of the skeptics of the originalist conception of the Census Clause offered here has suggested that this piece of history cuts the other way, and supports the conclusion that an "enumeration" is not a "method" of conducting the census but only an aspiration for accuracy. In support of this view, the Solicitor General argued in House of Representatives that "the opening sentence of [the first Census] Act essentially equated 'enumeration' with 'caus[ing] the numbers of the inhabitants to be taken,'" and that the term "enumeration" is used in the Act in the context of a requirement that marshals return to the President the "enumeration and description" of people within his district. In the Solicitor General's view, this structure suggests that "enumeration" merely "refer[s] to the final product of the census—i.e., the population totals themselves—as distinct from the process by which those totals were derived."

This textual analysis of the first Census Act is unpersuasive and decidedly inconsistent with other provisions of the statute, with its implementation, and with the Framers' own discussion of the first census. As explained below, the Framers understood that an actual enumeration would necessarily fall short of a complete account of the

278. Id.
279. Id.
population, but they accepted this approach as the method prescribed by the Constitution, and expressly contrasted the official returns of the enumeration with the estimates and conjectures that would have painted a more accurate picture of the population.

a. The Bill and the Debate

The initial debates on the bill first introduced in the House of Representatives focused on the issue of whether the census should be limited to ascertaining the "number of persons" in each state, as required by the Constitution, or whether it should extend to gathering additional data. James Madison championed the broader approach. He proposed that the first census be expanded beyond "the bare enumeration of the inhabitants" to ascertain "the several classes into which the community [was] divided" so that "the Legislature might proceed to make a proper provision for the agricultural, commercial, and manufacturing interests ... in due proportion." In Madison's view, this was the "kind of information" that "all Legislatures had wished for," and such a body of knowledge would provide "an opportunity of marking the progress of the society, and distinguishing the growth of every interest." Moreover, Madison argued that the detailed breakdown of population into various "classes" would "answer the purpose of a check on the officers who were employed to make the enumeration; forasmuch as the aggregate number is divided into parts, any imposition might be discovered with proportionable ease."

Madison's proposal elicited widespread opposition, primarily on the ground that the broader classification he proposed would be unduly complicated and practically difficult. Opponents of Madison's plan thought that it "was too extensive to be carried into operation," that it "divided the people into classes too minute to be readily ascertained," and that it would require "additional labor" and "additional expense."

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280. See A CENTURY OF POPULATION GROWTH, supra note 228, at 42 (providing an extensive discussion of the debates and of the execution of the Act).
281. ANNALS OF CONGRESS 1077 (1790).
282. Id. at 1077–78.
283. Id.
284. See id. at 1107–08.
285. Id. at 1107 (reporting the comments of Congressman Livermore). Another objection was that "this particular method of describing the people would occasion an alarm among them; they would
Madison responded to these concerns by asserting that the enumeration of the number of persons required by the Constitution would already be complex and difficult, and that adding the additional areas of inquiry would add little expense:

If the object to be attained by this particular enumeration be as important in the judgment of this House, as it appears to my mind, they will not suffer a small defect in the plan to defeat the whole. And I am very sensible, Mr. Speaker, that there will be more difficulty attendant on taking the census, in the way required by the Constitution, and which we are obliged to perform, than there will be in the additional trouble of making all the distinctions contemplated in the bill. The classes of people most troublesome to enumerate, in this schedule, are happily those resident in large towns, as the greatest number of artisans live in populous cities and compact settlements, where distinctions are made with great ease.\textsuperscript{286}

\textbf{b. The Act and Its Implementation}

Madison’s arguments apparently carried sway in the House, which adopted his schedule for classification of the people according to profession,\textsuperscript{287} but his broader schedule was not adopted in the final bill.\textsuperscript{288} The first Census Act called for each of the “marshals of the several districts of the United States” to “swear (or affirm)” to “cause to be made, a just and perfect enumeration and description of all persons resident within [his] district.”\textsuperscript{289} The schedule prescribing the “description” of persons, however, called only for the “Names of the heads of families” and for the classification of persons as “Free white males of 16 years and upwards,” “Free white males under 16 years,” “Free white females,” “All other free persons,” and “Slaves.”\textsuperscript{290}

