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JOURNAL OF INDIAN SCHOOL OF POLITICAL ECONOMY is devoted to the study of the Indian Economy, Polity and Society. Emphasis is primarily on reviewing developments since Independence with roots in the British administration where relevant. However, papers with a similar focus but not necessarily reviewing developments since Independence will also be considered. When a review is based on statistical data, full statistical base data are presented as far as possible.

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EDITORIAL

To begin with, we at the ISPE wish all our readers the best in 2023 and the years to come. We were expecting to publish two more invited papers in continuation of the Special Issue in memory of Prof. V.M. Dandekar along with some more documentation of his reports that he authored, singly or jointly. However, due to some persistent problems relating to their health, the authors expressed difficulties in finalising the papers. So, we decided to move on with the hope that very soon, we will receive their papers which can be accommodated in subsequent Issues in 2022.

Accordingly, in this last Issue of 2021, we have two papers. One relates to a critical review of the theory of macroeconomic policy as it evolved over the decades with its applications. The other is an empirical paper which deals with issues of smuggling across two countries at their international borders and their implications for the economies of the countries concerned. The rest of the Issue is the documentation part as scheduled.

Yes, delays persist but we hope to bring out the 2022 Volume (all Issues) by June of 2023 thereby attempting to minimise delays thereafter. Sincere apologies, all the same.

S.Sriraman

January 2023

THE SIX PRINCIPLES OF MACRO-ECONOMIC POLICY

Niranjan Rajadhyaksha

Economic policy is designed under informational, institutional and political economy constraints that textbook models often downplay. It is both an art as well as a science. This essay surveys the thinking on the theory of economic policy, and distils six important principles that are useful in the making of macroeconomic policy.

1. INTRODUCTION

The theory of economic policy has been a relatively new addition to economics - and it has not kept pace with the growing influence of economists in the actual policy process. The reasons for this are not hard to understand. The classical economists believed that markets adjust on their own. All that a minimalist state would have to do is to get the institutional design right, or at best build some basic physical infrastructure that the private sector cannot or may not want to provide. Not much changed in the subsequent neoclassical era. The state did take a lead to push industrialisation in countries such as Germany or Japan, and governments presented budgets while central banks managed money supply, but there was generally no major role in neoclassical theory for economic policy as we understand it today.

It was only after the twin shocks from the Great Depression and World War 2 that economists began to think in a more structured manner about economic policy. The central theme of the Keynesian response was that an activist fiscal policy was needed to boost aggregate demand in countries trapped in recession. Governments began to seek the advice of professional economists once demand management became a central task of economic management. Economic advisors began to become a permanent feature of the policy making structure.

The rest of this paper seeks to identify some principles of economic policy that could be useful to economists in government or to analysts outside it dealing with governmental interventions. These principles are synthesised from a range of writing on the economic process. This paper is structured as follows. The second section deals with the development of the theory of economic policy since 1950. An initial age of optimism about the efficacy of policy interventions was later tempered with more realistic assessments about the limitations of economic policy.

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This paper is based on a lecture the author gave in July 2016, as part of a series on the Art and Science of Policy Making hosted by the Pune International Centre, Pune.

The following six sections deal with six core principles of the theory of economic policy that I have identified. The ninth section offers some conclusions.

2. DEVELOPMENTS IN THE THEORY OF ECONOMIC POLICY

There were four main reasons why economists began to think more seriously about the nature of economic policy over the past hundred years. First, there was a growing literature on market failures. The seminal work done by Pigou [1920] deserves mention in this context. Pigou showed that there can be a profound difference between individual and social products and costs and that a government can "internalize externalities" for economic agents through a mix of taxes and subsidies. The recent push to impose green taxes - or Pigouvian taxes on carbon consumption - in a bid to deal with the challenge of climate change is just one indication of the persistent power of this idea. The idea that large market failures - for example, negative externalities such as pollution - need to be corrected by governments, especially in the absence of well-defined property rights, or with high transaction costs, was an important turning point.

Second, Keynes [1936] showed that free markets can sometimes lead economies into perverse equilibria of high unemployment combined with low utilisation of productive capacity. The key policy insight from the Keynesian revolution is that an economy can move back to full employment equilibrium if there is a positive exogenous shock though higher government spending to boost aggregate demand. This insight was later broadened in the early decades after World War II to deal with even the milder manifestations of economic cycles. Keynesian economists began to fine tune aggregate demand on a regular basis through changes in fiscal and monetary policies, to keep economies on a chosen path of full employment with an acceptable level of inflation, as identified by a Philips Curve [Philips, 1958, Pp. 283-299] which maps the set of inflation-unemployment outcomes.

Third, the increasing use of quantitative techniques in economics allowed policy makers to build formal models that could measure the impact of their policies. Thus, economic policy became grounded in empirical analysis. There were two important developments on this front. Governments began to commission economists to develop proper data on macroeconomic aggregates, including national income. The first estimates of US national income were finalised by a team of economists led by Simon Kuznets in 1937 [Coyle 2014]. These estimates of national income provided policy makers with a clearly defined policy

target. In India, V.K.R.V. Rao estimated national income at around the same time [Rao, 1944] Input-output accounts that mapped the interactions between various sectors of an economy were also introduced to help wartime planning in the 1940s.

The other big development in empirical economics was the increasing sophistication of econometric techniques after the 1930s, especially by economists such as Jan Tinbergen in the Netherlands and Lawrence Klein in the United States. The development of large macro econometric models based on a system of simultaneous equations gave policy makers the quantitative tools to assess the impact of policy on different macroeconomic variables such as consumer demand, the fiscal multiplier or private sector investment, etc.

Fourth, newly independent countries adopted variants of national planning after 1950 in order to pursue rapid industrialisation rather than remain suppliers of raw materials to more advanced economies. Most theories of economic development at the time argued for an important role for the state in this process of rapid industrialisation. For example, the theory of a big push was based on the assumption that coordinated investments led by the state would create opportunities for increasing returns. National plans were often built on large economic models; for example, the second five-year plan in India that was based on a variant of the Mahalanobis-Feldman model [Bhagwati and Chakravarty 1969, Pp. 1-73] with a two-department scheme of economic growth.

The lively socialist calculation debate between F. A. Hayek and Ludwig von Mises on the one hand, and Oscar Lange and Abba P. Lerner on the other hand, in the 1920s [Cockshott and Cottrell 1993, Pp. 73-112], was not just about the ability of a planning agency to allocate resources without the price system, but more profoundly about ability of governments to optimise complex macro systems. The 25 years after 1950 could be described as an age of optimism in terms of the theory of economic policy. There were only a few dissenters like Friedman [1968, Pp. 1-17] in monetary economics or Bauer [1971] in development economics who cast doubts on the ability of policy makers or planners to keep an economy on a chosen path, but most governments, at that point of time, sought advice from economists on how to manage both the short-term fluctuations and the long-term development trajectories of their economies. In these years, there was confidence that a well-designed government policy would help maintain developed economies close to full employment by managing aggregate demand as well as help

developing countries accelerate their way out of mass poverty by taking the lead in industrial investment. Policy makers were further helped by the development of empirical tools that allowed them to formally model and measure the impact of their policies.

However, the age of optimism would soon be challenged by a more sceptical age when the limitations of economic policy were to become obvious. The episode of stagflation in the developed economies brought Keynesian demand management into question. The combination of high unemployment with high inflation could not be adequately explained by the Keynesian consensus within governments that was based on a Philips Curve style trade-off. Developing countries also began to reconsider the role of markets in their economic development strategies. There was a broad shift from discretionary economic policy to one that was more dependent on rules. The omniscience of the economic policy maker was underplayed in comparison to the earlier era of policy optimism. Here too, there were three main reasons why economists began to question some of the consensus thinking of the preceding age of optimism.

First, the underlying assumption of much of early policy thinking was that there was an identifiable social welfare function that could be maximised using the correct mix of policy tools. For example, the iconic Samuelson-Bergson social welfare function was specified to measure welfare of society as a whole based on ordinal rankings rather than the earlier utilitarian approach of interpersonal comparison of cardinal utilities [Samuelson, 1947]. Arrow [1951] showed in a landmark paper that aggregating individual choice to get a sense of social choice is not easy. He also demonstrated in his famous impossibility theorem that there is no voting rule that satisfies the four rigorous axioms of decisiveness, consensus, non-dictatorship and independence. The subsequent literature on social choice - or the aggregation of individual choices into consistent collective choice - grappled with the essentially pessimistic result of the Arrow impossibility theorem. The idea that policy makers can identify what a society really wants began to seem weak, if not untenable.

Second, the growth of public choice theory also posed a powerful challenge to the consensus view that governments work selflessly to maximise social welfare - or the idea of governments or political agents acting like benevolent dictators for the good of society. A series of public choice theorists used the tools of economic analysis to present a more realistic theory of governments manned

by officials who try to maximise their personal utilities while special interest groups who seek to protect their rents have a stranglehold on policy. Buchanan [2003, Pp. 13-18] memorably described public choice as "politics without romance". It also led to a less romantic view of the policy process. Public choice theorists used the twin principles of methodological individualism and self-interest to question the rather naïve view of the policy process that was dominant in the first two or three decades after World War II. Public choice theory replaced the neutral policy maker with the representative of special interest groups that seek to protect their rents.

Third, the Lucas [1976, Pp. 19-46] critique provided a powerful counter to econometric policy evaluation procedures. The empirical methodology that supported the early Keynesian policy interventions could barely withstand the power of the Lucas critique. As Lucas explained: "Given that the structure of an econometric model consists of optimal decision rules of economic agents, and that optimal decision rules vary systematically with changes in the structure of series relevant to the decision maker, it follows that any change in policy will systematically alter the structure of econometric models." (page 41). What is relevant to our discussion here is that Lucas showed that policy evaluation based on macro econometric models fail to take into account the fact that agents react to policy changes by changing their decision rules. So, policy models based on past data and implicit assumptions about invariant agent behaviour fail. Parametric stability is disturbed when policy changes as agents with rational expectations change their behaviour in anticipation of the future effects of policy change.

The introduction of expectations in economic thinking also threw light on the limitations of policy, as when Friedman [1968] and Phelps [1967, Pp. 283-299] showed that the Philips Curve is vertical when expectations are taken into account. In other words, there was no long-term trade-off between inflation and unemployment in a world of forward-looking behaviour by economic agents. So, for example, the ability of policy makers to follow inflationary policies to keep unemployment below a natural rate would be scuttled by agents with rational expectations about the future. They will seek higher nominal wages today to protect their real wages tomorrow against an inflation shock induced by macroeconomic policy makers.

