

## CHAPTER VII

### VOTING MACHINES

Voting machines were first used in the United States in 1892, in Lockport, New York, their use having been authorized by state law that year.<sup>1</sup> Immediately following the adoption of the Australian ballot the idea of a voting machine to take the place of the paper ballot apparently occurred to many persons of an inventive mind, and many voting machine patents were issued and a number of machines were placed upon the market at that time. The first voting machine law in New York State, passed by the legislature in 1892, authorized the use of the "Myers Automatic Booth," which was the first machine tried out in the state.<sup>2</sup> In 1893 Massachusetts authorized the use of the McTammany machine,<sup>3</sup> and Michigan in the same year authorized the adoption of the Rhines machine.<sup>4</sup>

**Extent of their Use.** By 1929 twenty-four states had passed laws permitting the use of voting machines, as follows:<sup>5</sup>

New York	1892	New Jersey	1902
Massachusetts	1893	Illinois	1903
Michigan	1893	Iowa	1906
Connecticut	1895	Montana	1907
Indiana	1899	Utah	1907
Minnesota	1899	Colorado	1908
Nebraska	1899	New Hampshire	1913
	1899	Washington	1913
Ohio	1929	Oregon	1913
Rhode Island	1900	Maryland	1914
Kansas	1901	Virginia	1922
Maine	1901	Pennsylvania	1929
Wisconsin	1901		

<sup>1</sup> See T. David Zukerman, *The voting machine* (1925).

<sup>2</sup> Session Laws, 1892, Chap. 127.

<sup>3</sup> General Laws, 1893, Chap. 54.

<sup>4</sup> Session Laws, 1893, Act. 98.

<sup>5</sup> The table is based largely upon Chapter III of Zukerman.

The first large city to try voting machines was Rochester, New York, in 1896. The first machine used, the Meyers, did not permit the voter to rectify an error, and gave rise to some trouble. Two years later, after a broadening of the state law, the U. S. Standard machine was tried out, and this type of machine has been used constantly in Rochester since that time.<sup>6</sup> The first election in Rochester gave rise to the question as to whether voting machines could be used for the election of Representatives to Congress. The defeated candidate in the district in which Rochester is located contested the election on the ground the use of voting machines was in violation to the Federal statute which provided that "all votes for Representatives in Congress must be by written or printed ballot." The congressional committee which investigated the case pointed out that there was no allegation of fraud, or that the results would have been different had paper ballots been used in the precincts in Rochester, and without passing definitely upon the legality of the use of voting machines in congressional elections, reported in favor of the candidate originally elected.<sup>7</sup> In 1899 Congress amended the section of the statutes to permit the use of voting machines where authorized by state law.<sup>8</sup>

The movement for the adoption of voting machines is indicated somewhat by the above table, though the passage of the necessary legislation was not always followed by adoption. From 1900 to 1910 voting machines were installed very widely throughout the country, particularly in large cities. Some of the large cities which purchased machines during this decade include the following: Buffalo, Hartford, Indianapolis, Jersey City, Newark, Milwaukee, Minneapolis, Denver, Salt Lake City, and San Francisco. The following decade witnessed the continuous spread of voting machines, though at a somewhat lessened pace, and with a number of important

<sup>6</sup> Zuckerman, p. 32.

<sup>7</sup> *Ibid.*, p. 23-25.

<sup>8</sup> Revised Statutes, Sec. 27.

cities, such as Milwaukee, Minneapolis, Jersey City, Newark, Denver, Salt Lake City, and San Francisco discontinuing their use. In the decade from 1920 to 1930 the principal large cities to adopt voting machines were: New York City, Pittsburgh, Philadelphia, San Francisco, and Grand Rapids. In the principal states where voting machines were in use many smaller communities adopted them during this period. The leading manufacturer of voting machines advertised in 1928 that one voter out of every six who voted in the presidential election would cast his vote upon a voting machine. There is at the present time considerable interest in the question of adopting voting machines in Ohio, Pennsylvania, Massachusetts, Michigan, Maryland, and several other states. Pennsylvania voted by an overwhelming vote in 1928 to amend the constitution to permit the use of voting machines in a part of the state (uniformity being required under the constitution prior to that time), and in the following year the legislature passed the necessary legislation to permit their use. At the fall election of 1929 the question of the adoption of voting machines was submitted to the voters in a number of counties of the state, and carried by substantial majorities in the most populous counties, including Philadelphia and Pittsburgh, and some other counties, but was defeated in a few counties. Both Philadelphia and Pittsburgh ran into legal difficulties and lawsuits when voting machines were to be purchased, and neither city has completed the installation at this time (1933).

By an early decision of the supreme court of Ohio voting machines were held to be contrary to the requirement of a written ballot, contained in the state constitution.<sup>9</sup> A similar decision was made in Massachusetts in 1909.<sup>10</sup> The Ohio court recently reversed its decision,<sup>11</sup> and in 1929 legislation was

<sup>9</sup> State ex rel. v. Supervisors of Elections, 80 O.S. 471, and State ex rel. v. Miller, 87 O.S. 12.

<sup>10</sup> Nichols v. Election Com., 196 Mass. 411, and In re House Bill, 178 Mass. 605; 54 L.A. 438.

<sup>11</sup> State ex rel. v. Green, 121 Ohio State 301.

enacted permitting the use of voting machines as a part of the election code passed at that time.<sup>12</sup> With the legalization of voting machines considerable attention is being given to the question of their adoption in the state.<sup>13</sup> Baltimore has experimented with the use of voting machines within recent years, but under a ruling of the attorney general it is necessary in Maryland to provide five voting machines to each precinct, and until this ruling can be changed it will be impracticable to use machines. Some agitation has been made for the adoption of machines in Detroit, though that city has an unusually difficult ballot to handle upon a machine.<sup>14</sup>

These facts indicate that there is a widespread interest in the adoption of voting machines in some of the more populous states which have not yet adopted them, and the question of the advisability of the use of voting machines and the procedure in using them constitutes a leading problem in election administration. The states which are using voting machines at the present time are indicated below, roughly in the order of the extent to which the machines are used throughout the state:

New York	Iowa	Michigan
Connecticut	Washington	Wisconsin
Indiana	California	Pennsylvania

In none of these states are voting machines used exclusively. In New York State they have been adopted by approximately eighty per cent of the precincts in the state; in Connecticut somewhat less; in Indiana, Iowa, and Washington, approximately fifty per cent; in California by the City of San Francisco and to a limited extent in Los Angeles; in Michigan and Wisconsin by a few of the smaller cities, and in Pennsylvania they are being installed, if legal difficulties

<sup>12</sup> Election Laws, Chap. XV.

<sup>13</sup> See a report by the Ohio Institute, Analysis of the desirability of installing voting machines in Ohio cities, prepared by R. C. Atkinson (1930).

<sup>14</sup> A report on voting machines was made by Oakley E. Distin, Chief Supervisor of Elections of Detroit, on April 7, 1930.

are ironed out, in Philadelphia and Pittsburgh, and also in some other counties.