\begin{footnotesize}
\begin{enumerate}
\item Suppose the Government intended something, by putting the Union to this additional expense, besides gratifying an idle curiosity.” \textit{Id.} at 1108 (reporting the comments of Congressman Page).
\item \textit{Id.} at 1107 (emphasis added).
\item \textit{Id.} at 1130.
\item See \textit{2 Debates and Proceedings in the Congress of the United States 1790–1791} 2260–63 (Joseph Gales ed., 1834) (setting forth the first Census Act and the “schedule” provided for in the first census).
\item \textit{Id.} at 2260–61.
\item \textit{Id.} at 2261.
\end{enumerate}
\end{footnotesize}
The History of “Actual Enumeration”

The Act also required that the marshals “transmit to the President of the United States, the aggregate amount of each description of persons within their respective districts” within nine months of the census’s commencement on August 2, 1790.\textsuperscript{291} Although the Act did not set forth the precise method of conducting the “just and perfect enumeration” that it called for, it apparently contemplated that marshals and their assistants would gather the relevant data from members of families. Under the Act, “each and every person more than sixteen years of age” was “obliged to render ... a true account ... to the best of his or her knowledge, of all and every person belonging to [his or her] family ..., on pain of forfeiting twenty dollars.”\textsuperscript{2} Moreover, the Act also required the marshals’ assistants to present their returns in the form of the above-noted schedule, which “distinguish[ed] the several families [in their divisions] by the names of their master.”\textsuperscript{3} Finally, the Act prescribed a penalty of eight hundred dollars for any marshal failing to file his returns on time\textsuperscript{4} and set forth a compensation schedule for the marshals and their assistants.\textsuperscript{5}

“Although the area enumerated at the census of 1790 was only a fraction of the area of enumeration at the present time, it presented

\begin{itemize}
\item \textsuperscript{291} Id. at 2262.
\item \textsuperscript{292} Id. at 2263.
\item \textsuperscript{293} Id. at 2261.
\item \textsuperscript{294} Id. at 2262.
\item \textsuperscript{295} Id. at 2262–63. Under the schedule, each marshal’s assistant was to be compensated at the rate of one dollar for every one hundred and fifty persons by him returned, where such persons reside in the country, and where such persons reside in a city or town, containing more than five thousand persons, ... at the rate of one dollar for every three hundred persons.
\item \textsuperscript{Id. at 2262.} However, the marshals retained the discretion to award greater compensation up to “one dollar for every fifty persons” where necessary to provide adequate compensation. \textit{Id.} The marshals themselves were to be compensated as follows:
\begin{itemize}
\item the marshal of the district of Maine, two hundred dollars; the marshal of the district of New Hampshire, two hundred dollars; the marshal of the district of Massachusetts, three hundred dollars; the marshal of the district of Connecticut, two hundred dollars; the marshal of the district of New York, three hundred dollars; the marshal of the district of New Jersey, two hundred dollars; the marshal of the district of Pennsylvania, three hundred dollars; the marshal of the district of Delaware, one hundred dollars; the marshal of the district of Maryland, three hundred dollars; the marshal of the district of Virginia, five hundred dollars; the marshal of the district of Kentucky, two hundred and fifty dollars; the marshal of the district of North Carolina, three hundred and fifty dollars; the marshal of the district of South Carolina, three hundred dollars; the marshal of the district of Georgia, two hundred and fifty dollars.
\end{itemize}
\item \textsuperscript{Id. at 2262–63.}
\end{itemize}

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serious difficulties for the enumerator." For one thing, in some areas "the danger from hostile Indians doubtless made travel unsafe for the enumerator." For another, the "boundaries of towns and other minor civil divisions... were ill defined, so that the enumerator must often have been uncertain whether a family resided in his district or in an adjoining district." Finally, the compensation prescribed in the Census Act was often "barely enough to pay the expenses of the enumerator," so "it is reasonable to suppose that many of the isolated households of pioneers were not enumerated."