The developments in the theory of social choice, the theory of public choice and the Lucas critique were powerful

challenges to the interventionist optimism of the first phase of thinking on economic policy. The old policy consensus was challenged at different levels. However, even while the age of scepticism led to a more modest view of what discretionary economic policy can do, it did not turn the clock back to the discarded classical principle of non-intervention. Policy continued to be an important part of the economic process. The result has been a more nuanced view of the policy process, neither claiming policy is omnipotent nor that it is fundamentally ineffective. The view came around to viewing policies as strategic working through incentives, and which needed continuous monitoring, rather than in a closed loop. The recognition - albeit now tinged with modesty - that modern economies need policy interventions still did not address the important questions of how policy can be structured in order to make it effective. We turn now to six core principles of a good policy design.

3. a. PRINCIPLE ONE: EVERYTHING IS INTERCONNECTED - AND EVERYTHING DEPENDS ON EVERYTHING ELSE

Economic policy has to be designed in terms of general equilibrium rather than partial equilibrium. This does not necessarily mean that there is a Walrasian auctioneer who provides a vector of prices to clear all markets at the same time, as the mathematically rigorous models of general equilibrium demand. Nor does it mean that there are no missing markets. The underlying idea here is a more practical one. Different parts of an economy are interconnected with each other like a jigsaw puzzle. So, a change in one part of the economy has (often unintended) consequences in other parts of the economy. Policy advisors need to take that into account by thinking of the economy as a whole. Many of these interconnections are captured in the formal econometric models used by policy economists to understand how the different parts of an economy interact with one another.

There is a broader political economy issue here. If economic thinking is in terms of general equilibrium, then political action is often all about partial equilibrium. Policy decisions have to be taken against the backdrop of pressures from special interest groups that are organised to protect their rents. Political actors who represent special interest groups are more likely to look at the impact of a policy on their specific constituents rather than the entire economy. That presents a challenge for policy makers. One cannot think of policy design without recognising the power of

interest groups - and the political constraints they impose on the policy processes.

However, such political pressure is not always a negative feature of the policy process. One major reason is that policy change has distributional consequences, say, through the changes in relative prices. Economists often downplay the issue of income redistribution in their policy advice while the political system has good reason to worry about distributional issues. Trade is a classic example. Free trade between nations raises aggregate incomes but has distributional consequences that are often not recognised in the actual policy world. One example of this has been formalised in the Stopler-Samuelson theorem based on the Heckscher-Ohlin trade model. Incomes get redistributed depending on the relative factor abundance in the two trading countries. There are gainers and losers from trade - and little thought is usually given to how the gainers can compensate the losers. The Hicks-Kaldor compensation principle posits that when a policy shock creates winners and losers, social welfare should be considered to have improved when the winners are better off even after they were to hypothetically compensate the losers [Kaldor 1939, Pp. 549-552; Hicks, 1939, Pp. 696-712]. Fiscal tools can be used to ease the pain, but identifying winners and losers of a policy change is not an easy task, if at all possible.

A simpler example is the imposition of a tariff on steel imports. The resultant increase in domestic steel prices will benefit companies that make steel but hurt the profits of companies that use steel as an input. The distributional effects of a tariff on steel will thus mean that lobbies of steel producers will try to get the tariff on steel imports increased while lobbies of steel consumers will use their power in the opposite direction in a bid to maximise their profits. A policy maker has to negotiate such 'political' pressures in the course of policy design.

Balancing such conflicting demands is not always easy. It required astute political management by the government. Economists need not be passive bystanders They also have a role to play in explaining the broader general equilibrium consequences of any policy action. How can this be done? That is where clear policy goals come in - higher economic growth or low inflation or macroeconomic stability. These broad policy goals act as Schelling-style focal points during policy discussions, and they go beyond the specific interests of any particular group. A clear definition of policy goals is thus an essential part of good policy design.

b. PRINCIPLE TWO: THE CHOICE OF POLICY INSTRUMENTS

The need to clearly define policy goals leads us to the next question: Which policy instruments should be used to meet the accepted policy goals? This tricky question of instruments and goals strikes at the heart of economic policy strategy.

The classic answer to this was given by Tinbergen [Tinbergen, 1952]. The Tinbergen rule has been one of the key elements of thinking about economic policy. One popular way to describe the Tinbergen policy rule has been to say that there should at least be the same amount of policy instruments as there are policy targets, so that policy systems are consistent and determinate. If a policy programme has more targets than instruments, then at least one target cannot be fully attained; and if there are more instruments than targets, then there will be more than one way of meeting the combination of targets.

One area where the instruments-targets framework has been used intensively is modern central banking. For example, a central bank with two policy targets - inflation and financial stability, for example - should ideally have at least two policy instruments in its armoury. The use of a single instrument such as interest rates to manage two independent policy goals is sub optimal under the Tinbergen rule. Much of central banking practice after 1990 has revolved round a single target (inflation) that is achieved using a single instrument (short-term interest rate).

The Tinbergen rule can be better understood by using the analogy of a system of simultaneous equations, with the unknown variables analogous to policy goals and the equations analogous to the policy instruments. Any system of equations will be over determined in case there are more variables than equations and it will be under determined in case there are more equations than variables. An over determined system could be an inconsistent one unless some of the equations are linear combinations of other equations. An underdetermined system could have no unique solutions because of the extra variables. Similarly, policy regimes can also be over determined or under determined depending on the nature of the mismatch between targets and instruments. The Tinbergen principle provides an elegant framework to understand the strategy of economic policy. However, the Tinbergen rule still leaves one important issue unanswered. It merely says that there should be at least as many policy instruments as there are policy goals. It does not address the problem of which policy instrument should be paired with which policy target. That is a very practical challenge for

policy makers who have multiple policy instruments in their tool kit. The matching cannot be random. There needs to be some economic logic as to why a certain instrument is used for a certain target.

Mundell [1962, Pp. 70-79] developed a framework to deal with this ambiguity in the Tinbergen rule. He has shown that policy instruments must be effective, in the sense that they can alter the values of the target variables. His work on policy design is based on the principle that instruments should be paired with objectives on which they have the maximum direct influence. What came out of this work was the assignment principle when dealing with the problem of macroeconomic imbalances. Using a Keynesian model with fixed exchange rates and imperfect capital mobility, Mundell showed that the appropriate policy mix is to use fiscal policy to target internal equilibrium and monetary policy to target external equilibrium. The Mundell assignment principle in tandem with the Tinbergen rule provides a useful framework for policy makers to match the policy instruments they have with the policy targets that have been given to them. So there has to be a match between the numbers of policy targets and the number of policy instruments on the one hand, as well as a way to decide which instruments should be assigned to which target.

c. PRINCIPLE THREE: THE NEED FOR POLICY CREDIBILITY

The idea that policy has to be credible has emerged as an important issue in policy thinking over the past few decades. The quest for policy credibility is derived from the notion that policy makers can renege on promises made earlier to economic agents. So, a policy maker announces one policy at a point of time (t0) in order to influence the behaviour of economic agents but then changes course at a subsequent point of time (t1), even as agents have committed to a certain course of action based on what the policy had originally indicated. Such lack of intertemporal consistency, or time inconsistency, of policy ensures that citizens no longer believe the policy choices the government has signalled, and thus makes policy more costly to implement.

The problem of time inconsistency does not necessarily arise because policy makers want to explicitly mislead economic agents. The standard models of time inconsistency assume an endogenous government that tries to maximise the welfare of its citizens. There are more fundamental issues involved than cheating. Policy makers may not necessarily have the information to fully assess the impact of their actions in the uncertain future, especially since policy most often operates with lags. They may thus want to change course as

new evidence piles up. The subsequent literature [Barberis, 2013, Pp. 173-196] on behavioural economics also sheds light on the tendency of human beings in the real word to discount the future in a hyperbolic rather than exponential manner when faced with intertemporal choice, which means they will settle for lower levels of utility in the immediate future rather than higher levels of utility in the distant future. The core literature on time inconsistency assumes rational expectations but there are also underlying issues of knowledge and discounting that need more attention.

Governments that cannot make binding commitments face a credibility problem. And subsequent governments inherit this credibility deficits that can arise out of time inconsistency. Rational agents will adjust their behaviour if they know governments are likely to go back on their promises. In their seminal work on the problem of time inconsistency, [Kydland and Prescott 1977, Pp. 473-491] modelled optimal policy decisions as a game rather than a problem of dynamic optimisation. They showed that discretionary policy making in a world of rational expectations results in lower welfare than when the government makes a credible commitment.

The problem of time inconsistency is deeply linked with the debate on the role of rules versus discretion in policy - and thus the issues of institutional design. Friedman had implicitly taken cognisance of this fact when he argued for a fixed rule on annual growth of money supply rather than discretionary changes in this key variable. Rules have the advantage of overcoming the problem of time inconsistency while discretion has the advantage of giving policy makers a degree of flexibility in a volatile world. Institutional design after 1980 was focused on creating rules to constrain discretionary macroeconomic policy but the global financial crisis of 2008 once again brought the need for policy flexibility into the forefront. In an earlier era, the inflexibility of the rule-based gold standard drove countries to protectionism during the Great Depression, as policy space to deal with trade imbalances was restricted.

One way in which governments sought to deal with the problem of time inconsistency is by delegating policy tasks to independent institutions that are bound by rules such as a Taylor Rule [Taylor, 1993, Pp. 195-214] to determine interest rate policy in a central bank. Another way is to make international commitments that are beyond the pale of national politics such as tariff reductions

based on WTO (World Trade Organisation) rules. The two most common examples of dealing with time inconsistency and credibility in macroeconomic policy after 1990 are the variety of fiscal rules imposed on governments and the rise of central banks that have instrument independence to pursue an inflation target that has been given to it either *de jure or de facto.*

d. PRINCIPLE FOUR: ATTACK THE PROBLEM RATHER THAN THE SYMPTOM

Good policy should be premised on good diagnostics. The closest analogy to this is from the world of medicine: A doctor will prescribe a course of treatment only after the problem has been diagnosed properly. The trick then is for policy makers to use their models - heurestic and empirical - to get the diagnostics right. Further, policy makers should identify just a handful of binding constraints or market distortions that are the most significant obstacles to economic development. Such a selective strategy is especially important when there is no political backing for wholesale economic reform.