The large cities which use voting machines at present are given below:

New York	Rochester	Oshkosh
Philadelphia	Hartford	Sheboygan
Pittsburgh	New Haven	Grand Rapids
Buffalo	Indianapolis	Seattle
Syracuse	Des Moines	San Francisco
	Davenport, Iowa	

On the other hand, a number of communities have tried voting machines and have abandoned them after trial. The following states legalized the use of voting machines years ago, but do not use them at the present time:

Massachusetts	Kansas	Utah
Minnesota	Maine	Colorado
Nebraska	New Jersey	New Hampshire
Rhode Island	Illinois	Oregon

In most, if not all, of these states voting machines were tried out and abandoned, for one reason or another. Rather significant and somewhat discouraging to the use of voting machines is the list of large cities which have used voting machines at one time and then abandoned them:

Chicago	Jersey City	Los Angeles (now being resumed)
Milwaukee	Omaha	Portland, Ore.
Minneapolis	Denver	Racine
Newark	Salt Lake City	

In addition to these cities, there are many smaller communities which have abandoned voting machines. Practically all of the larger cities in Wisconsin, for example, used voting machines some years ago, but all except four cities have discontinued their use. The reason was not always the same, and in some instances had little to do with the merits of the machines; but behind the immediate reasons for discontinuing the use of machines was some dissatisfaction and opposition, caused in several instances by serious congestion at the

polls. In almost every community where voting machines are used there is some element of the population opposed to their use, and eager and willing to seize any opportunity to obstruct their use in the future.<sup>15</sup>

It is difficult to ascertain now the exact reason why machines were abandoned in these cities, particularly where they were abandoned many years ago. The most sensational case was that of Chicago. In 1904 the voters of the city approved the adoption of machines by a vote of 229,577 to 27,081.<sup>16</sup> For several years thereafter, the election board experimented with machines, called for bids, and examined machines with great deliberation, but was unable to find one which met with its approval. According to reports, the representatives of each type of machine submitted were able to convince the members of the board of the defects in the machines of their competitors. Although the council appropriated \$100,000 to cover the first purchase of machines, the money went unspent. Finally in 1911 the board of election commissioners advertised for bids for one thousand two hundred machines, although no appropriation had been made to cover such purchase, and the board had been unwilling prior to that time to approve any of the machines offered. The Chicago Bureau of Public Efficiency opposed the purchase on the ground that it was unwise to purchase such a large number of machines at one time, without knowing the number which would be required and without further proof that the machines were adapted to the elections in Illinois. In spite of the opposition to the purchase of the machine, the lack of an appropriation, and the opposition of one of its own members, the board of election commissioners went ahead and placed a contract for one thousand two hundred machines. Two hundred were delivered, paid for, and used in the primary election in 1912. Three hundred more were delivered that summer, but the

<sup>15</sup> Even in Rochester, the first large city to use voting machines, there has been continuous, though not serious, opposition to them.

<sup>16</sup> Zukerman, p. 40.

use of machines at the November election of that year was enjoined by the courts on the ground that they could not be voted understandingly within one minute, as required by the statute. The Chicago Bureau of Public Efficiency protested to the council against the recognition of the contract and instituted a taxpayer's action to enjoin payment on the contract.

When the voting machine company brought suit to secure payment the Bureau of Public Efficiency employed counsel to defend the city. The local court held in the case that the board of election commissioners had no authority to make the contract, since no appropriation to cover the purchase of this number of machines had been made by the city. The machines which had not been paid for were returned to the company.

In the meantime, beginning in April 1913, an investigation of charges of fraud and bribery in connection with the letting of the contract was instituted by the state legislature, which continued for two years. It was alleged that more than \$200,000 had been used by the representative of the company to secure the contract. This constituted one of the greatest scandals of the time, and has given voting machines such a bad name in the state that no serious attempt has been made since to secure their adoption. It should be added that serious difficulties were encountered in the primary election of 1912 with the voting machines that had been purchased. At the last moment, by a court order, paper ballots had to be used along with the voting machines for voters who preferred them, and in many sections of the city where there was opposition to the machines by the party organizations, practically no votes were cast on the machines. It is reported that many of the machines were early placed out of commission. A very large machine was required to handle the long Chicago ballot, which was further complicated by the cumulative voting system for members of the state legislature. The machines were so large that they had to be almost exactly level in order to function, and were easily thrown out of commission.

In Milwaukee the use of machines was discontinued about

1912 when the preferential ballot was adopted in the state. While it would have been possible to vote the preferential ballot as provided by state law on the machine, it would have required so much space that not all of the remaining parts of the ballot could be placed upon the machine. The attorney general ruled that unless all of the ballot could be placed upon the machines they could not be used. At several elections it was impracticable to use machines. When the preferential ballot law was repealed, the county board of election commissioners refused to permit the use of voting machines in county and state elections, for which they printed the ballots, and the city election board decided that it would be unwise and confusing to the voters to use the machines only in the city elections. The authority of the county board of election commissioners to refuse to permit their use in county and state elections was not contested at the time. In 1928 and 1929 this legal question was cleared up so that the city was permitted to use machines in all elections, but after experimenting with machines at several elections, the city failed to adopt them. Other cities in the state went through much the same experience, discontinuing the use of machines when the preferential ballot was adopted, and failed to return to their use when this law was repealed. The legal questions involved, however, do not adequately explain the situation, for had the general public and the election officers in these communities been strongly in favor of the use of the machines, these legal difficulties would have been remedied by legislative action, and, at any event, these cities would have returned to the use of machines when the state preferential voting act was repealed.

X In Minneapolis machines were installed on an experimental basis in 1908 and, within a year or so, the entire city was equipped. In 1912 and 1913 the legislature of the state amended the election laws so as to require the provision of paper ballots for the use of electors who preferred them, and under this law the machines were quickly abandoned, presum-

ably because many electors proved by their choice that they preferred the paper ballots, and no economies were effected by the use of machines. It is significant that the machines have never been able to succeed if the voter is given his preference between voting on the machine and voting a paper ballot.

The reason for the discontinuance of voting machines in New Jersey, Colorado, Utah, and other states is more obscure. It seems likely that in most cases some difficulties were encountered and the machines were abandoned because of the opposition to them. Portland, Oregon, tried out machines as recently as 1928, after having purchased some ninety machines, and because of the congestion at the polls has since failed to use them again. The election officers of the county in which Portland is situated are convinced that machines will never be used in the city again. The unfortunate experience in 1928 was not due entirely to the machines, however, for the machines which were purchased were not large enough to take care of the ballot, which consequently was placed on the machine in such manner that each Republican voter had to vote on the machine twice—once on one part of the machine and a second time on another part of the machine. The resulting congestion at the polls was inevitable.