Moreover, the enumerators in the first census also met some opposition on the part of the public. Some opposed being counted on religious or superstitious grounds: "An early colonial enumeration in New York had been followed by much sickness; and the people, recalling that a similar experience had befallen the children of Israel as the result of an enumeration made by King David, ascribed this sickness directly to the census." Others were suspicious that "the census was in some way connected with taxation," and this undoubtedly was an even "more potent factor" contributing to non-response to the first census.

In any event, some enumerators (or "marshals' assistants," as they were called under the Census Act) completed their work by the fall of 1790, and "many of the newspapers of that period contained frequent statements concerning the population of different places." Most of the enumerations were completed by the summer of 1791, though South Carolina and Vermont were still many months from completion. At

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296. A CENTURY OF POPULATION GROWTH, supra note 228, at 45.
297. Id.
298. Id.
299. Id.; see also WALTER F. WILLCOX, STUDIES IN AMERICAN DEMOGRAPHY 77 (1940) (asserting that "the enumerator's pay" under the first Census Act of "between one-third of a cent and two cents a head, suggests that many families difficult to reach may have been omitted").
300. A CENTURY OF POPULATION GROWTH, supra note 228, at 45–46.
301. Id. at 46.
302. Id.
303. Id. As a new State, Vermont did not begin its enumeration until April of 1791. Id. South Carolina, on the other hand, had faced extensive "difficulty in getting assistants at the lawful rate of pay." Id. Despite the fact that "the grand jury of the Federal district court for Charleston made a presentment against six persons for refusing to render an account of persons in their families as required by the census act, and also a presentment against one of the enumerators for neglect of duty in not completing his district in conformity with the act," South Carolina nevertheless was not able to complete its enumeration until February 5, 1792, more than eighteen months after the census had begun. Id.
that time, both Thomas Jefferson and George Washington expressed disappointment that the mostly completed enumeration had not lived up to earlier estimates and expectations of the full population. Jefferson expressed this view in letters to James Madison, William Carmichael, and William Short. The letter to Short (dated August 29, 1791) is representative. In it, Jefferson writes:

I enclose you also a copy of our census, written in black ink, so far as we have actual returns, and supplied by conjecture in red ink, where we have no returns; but the conjectures are known to be very near the truth. Making very small allowance for omissions, which we know to have been very great, we are certainly above four millions, probably about four millions one hundred thousand.304

Washington expressed a similar sentiment in a letter to Gouverneur Morris dated July 28, 1791. Washington’s comments were in a paragraph lamenting that the “enumeration” of the population would fall short of the “estimate” he had previously offered of the population of the United States:

In one of my letters to you the account which I gave of the number of inhabitants which would probably be found in the United States on enumeration, was too large. The estimate was then founded on the ideas held out by the Gentlemen in Congress of the population of their several States, each of whom (as was very natural) looking thro’ a magnifying glass would speak of the greatest extent, to which there was any probability of their numbers reaching. Returns of the Census have already been made from several of the States and a tolerably just estimate has been formed now in others, by which it appears that we shall hardly reach four millions; but one

304. See VIII THE WRITINGS OF THOMAS JEFFERSON 236 (Andrew A. Lipscomb ed., 1903); see also id. at 229 (setting forth Jefferson’s letter to William Carmichael dated August 24, 1791, which states that Jefferson is enclosing “a copy of our census” and offers the same explanation that the “actual returns” are “written in black ink” and that “what is in red ink [is] being conjectured,” and asserts that “we may safely say we are above four millions” by “[m]aking very small allowance for omissions, which we know to have been great”); 2 THE REPUBLIC OF LETTERS: THE CORRESPONDENCE BETWEEN THOMAS JEFFERSON AND JAMES MADISON 1776–1826 707 (James Morton Smith ed., 1995) (setting forth Jefferson’s letter to James Madison dated August 18, 1791, which encloses a “copy of the census” that Jefferson says he “made out” for Madison and indicates that “[w]hat is in red ink is conjectural, the rest from the real returns”). Madison had previously written to Jefferson on the topic of the census returns. See id. at 688–89. Madison similarly contrasted the “returns” with an “estimate.” Id. at 689. He asserted that “the returns [had] come in pretty thickly of late and warrant[ed] the estimate founded on the Counties named to [him] some time ago.” Id.
thing is certain our real numbers will exceed, greatly, the official returns of them.\footnote{305}