The essence of this argument can be traced back to the landmark paper written in 1963 by Bhagwati and Ramaswami [1963, Pp. 44-50] on trade policy in a country with market failures, or domestic distortions as described by the two authors. The paper was written against the backdrop of growing arguments against free trade in a second-best world. The basic point being made by critics of free trade was that it was impractical in the presence of market failures such as wage rigidities or externalities. Bhagwati and Ramaswami showed that free trade would still be an optimal policy for a small open economy as long as the domestic distortions are corrected with appropriate policy instruments. The broader insight that is relevant for our discussion is that the optimal policy response should not be a general tariff on imports but a subsidy specifically targeted to deal with the domestic distortion. In other words, a policy maker should address the root of a problem rather than its symptom. One of the key contributions of this paper that can be generalised in terms of broader policy making lessons is the idea of a policy ranking [Panagariya, 2006, Pp. 1553-1570]. Previous trade theorists had focused exclusively on tariffs as the only second-best policy instrument. In their model where wage rigidity is the main domestic distortion, Bhagwati and Ramaswami ranked three policy instruments - wage subsidy, output subsidy and tariffs - and then ranked them according to their impact on the welfare of a country.

A similar insight can be found in the classic papers on public finance by Diamond and Mirrlees [1971, Pp. 8-27 and Pp. 261-268]. They have argued that consumption taxes should be used to address specific policy objectives or address domestic distortions rather than use more blunt instruments that would violate production efficiency. Much thus depends on the ability of the policy maker to identify a distortion or market failure and then use an optimal policy instrument to deal with the specific problem rather than a less appropriate response that would reduce welfare or violate production efficiency.

The implicit targeting principle is a simple one: The optimal policy intervention is to target a market failure directly rather than indirectly. Or, as Krugman and Obstfeld [1998] have noted that it is always preferable to deal with a market failure as directly as possible because indirect policy responses lead to unintended distortions of incentives elsewhere in the economy.

e. PRINCIPLE FIVE: PEOPLE ARE NOT LIFELESS BRICKS

Among many of his notes of dissent with the development economics consensus of his day, Bauer [1984] rebelled against the habit of treating people as if they were "lifeless bricks to be moved about by some master builder". Bauer was challenging the traditional growth models that framed the problem of economic development in terms of technical variables such as the savings rate, the investment rate and the capital-output ratio. His point was that development was a complex process --- "in very large measure the result of individual voluntary responses of millions of people to emerging or expanding opportunities created by external contacts and brought to their attention in a variety of ways, primarily through the operation of the market" (p. 5).

The rational expectations revolution in the 1970s brought this same issue of human agency back into focus in a very different way. In 1974, Barro [1974, Pp. 1095-1117] revived an old puzzle in the works of David Ricardo to question the efficacy of discretionary fiscal policy. Ricardo has asked in an essay written in 1820 [Ricardo, 1820] whether it would make any difference if a war was financed by current taxes or by borrowing that would be repaid by future taxes. Barro used this principle of "Ricardian equivalence" to argue that the fiscal choice between taxes or borrowing would have no impact on variables such as aggregate demand, interest rates and capital formation. Rational agents would not respond to a fiscal stimulus funded through the issue of public debt since they would anticipate that the debt would have

to be eventually repaid through higher taxes at a future date. So, the rational response to a fiscal stimulus funded through the issue of new debt would be an increase in savings by individuals who rational expect higher taxes in the future. Barro assumed intergenerational altruism within families as well as efficient capital markets in his examination of Ricardian equivalence.

The point here is that people respond to economic policies rather than passively behave according to the will of the policy maker. People adjust their behaviour in response to policy change. There are two related issues here. First, policy makers have inadequate information about the effects of their policy over the long term. Second, policy should be seen through the prism of strategic interactions between the policy maker on the one hand and economic agents on the other.

The new classical critique of Keynesian deficit finance [Lucas and Sargent, 1979, Pp. 1-16] is based on the neo-Ricardian idea that rational agents will react to expansionary fiscal policy in a way that makes the policy ineffective. The actual debate is a complicated one, and not necessarily relevant to our current discussion. But the underlying idea that people dynamically change their behaviour in response to policy is something policy makers can no longer ignore, since this changes the universe of discourse in an essential way. The idea of bounded rationality or procedural rationality implies that expectations are important, thus opening up space for learning, adaptability and strategic decision making.

f. PRINCIPLE SIX: CHANGE THE NARRATIVE; CHANGE THE CONTEXT

Policy strategy cannot ignore human psychology, just as they cannot ignore political constraints. As Akerlof and Shiller [2009] point out "The human mind is built to think in terms of narratives, of sequences of events with an internal logic and dynamic that appear as a unified whole" (p.).

Narratives or stories in turn are deeply linked to beliefs. The power of beliefs about the world is often not recognised in academic economics. Expectations are now central to most mainstream economic models but these expectations often lack the element of dynamic subjectivity that matter in the real world. There have been some attempts to fill this gap. Three attempts are worth mentioning here. First, behavioural economists have shown that human choice is dependent on the way an issue is framed. Such framing can help in the process of agenda setting. Second, the power of narratives - defined as a vector of ideas -

to act like an exogenous shock to the aggregate economy was the focus of the American Economic Association presidential speech by Shiller [2017]. Third, some macroeconomists such as Farmer [2020] have modelled Keynesian animal spirits in terms of a belief function that is critical in a world of multiple equilibria. Farmer has replaced the Philips Curve in the standard New Keynesian macro models with a belief function to show that there is no single macroeconomic equilibrium.

Policy makers should not be strangers to the idea that narratives matter. Consider two India examples. The radical industrial reforms of 1991 were carefully framed as an adaptation of the Nehruvian industrialisation strategy rather than a clean break. The attempt was to make them more politically palatable. The second example is the shift to the goods and services tax (GST) which was framed as an attempt to unify the Indian economy in a truly common market.

A related challenge for policy makers is to change the context in which agents make decisions. This idea is derived from the insights of Jean Monnet [1968] the French policy maker {(as quoted Sampson [1969]} who drove the integration of post-war Europe. One of his popular dictums was that the most effective way to change a situation was to change the context in which people took decisions. One way the context can be changed is by changing the rules of the game - or the institutional structure of the economy. Monnet sometimes quoted the French thinker Henri-Frederic Amiel: "The experience of each person is a new beginning. Only institutions grow wiser: they store up the collective experience and, from this experience and wisdom, men subject to the same laws will gradually find, not their nature changed but that their behaviour does".

Policy makers, thus, need to focus on changing the rules of the game through deep institutional reforms that change the context in which people make choices. Changing the institutional rules of the game necessarily involves changing the incentive structure of society. However, no programme of institutional change or policy reform will get salience unless the issues are framed in powerful narratives that change the underlying political discourse on the concerned issue.

CONCLUDING REMARKS

This paper has sought to identify six core principles of economic policy making - that economic policy thinking should be in terms of general equilibrium, policy instruments need to be carefully chosen to meet specific policy goals, policy has to be credible so as to avoid the problems of time inconsistency, the

underlying market failure rather than its symptom should be treated in the most effective way, policy makers should be sensitive to the fact that economic agents will strategically change their behaviour in response to a policy change and powerful narratives need to be built up to make policy change acceptable.

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SMUGGLING ACROSS NIGERIA - NIGER BORDER: AN APPRAISAL ON ECONOMIC CONSEQUENCES AND THE WAY FORWARD

Bashir Sa'ad Ibrahim, Deepali Singh

The notion for trade across borders is derived from the perspective of International Trade and International Relations to enable and enhance interdependence among nations as one country is endowed with what its neighbour does not have but needs what it lacks. Thus, the contention of trading across borders among immediate neighbouring countries emanated so as to explore the unlocking opportunities in comparative advantages among various counties. However, in the process of conducting Cross Border Trade both formal and informal, the concept of smuggling emerged therein. Thus, being illegal from its context as it leads to circumventing payment of custom duties and other taxes, smuggling reduces the expected income to be generated by most countries of the world (Nigeria and Niger Republic inclusive). It is against this milieu that the present paper, in terms of its objectives, intends to examine the extent and magnitude of smuggling as well as the mode of transportation used by smugglers in goods across the Nigeria - Niger Republic Border. The research employed mixed methods of data collection which encompasses primary and secondary sources of data collection. The findings reveal that smuggling deprives the government of the concerned country from generating the projected revenue as income to the government which it uses to fulfil its obligations such as provisions and maintenance of Education, Health, Security, Welfare and Electricity for industrial and domestic consumptions in both countries. In an attempt to find a way out, it is suggested that both Nigeria and Niger Republic should establish Customs offices for (Nigeria) and Bureau of "Duanes" for (Niger Republic) at all the international border points across boundaries thereby making attempts to ensure payment of all customs duties therein by Traders across border. This will reduce evasion and avoid circumventing payment of customs duties at the land order points of entry.

Keywords: Smuggling, Border Closure, Trade, Customs, Implications

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1. INTRODUCTION

Nigeria and Niger Republic were colonially created states. Nigeria was colonised by Great Britain while Niger Republic was colonised by France, respectively. With regards to proximity, Nigeria and Niger Republic are neighbouring countries located in the West African sub-region. Thus, the trade between these countries could be traced back to the Trans-Sahara Trade since medieval times wherein both countries benefited from each other economically through trading of agricultural produce and other manufactured goods via smuggling and informal cross border trade which is described as illegal trade across the border. Thus, the Cross Border Trade became classified into what is formal or legal & informal or illegal [Samaila, 2011, Pp. 183-192].

Before being artificially demarcated by colonial masters, Nigeria and Niger Republic shared so many things in common such as cultural, religious, historical and other ties between the two countries prior to the Berlin Conference held at Berlin, Germany from 1884 to 1885 spearheaded by the then German Chancellor Otto von Bismarck (The Iron Chancellor) during the course of the scramble and partition of Africa. Following the partition, Nigeria was taken over by Great Britain and Niger Republic by France for the purpose of colonial administration [Uzoigwe, 1985, Pp. 9-22].