**Legislation.** The election laws authorizing the use of voting machines are practically identical in the several states, due, no doubt, to the fact that they were enacted at the instigation of the manufacturers. Practically all of the states provide a state board of voting machine commissioners consisting of three persons, either ex-officio, or appointed by the governor or secretary of state. The purpose of this board is to examine and approve or disapprove voting machines submitted to it before they may be used in the state. Provision is always made for one or more of the persons who examine the machine to be mechanical experts. A fee, which varies from a flat \$450 in New York State to ten dollars per day for each examiner in the State of Washington, is provided in the law.

Several of the states which have recently consolidated their administrative departments and abolished unimportant and defunct bodies have abolished the board of voting machine commissioners on the ground that the body had not met for years and was no longer necessary.<sup>17</sup> In New York the duties of the voting machine commissioners were transferred to the secretary of state, but in Wisconsin no provision whatever is now made for examination of machines by a state agency.

Certain specifications or requirements are uniformly set forth in voting machine statutes. The machines must permit the elector to vote for all candidates and on all referendum questions on which he is entitled to vote, and prevent him from voting for any candidates or upon any questions which he is not qualified to vote. The latter provision, to be sure, is not applicable in most states, though written into the law, since most states no longer have any form of limited suffrage. It must secure secrecy of the ballot; permit the voter to vote for any person, regardless of whether the name of such person is printed on the ballot; prevent the voter from voting for more candidates for any office than he is entitled to vote; and must be provided by locks and counters to prevent tampering and fraudulent voting. In most states the machine is used for primary elections, and in such elections it must permit the precinct officers to set it so that the voter can vote only the primary ballot of his party. — in closed primary states.

The city council or the county commissioners are usually authorized to adopt and purchase machines, though in a few states a referendum vote is required before purchase. In a few states there are some mandatory features in the election law requiring the use of voting machines, but this is unusual and is limited actually to only a few communities. The device of mandatory legislation to force local adoption was used in New York State to force the City of New York to adopt machines, but the election commissioners opposed to the purchase of the machines were able to prevent their purchase for

<sup>17</sup> New York and Wisconsin, for example.

a number of years. The body authorized to purchase machines is usually specifically authorized to issue bonds to pay for them or to arrange to pay for them in other ways.

In the states which use the party column ballot, the ballot on the machine must also be arranged in party columns, but these columns may be either vertical or horizontal. As a matter of practice, the current models of voting machines all use the horizontal column, with the title of each office placed above each vertical bank of voting levers. In New York State, which uses the office group ballots, all of the candidates of each political party are placed upon one row on the machine, thus making a party column ballot upon the voting machine. While there is no straight party lever on the machines used in New York State, the voters of the party organizations are taught to vote a straight ticket by one sweep of the hand along the row of keys of the party.

Sample ballots, showing the face of the machine, and containing also instructions how to vote on the machine, are required to be mailed to the voter or advertised in the newspapers prior to the polls. These sample ballots, which may be reduced in size, are also posted in the precincts and at the polling place. Ordinary paper ballots have to be printed for absent voters, whose votes are cast and counted in the usual manner. The objection is often made that if there is only one absent ballot to the precinct, the use of the voting machine destroys the secrecy of the ballot for that elector. This is not an important consideration.

The setting of the machines for an election is regulated in detail by the election statutes, though in actual practice the procedure outlined is not usually followed. The election office is usually required to notify the party organization before the custodian begins the work of setting the machines, in order that they may provide watchers. The provision in some states for the payment of party watchers by the government is wholly unjustifiable.<sup>18</sup> The custodian is required to set all of

<sup>18</sup> For example, New York Election Laws, Sec. 251.

the counters back to zero, record the number on the protective counter, and lock and seal the machine. He also places in the machine the ballot labels and sets the machine so that the voter may not cast more than the right number of votes for each office.

Elaborate provisions are usually made for instructing the precinct officers how to operate the machine and their duties in connection with it. The local office in charge of elections is required to hold a meeting to instruct them, and to pay each of them one dollar plus car fare for attending this meeting. The laws also provide that a certificate shall be issued to each officer attending, and that no officer shall have charge of a machine who has not been issued such certificate. Needless to say, these provisions are not usually complied with. Such a school of instruction is not necessary before each election, and is a needless bother and expense if held so frequently.

Provision is also made for the instruction of voters before the election. The state laws provide that one or more machines shall be publicly exhibited for the voters to examine and operate in order to learn how to vote on it. On the day of the election it is usually required that a sample or model voting machine, sufficiently large to show the method of voting, shall be exhibited at the polls and used for the instruction of voters.

Prior to the opening of the polls the election officers of the precinct are required to unlock the counter compartment of the machine and to examine the counters to see that they are set at zero, to lock it again, and to record the number on the protective counter. The machine is then unlocked and unsealed in the presence of all election officers and made ready for voting. At the close of the election this procedure is reversed, and the election officers read off and record the numbers on the counting registers. After the canvass of the machine has been completed, it is locked and sealed.

During the day of the election one of the officers is placed in charge of the machine, and if two or more machines are

used, additional officers are placed on duty so that one officer shall attend to each machine. The machines are equipped with a release knob, which must be raised before the voter can push the curtain lever from left to right, closing the curtain and unlocking the machine for voting. In some states the officer must again pull up the release knob when the voter has finished voting, in order to permit him to leave the machine. This procedure has little if any merit as a safeguard against spurious voting. In many precincts the election officers tie up the release knob, thus making it unnecessary for an attendant to stand by the machine. It would be better to leave this device off the machine entirely. One person should be able to take care of several machines very readily, except for the useless operation of this release knob.

Following an election the machines are required by state laws to be left locked and sealed, except by an order of a court or the election commissioners, until a specified time has elapsed, usually sixty days, in order to be available for a recount. The recount provisions usually provide that the election office may order a recanvass of the votes if a "discrepancy" appears. This term is ambiguous, and should be replaced by a statement that the election office may order a recount at the request of a candidate or group of voters, who should be required to pay the cost involved.

**Operation.** There will be presented at this point a discussion of the arguments for and against the use of voting machines, and an analysis of the practical operation of machines. The principal merits claimed for them are the following:

1. Accurate returns.
2. Reduction or elimination of many types of voting frauds.
3. Quick returns.
4. Secrecy.
5. Elimination of mistakes and spoiled ballots.
6. Avoidance of recounts.

7. Reduced cost of elections.
8. Better election officers may be secured.

These claims will be considered in detail below. In the meantime it is worth while to list the principal objections raised against the use of voting machines, which are as follows:

1. They slow up the voting and cause voters to have to wait in line to vote.
2. Many voters object to their use.
3. They are expensive to install.
4. They are more costly to operate than paper ballots.
5. Many voters lose their vote on the machine or vote for the wrong candidates.
6. Many voters find them difficult to operate.
7. They may break down at the polls.
8. They make split voting more difficult.
9. They may not be used for proportional representation.
10. They have been abandoned by many communities.

These arguments, pro and con, as well as the actual operation of the machines with respect to the various considerations, require analysis.