After indicating that the "official returns" of the "enumeration" would fall short of both his earlier "estimate" and of the "real numbers" of persons in the population, Washington also offered his understanding of the reasons for the shortfall:

[T]he religious scruples of some, would not allow them to give in their lists; the fears of others that it was intended as the foundation of a tax induced them to conceal or diminished theirs, and thro' the indolence of the people, and the negligence of many of the Officers numbers are omitted.\footnote{306}

Despite the shortfall that flowed from the negligence of some of the enumerators and the indolence, fears, and religious scruples of the people, Washington concluded by expressing confidence that the "authenticated number" produced by the official returns of the enumeration would be "far greater... than has ever been allowed in Europe," and that the returns (such as they were) would "have no small influence in enabling them to form a more just opinion of our present and growing importance than has yet been entertained there."\footnote{307}

c. The First Census Act and the Original Understanding of an "Actual Enumeration"

The history of the enactment and implementation of the first Census Act is entirely in line with the originalist conception put forward in this Article and decidedly inconsistent with the contrary arguments put forward by the Solicitor General in\textit{ House of Representatives}. First, the text of the Act itself cannot be read to support the notion of an

\footnote{305}{31 \textit{THE WRITINGS OF GEORGE WASHINGTON} 329 (John C. Fitzpatrick ed., 1931). A similar comparison of the enumeration returns with the "real numbers" of persons was indicated in a letter that John Steele, a congressman from North Carolina, sent to North Carolina Governor Alexander Martin and to another constituent on January 27, 1791. See \textit{I CIRCULAR LETTERS OF CONGRESSMEN TO THEIR CONSTITUENTS}, 1789–1829 4–5 (Noble E. Cunningham Jr., ed., 1978). In that letter, Steele reported that "[t]he Marshals of North Carolina" were then "engaged in taking the enumeration of our inhabitants," and asserted that it was "the interest of every citizen" that "it should be well, and accurately done." \textit{Id.} at 5. "If it is not well done," Steele expressed concern that North Carolina would "not have that weight in the political scale to which [it] justly [was] entitled by territory and real numbers." \textit{Id.} (emphasis added).

\footnote{306}{31 \textit{THE WRITINGS OF GEORGE WASHINGTON}, supra note 305, at 329.

\footnote{307}{\textit{Id.}}}
The History of "Actual Enumeration"

textual content

enumeration as any "final product" of numbers or "population totals," however derived. It is true that "enumeration" is used in the Act to describe the "final product" or the "return" that the marshal presents to the President. But that use of the constitutional term can hardly be read to leave open the possibility that the marshal could actually count only some of the persons in his district and make an estimate as to all those he could not locate. The Act expressly requires the marshal to submit a detailed report of both the numbers and a description of the persons within his district, and to swear an oath that this report is "just and perfect." In context, this requirement clearly requires an actual count, and necessarily would exclude any persons for whom the marshal does not have actual data as to names and other characteristics such as age required by the Act. Indeed, the Act expressly contemplates that the relevant data would be provided by members of families, who were required to "render... a true account... to the best of his knowledge, of all and every person belonging to [his] family...; on pain of forfeiting twenty dollars." The correspondence of Washington and Jefferson confirms that they also acknowledged the distinction between an enumeration and an estimate. Washington contrasted the "official returns" of the "enumeration" with his own "estimate" of the population, and with the "tolerably just estimate" arrived at in States that had not yet reported their returns. By the same token, Jefferson highlighted the same distinction in his two colors of ink, noting the "actual returns" of the enumeration in "black ink" and "conjectures... known to be very near the truth" in "red ink."