There already existed "Contiguous Zones" across all border communities which entailed sharing so many phenomena and singularities in common such as the same religion, similar language, traditions, dress forms and many other cultural ties which had promoted marriages between people of the border communities living across Nigeria - Niger Republic borders. In view of the artificial demarcation by the colonialists, smuggling and informal trading across borders became more pronounced between Nigeria and the Niger Republic.

Given the increase of smuggling activities across Nigeria - Niger Borders, it is was obvious, as argued by [Ibrahim and Singh, 2020, Pp. 226 - 238] that informal traders and smugglers keep circumventing the payment of customs duties which negatively affected the expected revenue generation of the governments of both countries which, by implications, weakened the discharge of the governments roles and responsibilities to its citizens like funding and improvement of Education, Health, Security, Infrastructure and other social amenities for the benefits of citizenry of Nigeria and the Niger Republics.

It is against this background that an attempt was made, in this paper, to undertake an in-depth exploration and analysis of the smuggling across Nigeria - Nigeria Borders with a view to examining the economic implications of smuggling and also proposing possible way out of the problem. The paper is organised as follows: having given the backdrop in Section 1, Section 2 outlines the objectives of the paper while Section 3 gives a brief giving some details regarding the Partition of Africa. In Section 4, we present a brief and limited review of the literature on the subject. In Section 5 is described the Methodology used in the study issues as also a description of data and the data sources from which they were derived. A fairly detailed empirical analysis is covered in Section 6. Section 7 attempts to spell out the underlying issues while Section 8 analyses the institutional failures associated with the problem. Section 9 proposes some useful prescriptions with a view to reducing the magnitude of the problem, if not eliminating it fully. Finally, a summary of the work attempted and concluding remarks are given in Section 10.

2. OBJECTIVES

The major objective of this Article is to critically conduct research in an attempt to appraise the economic consequences of smuggling across Nigeria - Niger Republic borders with a view to proffer solutions to the avoidance of smuggling of goods and services. Other specific objectives of the Study include the following:

a. To examine the extent and magnitude of smuggling as well as the mode of transportation used by Smugglers in smuggling goods across Nigeria - Niger Republic Land Borders.
b. To assess the losses incurred by both countries (Nigeria and Niger Republic) as a result of evasion and circumvention of payment of customs duties which serve as a means of revenue generation to the governments.
c. To explore the roles of "Contiguous Zone" as a factor for increasing rates of smuggling and informal trading across Nigeria - Niger Borders.
d. To recommend some useful suggestions on avoidance of smuggling across Nigeria and Niger Republic borders.

3. HISTORICAL TRAJECTORY RESULTING IN THE PARTITION OF AFRICA

Prior to the Berlin Conference held in Berlin, Germany (1884 - 1885), the African countries were free, bonded together and conducted Free Trade without restrictions of international boundaries. However, when the powerful

colonial European countries were convened for a Conference in Germany, the partitioning of Africa was undertaken by these colonial powers which created territorial claims on Africa and established colonial borders in 1884 to 1885. In other words, the balkanisation of Africa under colonial masters such as Great Britain, France, Portugal and Belgium and Italy took place then [Guyot, 1882]. Given below is a brief account of what led to this situation.

The Brazzaville Report [1985, p. 280] revealed that the European colonial powers began to interest themselves closely in the affairs of the African continent from 1815 onwards. Prior to that period, there was a limited presence of the Portuguese in Angola and Mozambique thereby making clear that Portugal was the first European country to come to Africa for the purpose of colonialisation. From then onwards, as presence of European powers increased in Africa, clashes of interest began to take place between the colonial powers over territorial dominance. Hence, the then German Chancellor Otto von Bismarck convened a meeting at Berlin, Germany which led Africa to be partitioned. The meeting was held from 15th November, 1884 to 26th February, 1885 whereby Fourteen European countries met without any African participation in the conference.

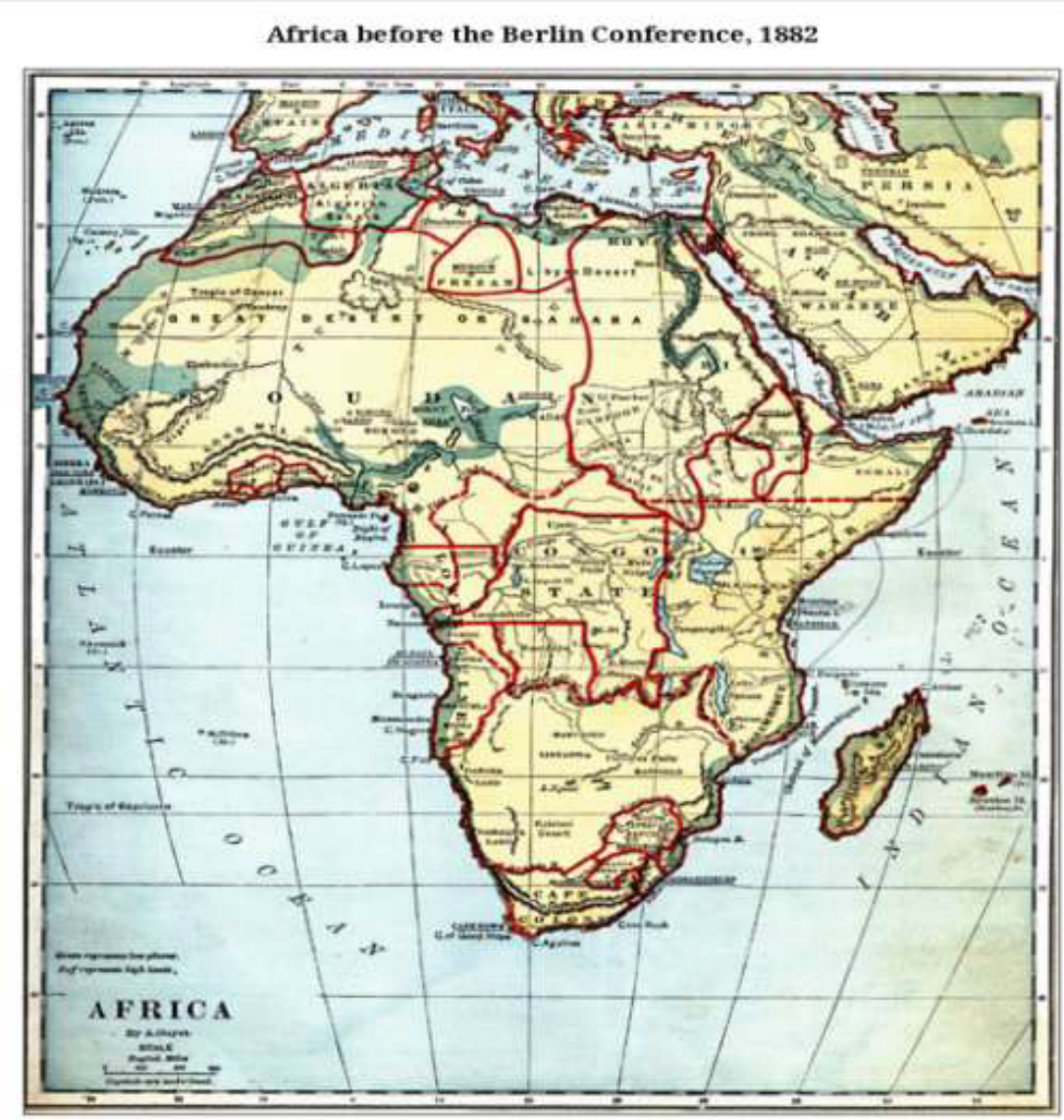
As presented and argued by Bismarck, the Conference was to accomplish three major tasks as follows:

i. To regulate the conditions most favourable to the development of Trade and Civilisation in the region of Africa.
ii. To obviate the misunderstanding and dispute that may arise in the future due to occupation of territorial Coast of Africa by Europeans.
iii. To further the improvement of moral and material wellbeing of the native population "Africans" the colonial subjects [Uzoigwe, 1985].

Upon conclusion of the Conference, an Act known as the General Act was enacted which therein was known as the Berlin Act - amongst which was a provision by way of Article 34 which read as follows:

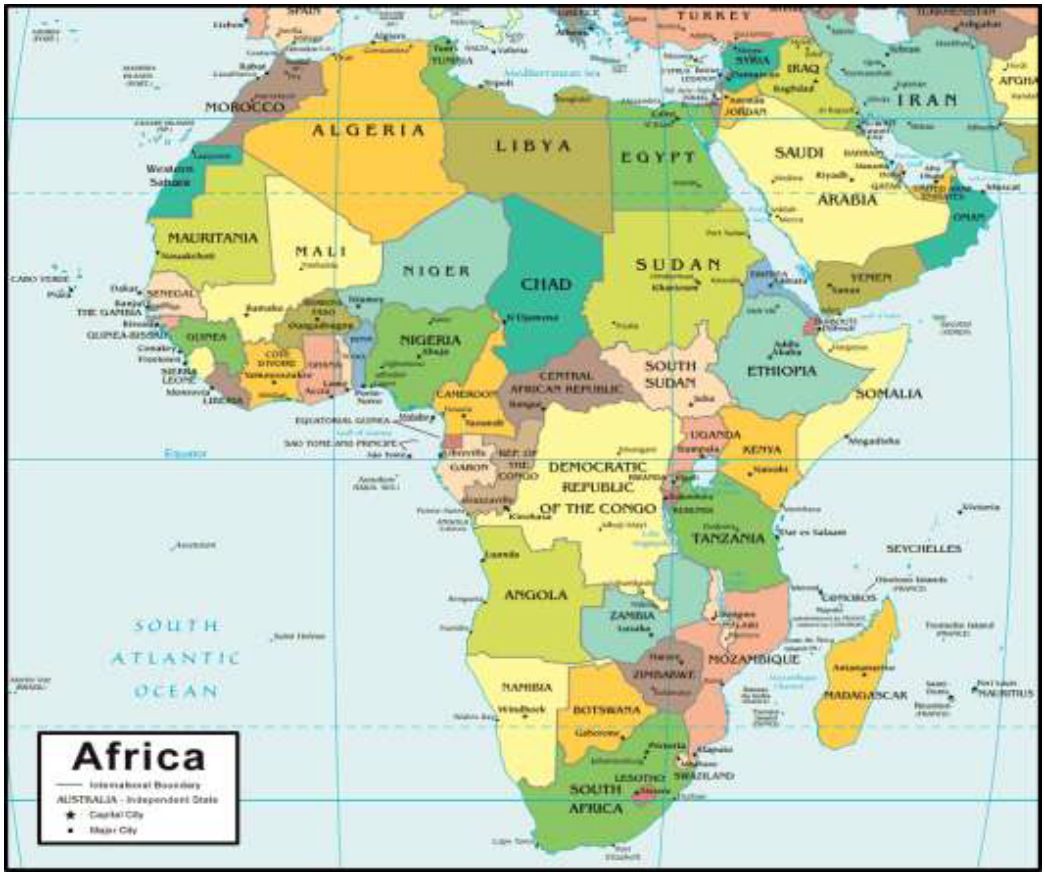
> 'Any power which henceforth takes possession of a track of land on the Coast of African Continent outside its present possession, or which being hitherto without such possession, shall acquire them as well as the power which assumes a protectorate there, shall accompany the respective act with a notification thereof, address to other signatory powers of the present Act in order to enable them, if need be, to make good any claim of their own' [Uzoigwe, 1985, p. 18].