*Defects of Manual Counting of Paper Ballots.* Many serious criticisms may be made of the results secured by manual counting of the ballots. Whenever a recount is held, subjecting the counting by the precinct officers to examination and scrutiny, appalling evidence is brought to light of the errors and mistakes which have been made, and, in the large cities, of election frauds as well. The situation in New York City prior to the adoption of voting machines, with frequent election frauds and criminal prosecutions of election officers, is described by Zukerman.<sup>19</sup> The situation in Chicago in recent years has been even worse, with a large number of precinct officers being sentenced to prison for election frauds. In Mil-

<sup>19</sup> The voting machine, Chap. I.

waukee, Minneapolis, and other cities which have had recounts within recent years the prevalence of errors is almost equally striking. Election results are frequently altered by recounts, and, if the result is close, rumors of fraud are bound to be spread. Nothing will undermine the morale of the voting public so quickly as a suspicion that the elections are not honestly conducted. The counting of paper ballots, often lasting far into the night, and made by tired and frequently incompetent persons, is highly conducive to mistakes and frauds. Many election officers and men in public life have realized the inherent defects of this procedure and have sought to remedy it. Central counting and separate counting boards have both been tried as means of remedying the situation, but without notable success. Suggestions have been made in the preceding chapter for an improved organization and procedure for making the count. It cannot be denied that the only way to avoid this tedious job of counting the ballots and to guarantee an honest and accurate count is to use voting machines. Adding machines are now almost universally used by commercial houses and their superiority over manual counting cannot be questioned.

*Frauds.* Voting machines were recently adopted in Pennsylvania largely as a measure to safeguard the elections. While the campaign was under way for the adoption of machines in several counties in the state in 1929, the principal speakers for the voting machines told their audiences that the effect of the adoption of the machine would be to enfranchise the voters, for hitherto they could never tell whether their votes would be counted, or whether they would be offset by fraudulent ballots. The agitation for voting machines in New York City, which was carried on for years and finally forced their adoption against the opposition of Tammany, was caused by a belief that there were serious frauds perpetrated with paper ballots, which would be made at least more difficult with voting machines. The protection which voting machines afford against election frauds is an important consideration.

X To what extent and in what manner do voting machines offer security against election frauds? Are voting machines an effective guarantee that frauds will not be committed? Several of the most prevalent types of voting frauds are made impracticable by the use of voting machines. It is pretty generally agreed that most voting frauds are committed by the election officers themselves, and in the count. The old form of voting fraud—that of repeating—has largely disappeared. It is safer and cheaper to have the election officers steal the election. This may be done by turning in an election return which is not based upon an actual count of the ballots, and does not at all correspond to the votes cast. This has been done on numerous occasions in the past, as is well evidenced by recounts in Chicago and Philadelphia. Until a few years ago the election officers in Pennsylvania could feel secure in making almost any sort of return, for the ballot boxes could not be opened and recounted except on proof of fraud, which made it extremely difficult to secure a recount. Since the election law has been changed to permit the securing of a recount without proving fraud, the election officers are forced to see to it that the returns correspond with the ballots in the box.

Y Another method of stealing an election is to stuff the ballot box with marked ballots, writing in the poll books the names of voters who failed to vote or who have died or moved away. In some large cities it is notorious that certain precincts are held back until the result of the election is pretty well known, so that the required number of votes per precinct may be added. A recent recount in Pittsburgh brought to light many "phantom marked ballots." These ballots showed indentations of cross marks where there was no lead mark, which clearly indicated fraud, for they could have been made only when a group of ballots were marked at a time from a pile—the cross marks made on the top ballot showing on the lower ballots but in blank or phantom. The voter marking a single ballot in the booth would not make any such indentations. In this same recount the examination of ballots by writing

experts showed that in many precincts a number of the ballots were marked by the same person.<sup>20</sup>

A third method of stealing votes is to alter the ballots as they are being counted. It is said that many of the election officers are able, by means of concealed pencils, to spoil or to alter many ballots during the count. The writer does not believe, however, that this method is used to any appreciable extent to steal elections. In addition, the officers in making the count may fraudulently enter the tally marks for the wrong candidates or deliberately call the ballots wrong as a means of stealing the election. Often the actual counting of the ballots is made by two or more teams, with bystanders assisting, though this not authorized by law. It is not at all unusual for the precinct captains to be permitted to assist in the count.

These election frauds are largely, if not entirely, eliminated by the use of machines. If a satisfactory provision is made for a re-canvass of the machines, the election officers will not dare turn in fraudulent returns of the election. Even with an unsatisfactory procedure for securing a re-canvass of the machine, the fraud would be so apparent if a recount were secured that the election officers would hesitate to falsify the returns. The voting machine will not stop repeating, which may be carried on as readily with the machine as with paper ballots, but it will make difficult, if not impracticable, the "stuffing of the ballot box" in the name of voters who failed to vote. This result can be effected with the machine, to be sure, but the votes must be registered on the machine and this cannot be done without danger of detection. If voting machines are used there are no paper ballots to be altered. When they are used the election returns are expected at the central office within an hour, and any delay would arouse suspicion. At the close of the polls the watchers and bystanders expect the vote to be taken off promptly, and it is not ordinarily practicable to manipulate the returns or to hold them up.

<sup>20</sup> See below, Chap. IX.

It is sometimes asserted that the machines may be fraudulently set or manipulated, that rubber bands may be placed in the machine to alter the count, and that in other ways the machines may be beaten. While it may be possible to manipulate the machine and to steal votes, the experience in many cities seems to indicate that it is not practicable, and in actual practice it is not done. The only charge of fraud which the writer has heard in many cities where voting machines are used is that of submitting fraudulent returns. It is, of course, possible for election officers to submit returns which do not coincide with the totals upon the counters of the machines, and in rare cases this has been done. The danger of this type of fraud is slight, and with proper provisions for a re-c canvass of the machines, is quite negligible.

For the community afflicted with election frauds the voting machine provides real relief, though not absolute security against all frauds. Where this is a serious consideration, the case for the adoption of voting machines is particularly strong. It should be added, however, that voting frauds have tended to disappear in many communities, and the honesty of the election safeguarded in other ways.

+ *Cost of Machines and Economies Effected.* One of the principal reasons why voting machines have not spread more rapidly is the high cost of installation. The machines are sold for from approximately nine hundred dollars to one thousand four hundred dollars, depending upon the size. At least one machine is required for each precinct, and these machines, to be sure, can be used only on the few days of election. The average sized machine sells for one thousand dollars or more. In estimating the overhead charges for the use of machines, it would seem to be reasonable to allow five per cent for interest and five per cent for depreciation and obsolescence. Upon this basis a machine costing one thousand dollars would have an annual overhead charge of one hundred dollars. If five hundred votes are cast on the machine during the year,

which is considerably higher than the average, the cost per vote handled is twenty cents.

The principal argument for the use of machines is that they will effect substantial savings in the conduct of elections and thus pay for themselves within five to fifteen years. The economies which are claimed for them are as follows:

1. Fewer precincts.
2. A smaller number of election officers to each precinct.
3. A lower salary to precinct officers, due to the shorter hours.
4. Smaller cost for the printing of ballots.
5. Expensive recounts are avoided.