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310. 31 THE WRITINGS OF GEORGE WASHINGTON, supra note 305, at 329.
311. VIII THE WRITINGS OF THOMAS JEFFERSON, supra note 304, at 236. Jefferson's letters do not indicate what methodology he used in offering his "conjectures" of populations whose enumerations had not yet been reported. Although his precise methodology may never be clear, one historian has asserted that the context of his letters suggests generally that "as the returns from the several States came in, the gaps in the series were filled temporarily and provisionally by entries 'in red ink' in accordance with what evidence was at hand." WILLCOX, supra note 299, at 77. Regardless of the methodology, however, it is clear that Jefferson appreciated the difference between the actual enumeration returns and a mere conjecture—however "near the truth" the conjecture might be.
The history of the first Census Act also belies the notion that the drafters of the Act understood an “enumeration” to refer only to the “final product of the census” and not to the “process” or “method” of deriving that product. Madison’s argument in favor of his proposal to broaden the scope of the census clearly indicates his understanding of an enumeration as a specific method of assessing the population. Madison insisted that the “additional trouble of making all the distinctions” contemplated in his proposed schedule paled in comparison to the basic “difficulty attendant on taking the census, in the way required by the Constitution.” The requirement of an enumeration, in other words, was “troublesome” and “difficult,” but this method was “required by the Constitution” and Madison understood that Congress was “obliged to perform” it in that manner.

Washington and Jefferson similarly understood the constitutional requirement of an “actual enumeration” to prescribe a specific method of assessing the population. Despite their self-proclaimed ability to provide estimates where actual enumerations were lacking, Washington and Jefferson accepted the fact that the actual enumeration had failed to provide a full account of the population and were resigned to the impropriety of supplementing the official returns by methods of estimation. Indeed, they could hardly have been clearer in expressing these views. Washington was as convinced as he was disappointed that the new nation’s “real numbers [would] exceed, greatly, the official returns of them.” But although he had a practical capacity and an obvious incentive to augment the official returns with supplemental estimates (in order to better “influence” Europe to “form a more just opinion of our present and growing importance”), Washington acknowledged that he was bound by the “authenticated number” produced by the official returns of the enumeration.

Jefferson’s approach was similar. He acknowledged that the “omissions” in the enumeration had “been very great,” so much so that the true population was “certainly above four millions, probably about four millions one hundred thousand.” And although Jefferson acknowledged a practical capacity to make an “allowance” for the

312. See supra text accompanying note 279.
313. ANNALS OF CONGRESS, supra note 281, at 1107 (emphasis added).
314. 31 THE WRITINGS OF GEORGE WASHINGTON, supra note 305, at 329.
315. Id.
316. VIII THE WRITINGS OF THOMAS JEFFERSON, supra note 304, at 236.
“omissions” in order to arrive at a more accurate measure of the population, like Washington he understood that the Constitution called for census “returns” based on an actual enumeration, not mere “conjecture.” 317

With this background, the Framers of the Census Clause can hardly be thought to have left open any conceivable method of population assessment—so long as it is consistent with the goal of being “likely to be complete and accurate.” 318 Washington, Jefferson, and undoubtedly many others understood that the first enumeration of the population was not “complete and accurate,” and they had every incentive to augment the official returns with supplemental estimates. Their failure to do so is a powerful testimony of their understanding of the actual enumeration required by the Constitution, as is the fact that until the last few censuses Congress consistently has resisted the temptation to authorize the use of statistical methods to estimate the apportionment population. 319 This forbearance strongly suggests that it believed “that the power [to estimate the population by statistical methods] was thought not to exist.” 320

317. Id.

318. U.S. Dep’t of Commerce v. U.S. House of Representatives, 525 U.S. 316, 364 (1999) (Stevens, J., dissenting). In articulating this argument in his dissent in House of Representatives, Justice Stevens asserted that statistical sampling “will make the census more accurate than an admittedly futile attempt to count every individual by personal inspection, interview, or written interrogatory,” and accordingly concluded that such method “is a legitimate means of making the ‘actual Enumeration’ that the Constitution commands.” Id. Justice Scalia confronted this argument in his concurrence by arguing that not all methods of estimation will improve the accuracy of the census, and that the power “to select among various estimation techniques having credible (or even incredible) ‘expert’ support is to give the party controlling Congress the power to distort representation in its own favor.” Id. at 348 (Scalia, J., concurring). Accordingly, Scalia concluded that “genuine enumeration may not be the most accurate way of determining population, but it may be the most accurate way of determining population with minimal possibility of partisan manipulation.” Id. at 348–49. The originalist approach I propose permits us to set aside the debate over whether statistical estimation improves accuracy, since the Framers acknowledged that an actual enumeration could result in a deficient count that would not be “most likely to be complete and accurate.” Id. at 364 (Stevens, J., dissenting).