Figure 1: Map of Africa prior to Scramble and Partition of Africa 1882



Source: Guyots [1882]

Figure 2: Map of Africa after Scramble and Partition of Africa of 1884 - 1885 Showing Countries in the Continent



Source: https://geology.com/world/cia/map-of-africa

Having partitioned Africa (Post Berlin Conference), many countries such as Botswana, Egypt, Nigeria, Gambia, Ghana, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Tanzania and so on were colonised by Britain. However, Algeria, Benin, Niger Republic, Burkina Faso, Chad, Central African Republic, Cote d'Ivoire, Djibouti, Gabon, Guinea, Mali, Senegal and Tunisia were colonised by France. On the other hand, Belgium colonised Burundi, Democratic Republic of Congo and Rwanda while Angola, Cape Verde, Guinea Bissau, Mozambique and Sao Tome Principe were colonised by Portugal. As Equato-

rial Guinea was colonised by Spain, Libya got to be colonised by Italy. It is pertinent and interesting to note that only Ethiopia was never ever colonised by any colonial power. Given in Figures 1 and 2 is the map of Africa before and after partition, respectively.

African historical developments in the post 1885 Conference period have largely been affected by the Berlin Conference with many consequences in terms of political and economic implications such as colonisation, compelling the colonised countries to adopt the administrative pattern of their Masters, adopt their language like English or French as the case may be. The implications included adopting a foreign currency like French CFA (French franc) in all West and Central Africa colonies as well as use of the Pound in Nigeria before it was replaced with Naira notes. This affected the cross-border trade between neighbouring countries as currency differed from one country to another as a result of the partition and colonial economic legacy. The implications which included the redrawing of the Map of Africa, as seen above, resulted in the emergence of ethnicity, nationalism and pan Africanism, boundary disputes and secession movements all over the African Continent. The partition of Africa, thus, created a sense of separation or detachment amongst Africans.

4. A BRIEF REVIEW OF THE RELEVANT LITERATURE

Smuggling has been defined by various scholars from different academic fields of studies. Malawi Revenue Authority (MRA) [MRA, 2021, p. 2] pointed out that 'Smuggling is the illegal importation or exportation or loading onto or unloading from a conveyance; a diversion for consumption of goods subject to Customs control with the intention to defraud the Malawi Government of duty payable or evade any provision of the Customs and Excise law'.

According to Dominguez [1975, Pp. 87-96 and 161-164] Smuggling is an organised transnational activity usually takes place across the international boundary which entails the systematic breaking of Immigration and Customs laws of a given country. The White House Office of National Drug Control Policy [2002] described smuggling as a criminal offence of bringing into or removing from a country those items that are prohibited or upon which Customs or Excise Duties have not been paid. Thus, smuggling is the secret movement of goods across national borders thereby avoiding Customs Duties, Import or Export restrictions. It is pertinent to note that smuggling across borders reduces the effectiveness of Foreign Policy Instruments such as Trade (Cross Border

Trade inclusive) and Immigration Acts. In other words, the concept of smuggling largely results of extreme instance of loss of state control on its land borders or at ports of entry like airport and sea ports. In most cases, the smuggled goods include any contraband items, Cigarettes, Drugs, Precious stones, consumables and non-consumable goods. The smugglers usually avoid Immigrations and Customs officers in an attempt to skip payment of Customs Duty, tax and verification of documents meant for Trade across Borders. This occurs in a variety of patterns particularly between neighbouring countries.

Basically, smuggling operations are normally conducted through the following three basic typologies according to Dominguez (1975) as stated below:

i. **Single Individual Smuggling Operation:** It can be smuggling of drugs, currency or precious stones across an international boundary.
ii. **Bulk Trade Smuggling Operation:** It entails movement of commodities for mass consumptions. This requires active of governments, security agents and border control officers.
iii. **Under Invoicing Smuggling Operations:** Here, the Cross Border Trader declares that, he or she has fewer goods than actual commodities at his disposal or rather the said goods cost him less than actually did. For instance, a Cross Border Trader may declare 100, 000 cartons while the actual number of cartons are 150, 000 on board.

The aforementioned patterns employed or embarked upon in Smuggle portray either the negligence or the involvement of government in one way or the other. In the case of developing countries like Nigeria or the Niger Republic and other African countries, they do not have total controlling capacity in curtailing smuggling across land borders. Thus, smuggling is, in a sense, the result of absence of politically motivated control and concern across borders in most of the African and other many other developing countries. In addition to the above- mentioned ways, Dominguez [1975] further argued that some individuals in power (Government Officials) find sufficient reasons to tolerate smuggling as a solution to other problems like Balance of Payment deficit and double taxation payable to both Federal and State Governments. When a country with a Balance of Payment (BOP) problem is unable to pursue international lending institutions to extend credit or loan facilities to such countries, the solution turns out to be in terms of imposition of prohibitive tariffs on imported commodities thereby

reducing imports and improving the Balance of Payments. In this case, the demand for the imports would continue to exist and a portion of import trade would shift from recorded goods (legal) to unrecorded goods or commodities (Illegal) trade. Such items would disappear completely from the Balance of Payments Accounts with the result a particular country would reveal a willingness and readiness to meet its international obligations and while exercising financial responsibility through adjustments. By doing so, the international financial standing of the country would automatically reflect improvement while the flow of certain goods would effectively continue through smuggling and illegal trading across borders.

Also, smuggling when perceived from an orthodox perspective has both economic and political benefits. Dominguez [1975] further argued that, if a country, for instance like Nigeria or the Niger Republic establishes higher tariffs to protect infants or indigenous industries, it may also result in producer sovereignty which will lead to high prices and maybe poor quality of local products. Smuggling can provide a certain degree of foreign competition for these locally manufactured goods in either Nigeria or Niger Republic because smuggling usually brings in fewer goods or commodities than if trade were free and legal. Thus, a significant measure of an effective protection strategy continues. While, at the same time, the inflow of smuggled goods strengthen supply in the domestic markets which helps to curtail inflation and sets a minimum quality threshold in a given country or nation-state. "Smuggling is intertwined with the politics and economics of modernisation. Many developing countries are not likely to achieve their priorities- Political stability, International Financial stability, infant industry protection without a measure of Smuggling; nor can they stop some of the poorest countries from smuggling successfully. Smuggling provides one link between internal and international politics in developing countries" [Dominguez, 1975, p. 162].

It must also be mentioned that smuggling is held to be a systematic crime in the context of international Law since the act violates and or breaches the Customs Regulations and Immigration Laws. Thursby, Jensen and Thursby [1991, Pp. 789-814] argued that smugglers import some goods legally in order to provide a "cover" for their smuggling operations. This implies that imported or exported goods legally are subject to payment of tariffs while smuggled goods are concealed in trade

and evade tariffs as a result of which such informal cross border trade (smuggling inclusive) usually reduces the revenue of the governments generated by both countries otherwise imported through proper channels across borders.

Norton [1988, Pp. 107-118] stated that even the modern smuggling theory as described by its prominent proponents Bhagwati and Hansen [1973, Pp. 172-187] held that there are several factors which motivate smugglers to engage in smuggling activities. These factors include: i. Legal Trade Costs (Customs Duties and other Taxes) that may be higher, ii. Transport Costs and lastly iii. Resource costs. Smuggling determines the competition and profit maximisation rate. However, a smuggler takes a risk at the cost of his or her activities. The risk cost here refers to the cost associated with the confiscation of smuggled goods or levy of fines or both which the smuggler bears at his expense and detriment. Moreover, Bhagwati and Hansen [1973] had also opined that in some underdeveloped countries (African countries inclusive), smuggling results in many economic problems. In other words, they perceive smuggling not only from a moral or a legal point of view rather but also something that can be analysed and perceived as an economic problem more so in the context of developing countries. Meagher [2014, Pp. 497-517] pointed out the prevalence of cross border trade influences smuggling in some West & Central African countries especially Nigeria, Senegal, Sierra Leone, Cameroon, Chad and Democratic Republic of Congo and also around West and Central African sub regions mainly because of their trading networks whereby an extensive informal trading system had occurred earlier.

5. METHODOLOGY, DATA AND DATA SOURCES

This study in its methodology employed mixed methods of data collection which encompasses primary and secondary sources of data collection. With regards to primary sources, the Research obtained data from Key Informant Interviews (KII), Focus Group Discussions (FGDs) and observations conducted during Field Survey 2021 as well as quantitative data retrieved or generated from the Central Bank of Nigeria and other relevant sources viz a viz: African Development Bank and African Economic Brief With regards to KIIs, the categories were selected from Customs/Douanes, Immigration, Cross Border Traders, Ministry of Trade, Expert from ECOWAS, Expert on Tran-Saharan Trade and Chamber of Commerce. The categories are presented in Table 1 below with their respective percentages represented in the pie chart (Figure 3 given below Table 1.