The state laws of many states permit the use of larger precincts where voting machines are used. As pointed out elsewhere, the cost of elections depends to a great extent upon the size of the precincts, and the use of fewer precincts cuts down the cost of precinct officers, rental of polling places, and other costs all along the line. The claims made for voting machines, however, in the matter of reduction of the number of precincts are often exaggerated. There is no appreciable difference, by and large, between the size of precincts where voting machines are used and where paper ballots are used. Many of the largest precincts in this country—notably in Massachusetts and Wisconsin—are to be found in communities using paper ballots. The claims as to the number of precincts which may be eliminated by the use of machines are seldom realized. If the state election laws should authorize larger precincts, the number could be readily reduced, without adopting voting machines. There is no real reason why precincts may be larger with voting machines than with paper ballots, except the requirement of the state law on the subject. As a matter of fact, a large number of voters may be handled much more readily at the polls with paper ballots than with voting machines. The only justifiable ground for asserting

that machines will accommodate more voters per precinct than paper ballots is the fact that a large number of ballots may require a long and arduous count for the election officers. This may be remedied by the use of extra persons for the count, as suggested elsewhere. It is unsafe, moreover, in any state using voting machines to have more than five hundred voters to the precinct, unless more than one machine is used. The number of voters which a machine will handle depends entirely upon the length and complexity of the ballot. The statistics for one state will throw no light upon the problem in another state. In San Francisco the precincts average less than two hundred voters. The most economical method of using voting machines is to provide large precincts and several machines to the precinct, but this is not commonly done.

Where voting machines are used it is customary, according to state law, to use a smaller number of election officers to the precinct. In New York State, for example, six officers are used with paper ballots and only four with machines. As pointed out elsewhere, there is no reason why three officers cannot handle the work in precincts using paper ballots. In conducting the poll, except perhaps for the requirement of signing or initialing the ballot (which is useless), there is no reason why three officers cannot handle an equal number of voters with paper ballots as with machines. The real reason for the employment of a larger number of officers to the precinct where paper ballots are used is not because they are needed during the poll, but because it is supposed that they are needed during the count. This absurd practice could be remedied readily by the state legislatures, but as a matter of practice, it is not so remedied. As the state laws stand, the use of voting machines ordinarily reduces the number of precinct officers from six to four or from five to three.

It is customary to pay the precinct officers a smaller salary where voting machines are used, because their hours are not so long. In New York City, for example, prior to the adop-

tion of voting machines four inspectors at fifteen dollars each and two clerks at six dollars each were used at general elections, making a total of seventy-two dollars per precinct, while at present, with voting machines, four inspectors at eleven dollars per day are used, making a total cost per precinct of forty-four dollars. This makes a saving of twenty-eight dollars per precinct. At the primary election, however, in which paper ballots are still used, only four inspectors are used, at eight dollars each, or a total cost of thirty-two dollars per precinct. It should be added that the primary elections in New York are not usually contested.

The cost of printing the ballots is reduced somewhat by the use of a machine, but not to any great extent. While paper ballots are not used in the precincts, they are necessary for the use of absent voters. The cost of printing the ballot labels for the machines, which involves usually a set up for each precinct, is expensive.

While these economies are made by the use of machines, certain other expenses in conducting elections are increased. The cost of storing the machines is greater than that of storing the voting booths used with paper ballots, and the drayage to and from the polls is a considerable item. The machines are also ordinarily insured. In many cities permanent custodians of the machines are employed, with a full-time salary, though there is little or no work to be done between elections. New York City, for example, has sixteen voting machine custodians, and, in addition, extra persons are employed prior to the election to assist in setting the machines. The cost of setting a machine for an election varies greatly, depending upon the election and the arrangement made for this work.

Two men can ordinarily set from ten to twenty machines per day, though probably this is a high average for the work as it is actually performed. An allowance of ten dollars per machine for each election should be made to cover the cost of drayage both ways and for setting the machines. Some small

cities avoid the drayage costs by leaving the machines in the school buildings from one election to another, but this is rather unusual.

The experience of New York City with respect to the cost of elections before and after the adoption of voting machines is significant at this point. The financial statements of the board of elections for 1925 and 1929 show the expenditures in detail. These two years have been taken because the elections held in each year were the same. Voting machines were used in fifty-five districts in 1925, but this slight use does not materially effect the cost of elections. The year 1924 would have been used for comparison, but in that year an extra election, the presidential primary, was held. Voting machines were first used throughout the city in 1929.

This table requires some detailed analysis and explanation. The extensive savings which Zukerman estimated in 1925 would be accomplished by the installation of machines, amounting to \$383,000,<sup>21</sup> were not realized. The actual operating cost increased by \$188,696.03, and if to this is added an interest and depreciation charge of 10 per cent (\$85 per machine), amounting to \$297,500 in 1929, the cost of elections in 1929 increased \$481,501.03 over that of 1925 before the adoption of machines. Instead of a decrease of 500 precincts, as estimated by Zukerman as possible with the use of machines,<sup>22</sup> there was an actual increase of 338 precincts in 1929 over the number in 1925. This increase in number of precincts practically wiped out any reduction in the cost of precinct election officers, which was expected from the use of voting machines. The item of supplies, which includes the printing of ballots, remained practically unchanged in the two years. The expected saving in the cost of printing the ballots was not realized. On the other hand, certain other items show a marked increase in 1929 over 1925. The cost of regular employees mounted by \$73,616.23, due in part to the employ-

<sup>21</sup> Zukerman, p. 61.

<sup>22</sup> *Ibid.*, p. 60.

ment of custodians for the machines.<sup>23</sup> The cost of temporary employees also increased, and the cost of transportation and general plant service showed a marked increase, directly traceable to the use of machines.

Although the cost of elections in New York City has substantially increased with the installation of voting machines,

*The Cost of Elections in New York City, Before and After the Adoption of Voting Machines<sup>1</sup>*

Item	1925	1929 <sup>2</sup>	Inc. or Dec.
Salaries, Regular employees . . . .	\$259,079.20	\$332,695.43	+\$73,616.23
Wages, Temporary employees . . .	9,722.50	24,067.50	+14,345.00
Same, for making duplicate copies of enrollment lists—all parties . . . . .	39,835.00	45,855.00	+6,020.00
Election officers . . . . .	683,206.00	670,039.00	-13,167.00
Supplies . . . . .	333,952.97	321,428.35	-12,524.62
Equipment . . . . .	16,220.01	12,612.95 <sup>3</sup>	-3,607.06
Repairs and replacements . . . . .	28,573.12	20,621.93	-7,951.19
Transportation . . . . .	30,940.15	73,733.22	+42,793.07
Telephone service . . . . .	1,082.83	1,741.33	+658.50
General plans service . . . . .	11,624.89	62,494.06	+50,869.17
Contingencies . . . . .	3,831.76	4,973.45	+1,141.69
Rent . . . . .	217,712.49	230,601.83	+12,889.34
Advertising . . . . .	87,636.98	111,249.88	+23,612.90
<b>TOTAL . . . . .</b>	<b>\$1,723,417.90</b>	<b>\$1,912,113.93</b>	<b>+\$188,696.03</b>
Overhead charge of 10% for voting machines . . . . .	4,695.00	297,500.00	+292,805.00
Total election cost including voting machines . . . . .	\$1,728,112.90	\$2,209,613.93	+\$481,501.03
Votes cast <sup>4</sup> . . . . .	1,261,097	1,564,689	+ 303,592
Cost per vote cast . . . . .	\$1.37	\$1.41	+.06

<sup>1</sup> Taken from the Annual Reports, 1925, p. 8; 1929, p. 10.