319. See id. at 336 (noting that for most of the history of the census Congress “requir[ed] enumerators to ‘visit personally each dwelling house in his subdivision’ in order to obtain ‘every item of information and all particulars required for any census’”).

320. See Printz v. United States, 521 U.S. 898, 905 (1997) (explaining that historical evidence that “earlier Congresses avoided use of [the] highly attractive power [to compel state executive officers to administer federal programs]” indicates “reason to believe that the power was thought not to exist”); see also House of Representatives, 525 U.S. at 348 (Scalia, J., concurring) (arguing that “[t]he stronger the case . . . for the irrationality of that course [of actual enumeration unaided by statistical estimation methods], the more likely it seems that the early Congresses . . . thought that estimations were not permissible”).
III. CONCLUSION

Long before the adoption of the Constitution, an “actual enumeration” and an “estimate” were understood as different methods of assessing populations. This distinction was routinely acknowledged in eighteenth-century Britain and in the American colonies; assessments of population on both sides of the Atlantic routinely contrasted methods of drawing “conjectural estimates” with the more costly approach of conducting an “actual enumeration.”

The longstanding distinction between an enumeration and an estimate cannot be dismissed as a mere aspiration for accurate results, no matter how derived. Although modern theorists point to the undercount as a flaw in the method of an actual enumeration, the identification of that flaw is hardly a recent epiphany. The Framers’ generation was well aware of the fact that an actual enumeration is inherently incapable of counting those that cannot practicably be counted.

Notwithstanding their awareness of this inherent limitation, the Framers required that representation in Congress be apportioned on the basis of an “actual enumeration.” They did so, moreover, not out of naïveté or unfamiliarity with alternative methods of estimation, but to minimize the risk of political manipulation in what they knew would always be a politically charged decision—the apportionment of seats in the U.S. House of Representatives. If the original understanding of the Census Clause is to be preserved, the prescription for an “actual enumeration” must be interpreted to require an actual count unaided by statistical estimation.

The constitutional line between “conjectural estimate” and “actual enumeration” can and should be drawn in a way that would preclude the Census Bureau’s current practice of hot-deck imputation. Under the original meaning outlined here, an enumeration is understood as a count derived from observed data such as that provided by a member of a household. Hot-deck imputation is far removed from such a count; it is no more than a conjectural estimate based on the statistical assumption that a household may be similar to its closest neighbor—akin to the per-household estimates proposed in eighteenth-century Britain and America and routinely distinguished from an actual enumeration.  

321. Indeed, hot-deck imputation is not meaningfully distinguishable from the proposed Non-Response Followup Program struck down in House of Representatives. Under that program, the Bureau first planned to “send census forms to all households, as well as make forms available in post
understanding of the Census Clause is to be preserved, the Bureau’s use of hot-deck imputation should be ruled unconstitutional and the apportionment count should be limited to observed data derived from an actual enumeration. Under this originalist approach, the Bureau is free to acquire apportionment data (as it currently does) from household members, neighbors, or anyone else who has actual knowledge of the offices and in other public places.” See House of Representatives, 525 U.S. at 324. Because the Bureau anticipated that only “67 percent of households [would] return the forms,” the Bureau planned “to divide the population into census tracts of approximately 4,000 people that [would] have ‘homogeneous population characteristics, economic status, and living conditions.’” Id. Finally, “[t]he information gathered from the nonresponding housing units surveyed by the Bureau would then be used to estimate the size and characteristics of the nonresponding housing units that the Bureau did not visit.” Id. at 324–25. “Thus, continuing with the first example, the Bureau would use information about the 100 nonresponding units it visits to estimate the characteristics of the remaining 100 nonresponding units on which the Bureau has no information.” Id. at 325.