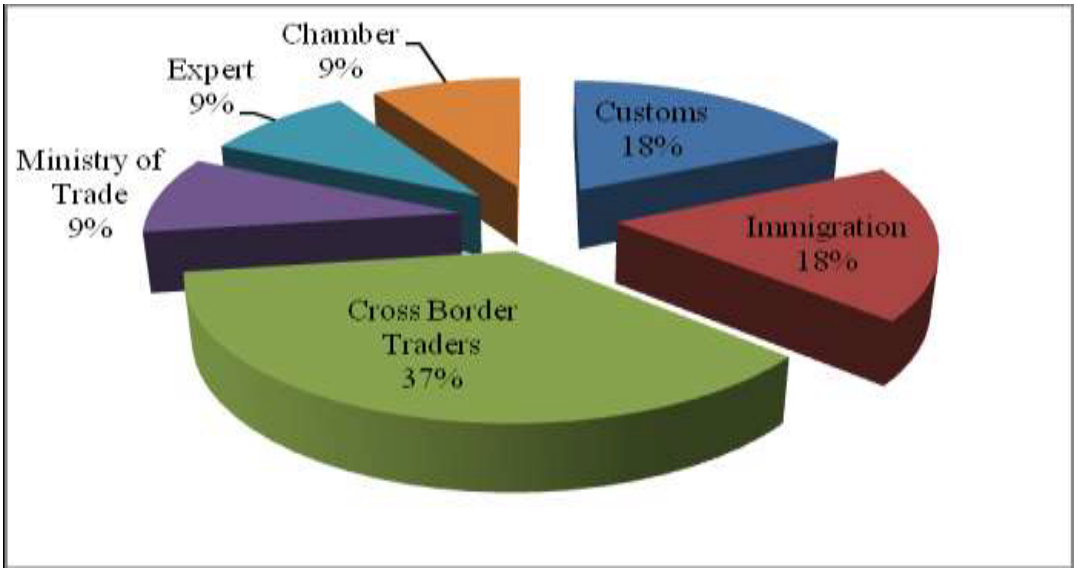
Table 1. The Table below presented the Category of Personalities interviewed

KEY INFORMANT INTERVIEW CATEGORY AND CLASSIFICATION

S/N	Category	Country	Number
1	Customs	Nigeria	2
	Customs (Douanes)	Niger Republic	2
2	Immigration	Nigeria	2
	Immigration	Niger Republic	2
3	Cross Border Trader	Nigeria	4
	Cross Border Trader	Niger Republic	3
	Cross Border Trader	(Other)	1
4	Ministry of Trade	Nigeria	1
	Ministry of Trade	Niger Republic	1
5	Expert from ECOWAS	Nigeria	1
	Expert on Transahara Trade	Niger Republic	1
6	Chamber of Commerce	Niger Republic	1
	Chamber of Commerce	Niger	1
		Total	22

Source: First author's Field Surveys 2021

Figure 3. Interviewed personalities in terms of Percentages



Source: Calculated by first author from Table 1

In regard to Focus Group Discussion (FGDs, they were conducted a) at Dawanau International Market in Kano State in Nigeria with a view to obtain "First Hand" information from the participants. The Discussion was coordinated by Dr Kabiru Gambo, an Academic staff, Faculty Member (Lecturer) at the Federal University Dutse, Nigeria as Moderator with eight participants and two more in attendance.

The FGDs were conducted with the following structure keeping in mind, four categories of questions, namely, 1. Primary Questions, 2. Prove Questions which dig deeper on Smuggling across Nigeria - Niger landorder, 3. Follow up Questions and 4. Conclusive/Recap Questions: The Moderator reviewed previous questions, from time to time, in order to avoid diversion from the focus of the FG Ds.

Observation were carried out at two landborders between Nigeria and the Niger Republic, at a place Jibiya/Maradi which is a very busy border point while the other place, Babban Mutum/Magarya is less busier border. Table 2 below portrays the details of the observations conducted at the landborders between two countries.

Table 2. Shows Observations conducted at Selected Nigeria - Niger Republic Border with dates

S/N	Countries Under Review	Border Under Observation	Date of Observation
1	Nigeria - Niger Republic	Jibia/Maradi Border	08/06/2021
2	Niger Republic - Nigeria	Maradi/Jibia Border	11/06/2021
3	Nigeria - Niger Republic	Babban Mutum/Magarya	22/07/2021
4	Niger Republic - Nigeria	Magarya/Babban Mutum	22/07/2021

Source: Field Surveys, 2021 done by the first Author

From the point of view of usage of secondary source of data, content analysis otherwise known as documentary analysis, journals, books, publications of Central Bank of Nigeria [2016], the Economic Community of West African States (ECOWAS) Commission [2010], the United Nations Office on Drugs and Crime [UNODC, 2013] as well as publications of the Malawi Revenue Authority (MRA) [2021] and other world wide websites (www) sources were

referred to / used in collecting relevant data related to Cross Border Trade, smuggling and economic implications to either Nigeria, Niger Republic or both. It is emphasised that for the purpose of this work the most relevant, verified, authentic and valid source of information were ensured before encapsulating it into the presentation, analysis and interpretation of a given phenomenon. Thus, qualitative and quantitative methods of data collection were used as mixed methods in coming up with empirical work. By extension, the processes adapted from inception to the logical conclusion of data collection and presentation has been done with the use of scientific tools of analysis such as regularity, observations, verifications and cross checking and ensuring validity of given information.

6. EMPIRICAL ANALYSIS

a. Volume of Official Trade in Commodities between Nigeria and the Niger Republic

The paper in its Empirical analysis examined Nigeria's Cross Border Trade estimated loss calculated at 5% chargeable Custom Duties on Agricultural Produce based on the available data extracted from CBN [2016] for the year 2016. Data for a later year was just not available. Given this situation, it was thought best to have the analysis undertaken for the year 2016 and also estimate the loss of revenue for this year. It is based on the estimated loss of 5 percent calculated to the tune of 54,594.529 million Naira per annum equivalent to $345.67 million US Dollars accordingly. It was assumed that the same level of Informal Trade was undertaken for the next three years and the losses calculated for them together.

According to the Central Bank of Nigeria, food products such as Vegetable Products, animal and animal products constituted the bulk volume of commodities and services traded across Nigeria - Niger Border [CBN, 2016].

The Table 3 below gives the volume of commodities and Services traded between the Federal Republic of Nigeria and the Niger Republic. It shows what Nigeria Exported to and from Niger Republic.

Table 3. Showing volume of Trade in Commodities and Services between Nigeria and Niger Republic

S/N	Product Category	Export (in Million Naira)	Import (in Million Naira)	Total Trade (in Million Naira)	Percentage (%)
1	Vegetable Products	295,710.60	322,560.75	618,271.34	56.68
2	Animal & Animal Products	4,008.83	133,898.70	137,907.53	12.64
3	Transportation Equipment	684.58	92,637.43	93,322.01	8.55
4	Foodstuff	32,450.78	37.109.80	69,560.58	6.38
5	Textile Products	28,165.60	18,741.41	46,907.01	4.30
6	Machinery & Equipment	24,759.32	11,620.16	36,379.47	3.33
7	Chemical and Allied Products	13,536.72	21.104.88	34,641.61	3.18
8	Mineral Products	18,070.00	2,285.28	20,355.28	1.87
9	Raw Hides, Skins and Leather	303.54	9,437.86	9,741.39	0.89
10	Wood and Wood Products	7,781.69	360.94	8,142.62	0.75
11	Plastic and Rubber Products	2,787.73	4,664.99	7,452.72	0.68
12	Metal Products	3,302.36	176.17	3,478.54	0.32
13	Footwear & Headgear	1,621.53	661.34	2,282.87	0.21
14	Miscellaneous Products	1,701.39	341.05	2,042.44	0.19
15	Stones	393.42	11.76	405.18	0.03
	Total	**435,278.08**	**655,612.50**	**1,090,890.58**	**100 %**

Source: Central Bank of Nigeria [2016: 14] adopted and compiled by Authors

According to the Central Bank of Nigeria [CBN, 2016] that Nigeria's Volume of Export in a given year amounted to 435,278.09-million-naira equivalent to $2,758.83 million US Dollars and Import made by Nigeria was valued at 655,612.50 equivalent to $4,154.61 US Dollars. That is to say, both Export and Import volume together were valued at 1,090,890.58 million Naira equals to $6,912.96 US Dollars per annum.

Figure 4. Map of National Boundaries between Nigeria and Niger Republic with Border land extended by illegal trade routes

Source: https://www.britanica.com/place/niger

Figure 5. Pictorial demarcation showing Land Border between Nigeria and Niger Republic

The above Map (Figure 4) and two pictorial views (Figures 5 and 6) show national boundaries between Nigeria and Niger Republic. The Map spelt out names of Land Borders marked with dot in-between the Red National Boundary as border community. However, besides every legal border, there are numerous porous borders (illegal routes) used by smugglers and informal traders across the boundary of both Nigeria and Niger Republic.

a. Smuggling and Illegal Trade: Character, Nature and Extent At the Nigeria - Niger Ports of Entry (Land Borders)

According to the CIA World Fact Book [2018], the Nigeria- Niger border length is one thousand six hundred and eight kilometres (1,608 KM). This consists of the length from Kebbi state (North-western part of Nigeria) up to Borno state (North-eastern part of Nigeria). However, it is pertinent to note here that not all states in the North West and North East Geo Political Zones of Nigeria share borders with the Niger Republic. Only six states of the federation share the border and have ports of entry either from Nigeria to the Niger Republic or vice versa. There are thirty-six official ports of entry to or from Nigeria to Niger Republic. These ports of Entry to Niger from Nigeria are in Kebbi, Sokoto, Katsina, Jigawa, Yobe and Borno states. The ports in each state are as follows: **Kebbi**

Figure 6. Pictorial demarcation showing Land Border between Nigeria and Niger Republic

state; Bagudo, Maje, Lolo, Dole-Kaina, Kamba, Kangiwa and Bachaka. **Sokoto State;** Illela, Gada and Sabon Birni. **Katsina state;** Jibiya-Magama, Jibiya-Maje, Mai-Adua, 'Yar daji, Kongolom, Babban Mutum, Zango, Birnin Kuka and Dankama **Jigawa State;** Maigatari **Yobe state;** Nguru, Machina, Telo Tulao and Geidam **Borno state;** Gashagar, Damasak, Malam Fatori, Baga doro (Doron Baga), Wulgo, Gamboru-Ngala, Rigal, Jilbe, Kumshe, Banki, Kirawa and Ashiga Shiya [NCS, 2019].

The data from various sources and upon verifying the validity is hereby presented, analysed and interpreted using Tabular and Graphical Methods of data presentation. The essence is to simplify the complex and raw data for a clear-cut understanding of the extent and magnitude of smuggling and informal cross border trading between Nigeria and the Niger Republic. The presentation is done in the Tables and Figures given in the rest of this Section.