<sup>2</sup> These items include expenditures from regular appropriation and also from revenue bond funds.

<sup>3</sup> Does not include item of \$275,811.25 spent for purchase of voting machines.

<sup>4</sup> Includes an estimated vote of 100,000 in the direct primary election for which no statistics are available.

certain other factors should be taken into account. The city is growing and a normal increase proportionate to the increase in population is to be expected. Moreover, in 1928 an unprecedented number of voters registered—2,028,505. This was more than 500,000 greater than at any previous registra-

<sup>23</sup> Sixteen were employed in 1930.—Board of Election, Annual Report, 1930, p. 21.

tion, and the board of elections found it necessary, after the close of registration, to create 648 new election districts. In the redistricting of the following year only eighty-two precincts were eliminated, leaving a total of 3411, as compared with 3073 in 1925. Consequently, there were 338 more precincts used in 1929 than in 1925, or an increase of thirteen per cent. It is only reasonable to suppose that had paper ballots been used throughout this period, there would have been an increase of thirteen per cent in the cost of elections, or approximately \$225,000. The total vote cast in 1929 at the general election was 303,592 greater than that at the 1925 election—an increase of 26.5 per cent. This increase is considerably greater than may be explained by the increase in population and is to be accounted for largely by the fluctuation from year to year in the proportion of voters who cast their ballots. This fluctuation greatly affects the cost per vote at a given election, but, except for an unusually large election, such as the general election of 1928, does not appreciably influence the cost of holding the election.

It should be pointed out also that in addition to the general election, there is also a primary election at which paper ballots are still used, the cost of which is not affected by the adoption of voting machines. The cost of the registration of voters, which is included in the above table, is likewise not affected by the adoption of machines. At the primary election, which in New York is usually relatively unimportant, four inspectors of elections are used at eight dollars each, or thirty-two dollars per precinct. The cost of the precinct officers for this election amounted to \$98,336 in 1925 and to \$109,152 in 1929. The other costs of the primary election—ballots, rental of polling places, transportation, advertising, overhead charges, etc.; probably increased proportionately, but were not affected by the use of machines. Similarly, the cost of the precinct officers for the conduct of registration amounted to \$368,760 in 1925 (at \$120 per precinct) and to \$409,320 in 1929, and the other costs of registration probably increased by a corresponding ratio.

The total expenditures of the board of elections from 1924 to 1930, inclusive, before the adoption of machines until the second year after the complete installation, is shown in the following table:

*The Influence of the Adoption of Voting Machines on the Cost of Elections in New York City, 1924-30<sup>a</sup>*

Year	No. of precincts	Number of machines used (not including reserve machines)	Total operating cost (not including overhead cost of machines)	Vote cast <sup>2</sup>	Cost per vote cast	Cost per vote cast including overhead charge for machines
1924	2,889	none	\$1,939,248.75 <sup>3</sup>	1,544,588	\$1.25	\$1.25
1925	3,073	55	1,723,417.90	1,261,097	1.37	1.37
1926	3,136	616	1,741,733.90	1,376,916	1.27	1.30
1927	2,996	1867	1,628,432.38	1,252,239	1.30	1.42
1928	3,493	2964	2,213,791.08 <sup>3</sup>	2,073,758	1.07	1.19
1929	3,411	3413	1,912,113.93	1,564,689	1.24	1.41
1930	3,421	3426	1,969,328.32	1,543,997	1.27	1.47

<sup>1</sup> Taken from the annual reports of the board of elections.

<sup>2</sup> No statistics are available for primary elections, and an estimate of 100,000 per year has been made, which has been added to the vote cast at general elections.

<sup>3</sup> In the presidential election years, 1924 and 1928, an extra election, the presidential primary, was held.

From this detailed analysis of the election costs of New York City, before and after the adoption of voting machines, the conclusion is inescapable that machines do not lower the costs, but if the overhead cost of machines is taken into account, actually increase it rather substantially. The sales argument that machines reduce the costs of election is not borne out in New York. Similar results have prevailed elsewhere. The claimed savings practically always fail to take into account overhead costs.

*Facility of Voting.* In considering the paper ballot versus the voting machines the following questions are pertinent and important: Which is used more readily by the voters? Which is liked better? Which requires fewer instructions? Which is voted more quickly and involves less waiting at the polls? Which may be voted more surely according to the wishes of the voter? Several of the leading arguments for and against the machines have to do with these problems. On

the behalf of the machines it is said that they make voting easy and swift and render defective ballots impossible. Against the machines it is said that it is difficult to educate the public to vote upon them, that many persons will stay away from the polls if machines are used, that the public dislikes them, that many persons are unable to vote upon the machines, and that, because many voters do not know how to vote a split ticket on the machine, the machines are conducive to straight ticket voting.

These are judgments of individuals and it is practically impossible to present scientific, accurate, quantitative data on these questions. It is true that the average time required to cast a vote on a machine is somewhat less. The ballot is set forth on a well lighted machine, and the voting levers may be pulled down more rapidly than a paper ballot can be marked. The average person will be able to vote on either quite readily and quickly, and there is not a great deal of choice from the standpoint of such voter. While it is true that voting on the machine is somewhat more rapid, the point is often made against voting machines that while only one machine is used to the precinct, or two in larger precincts, five, ten, or even twenty voting stalls may be used with paper ballots. Such a number of voting machines is out of the question because of the expense. It is frequently pointed out that voting machines can not serve the rush of voters during the closing hours of the polls as readily as paper ballots. This statement is true. There can be no question that voters can be handled more readily and quickly through the use of paper ballots and numerous voting booths. Probably the greatest difficulty in the use of voting machines is their inadequacy in large elections and in the rush period of the day, often requiring voters to wait in line. Many cities have abandoned machines in response to protests after congested elections. In San Francisco, for example, the writer was informed by the election officers that the machines functioned perfectly in the presidential election of 1928, but citizens outside of the office stated that thousands and thousands of citizens were forced

to stand in line. In the 1932 election in Seattle a line formed in every precinct, requiring the voters to wait from one to two hours to vote. A major defect of the voting machine is its inability to accommodate, as a general rule, more than from thirty to sixty voters an hour, and if the voters come in larger numbers than this to the polls, they will be forced to wait in line. It is not at all uncommon for a city using voting machines to have one or two badly congested elections, after which the voters learn to accommodate themselves to the machines.