Hot-deck imputation is substantively indistinguishable from this proposed method; it has the same purpose of using “information gathered” from observed housing units “to estimate the size and characteristics of the nonresponding housing units that the Bureau did not visit.” Id. at 324–35. Two differences between the two approaches can be identified, but neither is of any substantive significance. First, estimates using imputation involved a smaller percentage of the population. In its 1997 proposal, the Census Bureau proposed to count 90% of the households in each census tract by traditional methods of enumeration, and to use a statistical model to estimate the remaining 10%. See id. By contrast, the Census Bureau used imputation to estimate a much smaller percentage (less than one-half of 1%) of the households that it was unable to enumerate using traditional methods. See supra notes 59–60. This distinction cannot make a constitutional difference. If statistical estimates of 10% of the population violate the constitutional command, then estimates of a much smaller percentage of the population are equally problematic; the line cannot be drawn at any place other than at zero tolerance for statistical estimates. See House of Representatives, 525 U.S. at 342 (explaining that the Census Act prohibits the use of statistical sampling “for the determination of population for purposes of apportionment,”) and that the relevant population “is not ‘determined,’ not decided definitely and firmly, until the [estimates generated by statistical sampling methods] are complete”) (quoting the Census Act) (emphasis added).

Second, hot-deck imputation employs a different statistical sampling method than the method proposed by the Census Bureau in 1997. Specifically, the imputation methodology employed in the 2000 census is a form of “non-probability” or “quota” sampling, while the sampling struck down in House of Representatives was a form of “probability” or “random” sampling. See id. at 324 (explaining that the 1997 proposal relied on “a randomly selected sample of nonresponding housing units, which would be ‘statistically representative of all housing units in [a] nonresponding tract’”). This difference, however, cannot be deemed to elevate hot-deck imputation to a method of actual enumeration, and not a method of statistical sampling. Indeed, the Census Bureau itself has acknowledged that hot-deck imputation is a “statistical method” or form of “sampling” designed “to correct for problems in physical enumeration.” CENSUS 2000 REPORT, supra note 1, at 23.

322. The Bureau’s use of observed data provided by a neighbor or some other “proxy” need not be called into question under this formulation of the constitutional standard. Although enumeration by proxy data dates only to the 1920 census, see House of Representatives, 525 U.S. at 335 n.5 (citing Act of Mar. 3, 1919, § 12, 40 Stat. 1296), such a method is more comfortably analogized to enumeration by observed data provided by a member of the household than it is to a conjectural estimate derived from a statistical assumption.
occupancy characteristics of an individual housing unit.\textsuperscript{323} It may also retain a number of other statistical methods it currently uses for the purpose of editing such actual data or preventing duplication or fraud in the use of such data.\textsuperscript{324} What it may not do, however, is to use any method that would fabricate such data.\textsuperscript{325}

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\textit{See supra} text accompanying footnotes 35–41 (discussing the Bureau's current methods of enumerating the population by the mailout/mailback procedure and by non-response follow-up methods, including by seeking occupancy data from "proxies" such as neighbors).
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\textit{See U.S. DEP'T OF COMMERCE, BUREAU OF THE CENSUS, DSSD CENSUS 2000, PROCEDURES AND OPERATIONS MEMORANDUM SERIES #B-3 (Sept. 27, 2000), at 25–51 (discussing various statistical procedures used by the Census Bureau for purposes of quality assurance); U.S. DEP'T OF COMMERCE, BUREAU OF THE CENSUS, DSSD CENSUS 2000 PROCEDURES AND OPERATIONS MEMORANDUM SERIES #B-1 (Mar. 1, 2001), at 20–22 (discussing the Census Bureau’s use of the primary selection algorithm and characteristic imputation); see also Consolidated Memorandum, \textit{supra} note 16, at 32–33 n.13 ("Some of the statistical processes incorporated in the Census 2000 include quality assurance, the primary selection algorithm, disclosure avoidance, the duplicate housing unit operation, and characteristic imputation."); accord Declaration of Howard Hogan, \textit{supra} note 16, at ¶ 64.}
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\textit{See supra} note 324 do not create data; they merely enable the Bureau to improve accuracy in its utilization of data.
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\textsuperscript{323} Hot-deck imputation is the only method that the Bureau currently employs that would be in jeopardy under this approach. The other methods described \textit{supra} note 324 do not create data; they merely enable the Bureau to improve accuracy in its utilization of data.