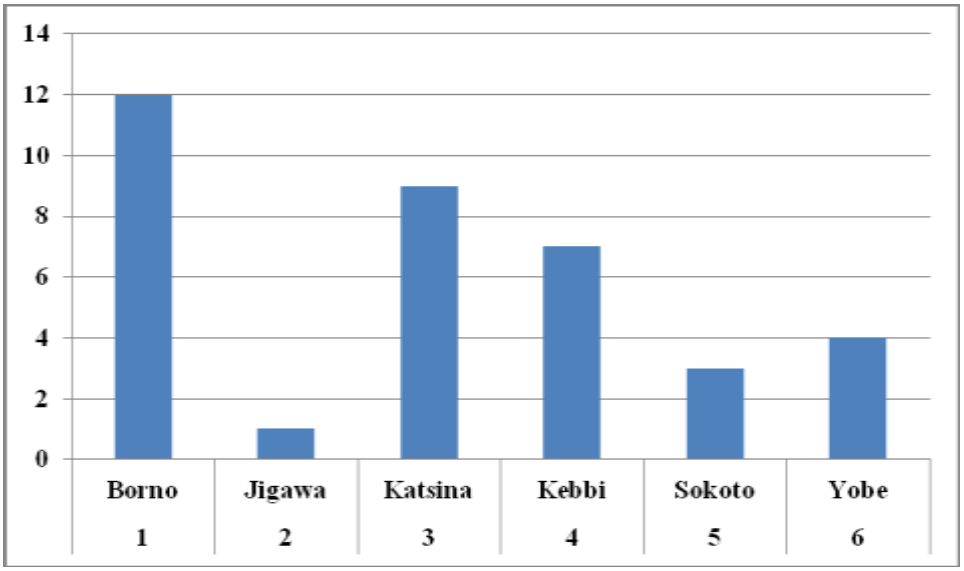
Table 4. Showing Six States of the Federal Republic of Nigeria sharing Formal Border with Niger Republic

S/N	State in Nigeria	/Formal Borders with Niger Republic	Number of Borders
1	Borno State	Gashagar, Damasak, Malam Fatori, Baga Doro (Doron Baga), Wulgo, Gamboru-Ngala, Rigal, Jilbe, Kumshe, Banki, Kirawa and Ashiga Shiya	Twelve (12) Borders
2	Jigawa State	Maigatari	One (1) Border
3	Katsina State	Jibiya-Magama, Jibiya-Maje, Mai-Adua, 'Yar daji, Kongolom, Babban Mutum, Zango, Birnin Kuka and Dankama	Nine (9) Borders
4	Kebbi State	Bagudo, Maje, Lolo, Dole-Kaina, Kamba, Kangiwa and Bachaka.	Seven (7) Borders
5	Sokoto State	Illela, Gada and Sabon Birni.	Three (3) Borders
6	Yobe State	Nguru, Machina, Telo Tulao and Geidam	Four (4) Borders

Source: NCS [2019] and compilation by the first Author in 2021

From the above Table, it is obvious that Borno State has the highest number of formal borders with Niger Republic followed by Katsina State then Kebbi, Yobe and Sokoto states with Jigawa state having only one formal border points. However, it is pertinent to know that, apart from the aforementioned formal borders, there are many more porous borders than the above - mentioned officially declared ones between Nigeria and Niger Republic. This was found out and noted during the Field Surveys in 2021 conducted through Observations at Borders between Nigeria and Niger Republic. Besides many single formal border points, there are many porous border points used by smugglers and informal cross border traders.

Figure 7. Showing Statistical Number of Formal Borders owned by six (6) States of the Federal Republic of Nigeria



Source: NCS [2019] and compilation by the first Author in 2021

The number of formal borders endowed by each state of the Federal Republic of Nigeria from Northwest (Jigawa, Katsina, Kebbi & Sokoto states) to Northeast (Borno & Yobe states) part of Nigeria with Southern part of Niger Republic (Dosso, Tahoua, Maradi, Zinder and Diffa Regions) are shown in terms of percentages in Table 7 and also by way of a pie chart representation (Figure 5) below.

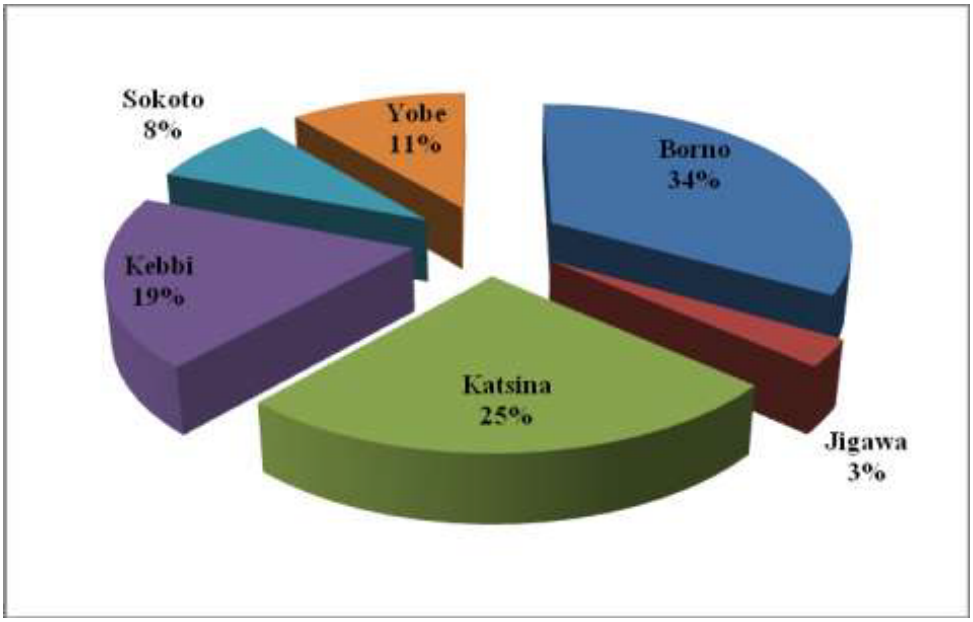
Table 5. Number and Percentage of Border per state

S/N	State	No: of Border(s)	Percentage
1	Borno	12	34 %
2	Jigawa	1	3 %
3	Katsina	9	25 %
4	Kebbi	7	19 %
5	Sokoto	3	8 %
6	Yobe	4	11 %
	Total	36	100 %

Source: NCS [2019] and compilation by the first Author in 2021

However, it is pertinent to know in some states are busy borders (based on observations) that not all while certain ones are less busy borders are busy ones. Some borders accordingly.

Figure 8. Percentage of Border size by each state



Source: Calculated by first author from Table 4.

Table 6. Different modes of Transportation used in conveying goods informally across borders

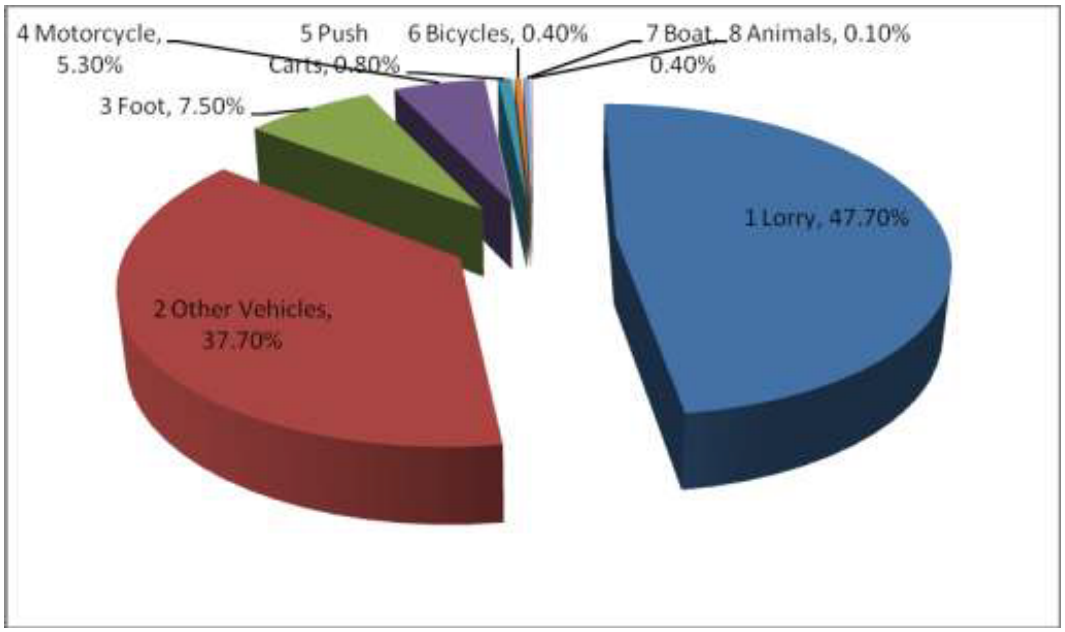
S/N	Mode of Transportation	Total Trade (Million Nigeria Naira)	Percentage
1	Lorry	520,402.23	47.7 %
2	Other Vehicles	411,341.39	37.7 %
3	Foot	82,228.69	7.5 %
4	Motorcycle	58,062.09	5.3 %
5	Push Carts	9,225.27	0.8 %
6	Bicycles	4,517.51	0.4 %
7	Boat	3,910.19	0.4 %
8	Animals	1,203.22	0.1 %
9	**Total**	**1,090,890.58**	**100 %**

Source: Central Bank of Nigeria [2016] and as adopted and used by the first Author 2021

Various goods worth billions of Naira is either smuggled or traded informally across Nigeria- Niger Republic border. From Table 5 and as reported by the Central Bank of Nigeria [CBN, 2016], goods conveyed by lorry alone constituted 47% of the total traded goods informally worth over five hundred and twenty (N520+) million naira. One can easily guess the generation of revenue for the government through Customs Duties and other charges if cross border trade was being done in a legal way.

The above Table clearly portrayed the mode of transporting goods to Niger Republic from Nigeria and vice versa whereby lorry and other vehicles carries higher portion in terms of either smuggling or informal trading across border.