It is difficult, indeed, to say which method of voting is preferred by the mass of voters. Voting machines are taken as a matter of course in many cities which have used them for years, though there is some opposition even in cities which have used them during the longest period. It would probably be correct, for most communities using machines, to say that most citizens are satisfied with the machines and, if called upon to vote on the matter, would vote in favor of them, while a small minority is strongly opposed to them. Many elderly persons and persons unacquainted with the method of voting upon machines dislike them.

There can be no question whatever that the voting machine requires a great deal more instruction to voters than the paper ballots, even in communities where the machines have been used for years. During a visit to Indianapolis in 1929, which has used machines for twenty-five years, the writer was very much impressed to find lengthy instructions on "How to use a Voting Machine" carried in the news columns of the local papers ten days before the election, with a list of the eleven places throughout the city where practice machines had been set up. This seems to be ample proof that there is necessity for instructions to voters on how to vote on the machines year after year, and not merely at the time machines are installed. However, one should not forget that instructions are also required when the paper ballot is issued, but to a lesser extent.

It is often asserted against the machines that they induce

straight party voting, since many voters are afraid to attempt to split the ballot. This assertion would apply, to be sure, only in states with the party column ballot and the straight ticket lever on the machine. It may be said at once that the same is also true of the paper ballot with the party column and the party circle. It is impossible to state or to prove which method is more conducive to straight ticket voting. The instructions to voters used with the machines in some states, instructing them in general elections first to pull down the lever of the party for which they wish to vote, and so on, is indefensible. They should be instructed to vote by either pulling down the party lever and then making any changes which they may wish to make, or by pulling down the voting levers of the individual candidates for whom they wish to vote. When the polls are badly congested, with a line of people waiting to vote on a single machine, there is usually considerable pressure placed upon the voter to hurry through the machine, thus inducing him to vote a straight ticket or to vote only upon the principal offices.

A principal argument for the use of voting machines is that they are so adjusted and interlocked that the voter may not vote for more candidates for any office than he is legally entitled to vote. That is, if he may vote for only one person, as for sheriff, the machine will lock against a further vote when one voting lever has been pulled down for that office, and, similarly, will permit only the proper number of votes to be cast where a number of candidates are to be elected to an office. Not only will the machine do this, but since there is no paper ballot for the voter to spoil or to mark, he is relieved of the danger of spoiling his ballot with some erasure or identifying mark. This is a desirable feature of voting machines. On the other hand, it is often pointed out by persons acquainted with the actual operation of machines that uninformed voters may put up the voting keys which they have pulled down, before recording their vote, thereby unwittingly casting no vote at all. The best evidence upon the

point is to be found in the reports of the Board of Election of New York City. The following table offers a comparison of the void and blank ballots for the various offices in 1925 when paper ballots were used, and the unrecorded votes cast on the machines for the same offices in 1929:

*Comparison of the Wastage of Votes with Paper Ballots and Voting Machines, New York City, 1925 and 1929<sup>1</sup>*

Office	1925—Paper Ballots			1929—Voting Machines		
	Total votes cast	Blank and void	Per cent wasted	Total votes cast	Unrecorded	Per cent wasted
Mayor . . . . .	1,161,097	21,893	1.9	1,464,689	34,541	2.3
Comptroller . . . . .	1,161,097	42,097	3.6	1,464,689	87,530	6.0
President, Board of Alderman . . . . .	1,161,097	40,971	3.5	1,464,689	89,131	6.1
County Judge						
Bronx County . . . . .	186,845	8,855	4.7	263,239	25,478	9.7
Sheriff						
New York						
County . . . . .	363,622	16,267	4.5	373,171	29,462	7.9
Bronx County . . . . .	186,845	9,650	5.2	263,239	24,149	9.2
Kings County . . . . .	408,949	10,225	4.7	506,848	38,982	7.7

<sup>1</sup> Taken from the annual reports of the Board of Elections.

The analysis has been confined to offices with only a single vacancy, so that the figures might be strictly comparable. The paper ballots show an appreciably smaller per cent of wasted ballots, though it should be noted that it is possible for the public counters on the voting machines to show a larger number than that of the actual voters who appeared, since at times the election officers may work the curtain lever back and forth in instructing the voter, thus increasing the number rung up on the public counter without a corresponding vote cast.

*Quick Returns.* One of the advantages of voting machines is the fact that the results of the election are usually known within two or three hours of the close of the polls, and sometimes within a shorter period, whereas with paper ballots the returns for a large election do not begin to come in until several hours after the polls are closed, and are not complete until from twelve to twenty-four hours later. Even the most

bitter opponents of voting machines will concede this merit, but it is sometimes asserted that early returns are of little consequence. Undoubtedly, it is worth while to have early returns. The public is anxious to learn the results of the election, and many persons stay up for hours on the night of elections to hear the results. It is a fine public service to provide quick returns. Another aspect of the matter of the quickness of the returns has a bearing on election frauds. If the returns come straggling in throughout the night and the following day, late returns excite no suspicion, while as a matter of fact certain precincts may be purposely held out so that the persons who have control of these precincts may steal votes, if necessary to win the election. During these hours throughout the night and the following day there is plenty of time to manipulate the ballot, or to write in the names of voters who failed to vote, and cast ballots for them—provided the election officers of the precinct are corrupt and are willing to carry out such frauds. Where voting machines are used, this is not practicable; for any delay in the returns would immediately arouse suspicion. The work of reading off the counters and recording the vote on the return sheets requires such a short time that it is likely to be carefully watched by party representatives and voters, who would not think of remaining at the polls for hours to watch the count of paper ballots. The election officers, where voting machines are used, do not have the time and opportunity to vote the names of persons who have failed to vote or to manipulate the ballots which have been cast.

*Recounts.* Another advantage of the use of voting machines is the virtual avoidance of expensive and annoying recounts. A recount may be had with the machines, and consists merely of re-opening the counter compartment and taking off the numbers recorded for the candidates in question. This can be done quickly and inexpensively, but in actual practice recounts are seldom asked for where machines are used. If paper ballots are used and the election is close, the defeated candidate

is not satisfied unless the work of the precinct officers is checked, for he knows that many mistakes are inevitable, and that a recount may change the result of the election. But when voting machines are used, the probability of errors is very small, and the results are usually accepted at face value. Many cities which have used voting machines for years have never had a single recount.

It is impossible to estimate the savings made by the avoidance of recounts. The cost of recounts varies a great deal, and it would be impossible in any community to predict what the cost would be over a period of years. If the work is efficiently organized, the recount for any office can be conducted expeditiously and economically, but, as a matter of fact, it is not ordinarily so conducted. The cost of the recount in some states is borne by the persons petitioning for it, but it is, nevertheless, a matter of public concern.

*Secrecy.* Another argument for the use of voting machines is that they guarantee the secrecy of the vote more effectively than paper ballots. When the voter goes to the machine to vote he is curtained more completely than when he goes into the voting booth to mark his paper ballot. This, however, is not important, and, if more effective curtaining were desired, it could be readily provided with the voting booths for paper ballots. It is a mistake to suppose that there are persons at the polls peeking around the voting booths to see how the voters mark their ballots.

Another basis for the claim that secrecy is more effectively secured by machines is that paper ballots may be marked in such manner as to identify them, or that the election officers may recognize the markings of certain voters. With paper ballots it is possible, to be sure, for the bribed voter to mark his ballot in such manner that it may be recognized by the party watchers when it is counted, but such a pre-arrangement and identification of ballots is too clumsy to be used except on the most rare occasions.

*Election Officers.* It is often said that the use of voting

machines makes it possible for the election office to secure the services of more capable persons to serve as election officers, for they avoid the long and arduous count which may last far into the night. No doubt the count is one of the worst features of the work of the election officer, and, for that reason, election officers as a general rule are strongly in favor of machines. How much difference the use of voting machines may make in the selection of precinct officers is not subject to definite statement or proof. There are many other considerations much more important than the use of voting machines or paper ballots. There are other methods also, suggested in the preceding chapter, to avoid the long and tedious count of the ballots.

*Proportional Representation.* One of the arguments against the use of machines is that they will not serve in proportional representation elections. This is not a serious objection. Proportional representation is now used in only three cities in the United States: Cincinnati and Hamilton, Ohio, and Boulder, Colorado. It is not likely to spread so rapidly as to affect the problem. Even in the cities which have proportional representation, voting machines could be used as effectively and economically as elsewhere. The proportional representation ballot would have to be cast and counted separately, but at each election there would be other candidates which could be voted for on the machines, and at state, county, and national elections the machines could be used without question. The proportional representation ballots should not be, and usually are not, counted in the precinct. There should be no confusion whatever with the use of proportional representation ballots, and voting machines for other offices at the same election, and the savings made by the use of voting machines would not be affected. Nevertheless, one of the arguments used against voting machines is that they cannot handle proportional representation elections, and, similarly, one of the arguments against proportional representation is that it cannot be voted upon the machines.

*Breakdown of Machines.* An argument against machines is

the danger of a breakdown at the polls. Some states even require the printing of ballots, to be kept in reserve as an emergency precaution against breakdowns. This argument and these statutory provisions are based upon theory and not upon facts. Breakdowns, even of a minor character, are extremely uncommon. Many cities using voting machines for years have never had a single machine go out of commission.<sup>24</sup> In cities it is customary to have one or more reserve machines ready for use in case of a breakdown, but they are almost never used. The local custodian of the machines is able, except in the most unusual cases, to put any machine giving trouble back into commission within five minutes time.

*Liability of Abandonment.* One of the arguments commonly used against the adoption of voting machines is that they have been tried out and discontinued in many cities. It cannot be denied that many cities, large and small, have given up machines after trial, and even after they had been purchased and paid for. Probably the same is true for any type of machine that has ever been placed upon the market. Voting machines, to be successful, must be properly used, and provided in sufficient numbers to take care of the voting public without serious congestion. Changes in the election laws which would make difficult or impossible the use of voting machines must be opposed and defeated. This duty devolves upon the local election officers and also upon the manufacturers of the machines. If neglected, as has been the case in some states in the past, it will result in abandonment of the machines. The very wide use of voting machines indicates that they may be used successfully and continuously, if proper care and attention is given to them and a sufficient number of machines is provided. The abandonment of machines, on the other hand, indicates that they may give trouble if not properly used.

**Summary.** Voting machines are now used in nine states and in about one precinct out of every six. They have been used

<sup>24</sup> A new type of voting machine recently adopted by Pittsburgh went out of commission in a few precincts in the general election of 1931.

in some communities for as long as thirty-five years. While a large number of cities, large and small, use them and find them satisfactory, there are many communities, including some large cities, which have abandoned them after trial. If properly used, and the limitations of the machines recognized, they are quite successful.

The laws permitting the use of voting machines ordinarily provide for examination by a state board of voting machine examiners and for experimentation before adoption by action of the local city council or board of county commissioners. The laws governing the use of machines permit larger precincts and fewer precinct officers than if paper ballots are used, and regulate in some detail the procedure to be followed at the polls. It would serve no purpose to summarize these details at this point.

There is a widespread interest in voting machines and movement for their adoption, as is evidenced by recent legislation in Pennsylvania and Ohio, and a renewed interest in Massachusetts, Michigan, and other states. It is quite probable that when the present economic depression has passed, the spread of voting machines throughout the country may be made more rapidly than ever before. This movement brings to the fore the controversy over the merits of the paper ballot and machines. The shortcomings of paper ballots—particularly the necessity of counting them by hand—are very apparent to any one familiar with election practices. The long, tedious count of the large election is marked by errors always, and by frauds in some communities. The voting machines provide an accurate count, available immediately at the close of the polls, and make difficult or impossible many types of election frauds. In many communities, particularly the larger cities of Pennsylvania, the voting machines are looked upon principally as a means of stopping election frauds which have prevailed for years. Where election frauds prevail there should be no question about the advisability of adopting voting machines.

Voting machines are expensive, ranging in price from nine hundred dollars per machine up, depending upon the size. To offset the high cost of installation, it is claimed that substantial savings will be made in the cost of election—savings by the reduction of the number of precincts, by using fewer election officers to each precinct, by paying a smaller per diem for shorter hours, by reducing the cost of printing ballots, and by eliminating recounts. The experience of various communities indicates that the cost of these items will be reduced somewhat by the use of machines, but that these savings will be more than offset by the overhead cost of machines. The experience in New York City with paper ballots and voting machines shows an actual increase in operating expenses with voting machines, without taking into account the overhead cost of machines. No city should adopt voting machines as a measure of economy without carefully scrutinizing the claims of savings which will be made.

Voting machines tend to cause congestion at the polls. It is imperative that a sufficient number of machines be provided to take care of the voting public without serious delay. Various claims are made as to the public attitude on voting machines, both for and against. While it is impossible to state definitely and exactly the situation, it seems apparent that in all communities where the machines are used some voters dislike them and are opposed to their use, but the majority of voters are favorable, unless voting machines have resulted in serious congestion.

It is sometimes asserted that it is more difficult for a split ballot to be voted on the machine than upon a paper ballot, and that the machines are conducive to straight ticket voting. There is no proof of this assertion. An argument for the use of the voting machine is that it avoids spoiled and defective ballots. The machines are so adjusted and interlocked that only the proper number of votes may be cast for any office, and a vote cannot be spoiled by any marks or erasures which might cause a paper ballot to be thrown out. There are other

ways, however, by which the voter may spoil his vote on the machine. He may put up the voting levers before his vote is recorded. The statistics on the wastage of votes in New York City with paper ballots and also with voting machines indicate a slightly higher wastage with the latter. As pointed out, however, the figures are not entirely conclusive.

X | Voting machines provide quick returns, which are desirable. They also avoid expensive and annoying recounts. The influence of the use of voting machines upon the character of persons secured for election officers is not appreciable, despite claims to the contrary. Other factors are more important. Proportional representation ballots may not be cast upon voting machines, but this is not an important consideration.