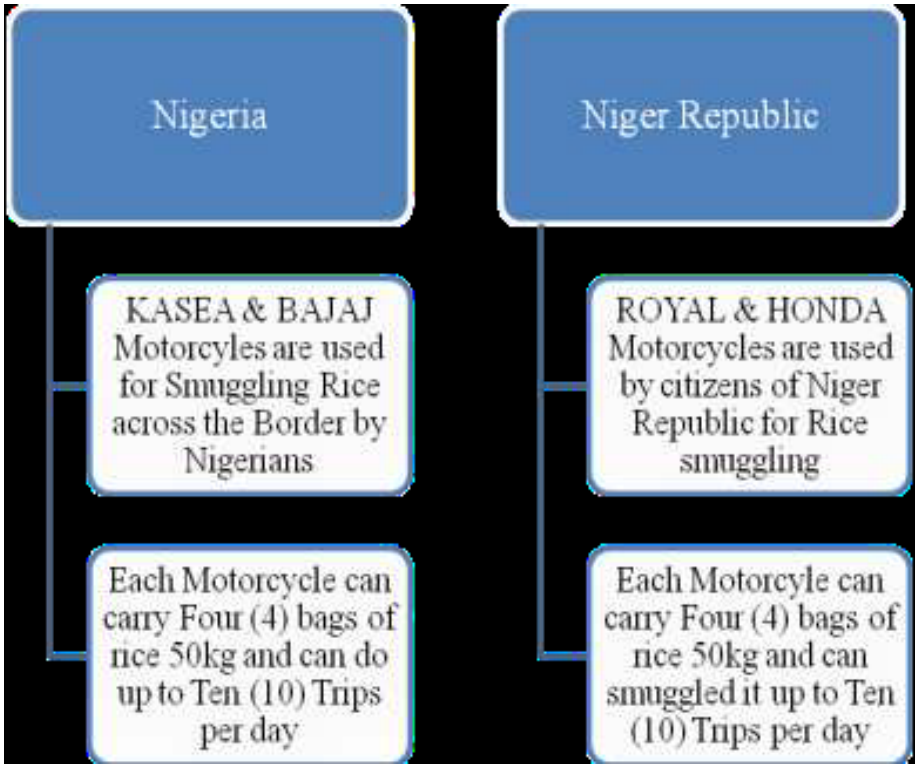
Figure 9. Graphical presentation of mode of transporting goods across Border



Source: Extracted from the CBN 2016 and estimated by the first Author 2021

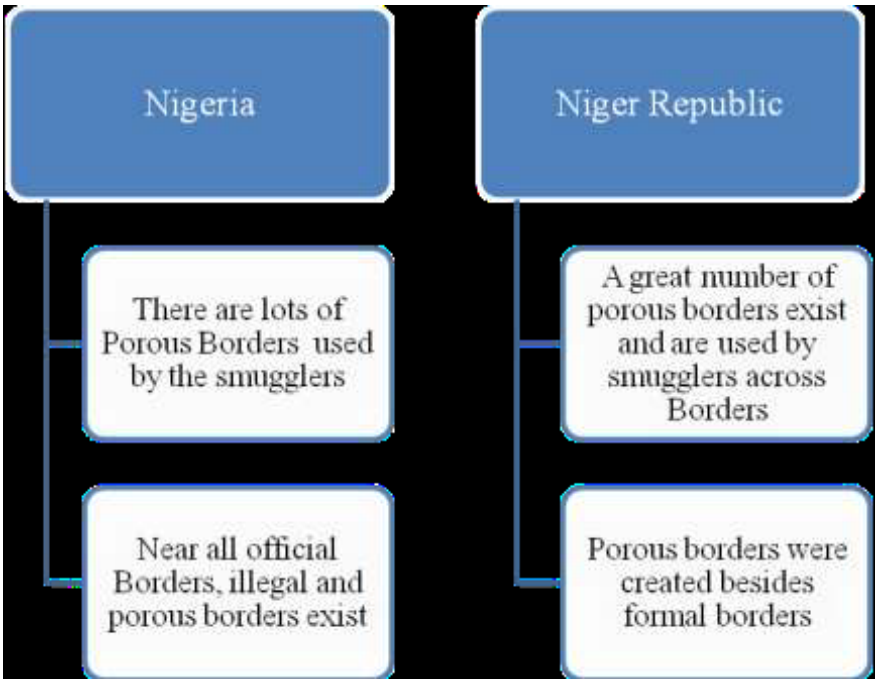
The Figure (No. 9) given above exhibits the extent of the mode of transporting goods across Nigeria Niger Republic Border with Lorry having 47.70% and other vehicles took 37.70% followed by Foot and Motorcycle which has 7.50% and 5.30%, respectively. Moreover, other modes that constituted part of the mode of transporting goods across the border but are insignificant are: Push Cart, Bicycles and Animals with 0.80%, 0.40% and 0.10%, respectively. Equally or much more importantly, when the author went, as part of the Field Surveys to the border between Nigeria and the Niger Republic, particularly Maradi - Jibia Border, on 11th June, 2021 and Babban Mutum - Magarya Border on 22nd July, 2021, it was observed smugglers from Nigeria and the Niger Republic use different types of motorcycles to smuggle Rice across the border points (Figure 10).

Figure 10. The Motorcycle Usage by Nigerians and Niger Republic Citizens in Smuggling



Source: Compiled by the first Author during Field Surveys in 2021.

Figure 11. The Chart below entails Observation on existence of Porous Borders used by smugglers between Nigerians and Niger Republic



Source: Field Surveys 2021 and compilation by the first Author

As can be noted from the above Figure, each of the above motorcycle used in smuggling across Nigeria - the Niger Republic Border can do up to Ten trips of Four bags of rice per trip. It was also estimated that about fifty trailers of rice are being smuggled into Nigeria per month despite the ban of rice importation by the Government of the Federal Republic of Nigeria. Also observed during Filed Surveys was that smugglers from both countries had informers who keep informing and updating them about the checking points, routes under patrol on a daily basis and the movements of officials of the Nigerian Customs Service and Douane of Niger Republic. Such information made it very difficult for the Customs Officers to arrest smugglers using motorcycles / trailers for smuggling activities.

According to Ibrahim and Singh [2020], the Benin Republic which is an immediate neighbour of Nigeria has a population of Twelve (12) million people but was ranked in 2018 as the Fifth (5th Country) for Rice importation in the

world. That, Benin Republic imported Rice in 2018 worth $996 million US Dollars but about 98.2 % of the Rice imported by Benin Republic was smuggled to Nigeria through porous borders without making any payment as Customs Duty, taxes and other associated charges This reduced the revenue generation by the government of the Federal Republic of Nigeria.

c. Estimates of Loss of Revenue to the Governments

Nigeria and Niger Republic loss a lot of Revenue expected to be derived from the 5% chargeable Customs Duties on Commodities particularly Agricultural produce traded across Border. The Table 7 below showcases the estimated revenue loss per annum and per 3 years accordingly.

Table 7. Portrays Nigeria' Export and Import Value with estimated revenue loss per annum

S/N	Nigeria's Export Value in Naira	Nigeria's Import Value in Naira	Total Export and Import Value in Naira	5% Chargeable in Naira Value per Annum	Estimated Revenue loss in Naira per 3 years (2019-2022)
1	435,278.09 million Naira	656,612.50 million Naira	1,091,890.59 million Naira	5% of 1,091,890.59 = 54,594.529 million Naira	54,594.529 x 3 years = 163,783.587
	Nigeria's Export Value in US Dollar	Nigeria's Import Value in US Dollar	Total Export and Import Value in US Dollar	5% Chargeable in US Dollar Value per Annum	Estimated Revenue loss in US Dollar per 3 years (2019-2022)
2	$2,758.8 million US Dollars	$4,154.61 million US Dollars	$6,913.41 million US Dollars	5% of $6,913.41 = $345.67 million US Dollars	$345.67 x 3 years - $1,037.01 million US Dollars

Source: Central Bank of Nigeria (CBN, 2016), Calculated and compiled by first Author 2021

In view of the above, government charges 5% on agricultural commodities as tax or revenue but on closure of the land border, the governments of both Nigeria and Niger Republic lose five per cent (5%) which is 54,594.529 million naira equals to $345.67 million US Dollars per annum. Thus, the potential revenue loss for 3 years from 2019 to 2022 for instance will be $1,037.01 million US Dollars as calculated in the above table which is huge amount to be used in Public Expenditure on Social Sector such as Health, Education, Transport, Agriculture, Water Supply, Infrastructure (Electricity) and other welfare scheme in both Nigeria and Niger Republic. It is pertinent to note that both Nigeria and Niger Republic are developing countries that are lacking infrastructure and basic amenities that constituted the social sector. The estimated potential revenue for at least 3 years ($1,036.90 million US Dollars) is enough for both governments to construct and overlay the current dilapidated roads, provide portable drinking water which is lacking in both countries, improve the poor condition of electricity in both Nigeria and Niger Republic.

7. UNDERLYING ISSUES

Some West African countries (Nigeria and Niger Republic inclusive) are home to bulk of Africa's most dynamic and globalised smuggling networks which is a result of their ability to bypass formal regulatory structures and subvert the intentions of official governance. Yet, Meagher [2014] buttressed that, despite the perceived threat in International Policy Circles, the vast majority of West African Smuggling networks were neither criminal nor violent. It is a smuggling of contraband goods such as Rice, Spaghetti, Cooking oil, clothes (both new and old or fairly used clothes) and other classified goods both consumable and non-consumable as the case may be. It is smuggling because the Federal Government of Nigeria has closedown its land borders and yet individuals and groups smuggled Rice, Spaghetti and Cooking oil to Nigeria through porous borders not official ones.

The porous nature of the border between Nigeria and Niger Republic makes it very easy to cross and smuggle goods across. By implication, goods or commodities traded across Nigeria - Niger Republic border are not recorded. Samaila [2011] pointed out that even those goods that pass through the formal border points are under estimated. Thus, the governments of both Nigeria and Niger Republic are not benefitting significantly from the Cross Border Trade. This undermines the economic development of the countries under review.

Moreover, as argued by Ibrahim and Singh [2021, Pp. 165-180], the Contiguous Zone nature and character and characteristics of the border communities in Nigeria and the Niger Republic have always encouraged illegal trade (Informal Cross Border Trade) which acts against the whole idea of formal trade. The border community have very similar practices by way of their religion, the language, culture, traditions, same dress codes and thus have followed same historical practices. Based on the provisions of ECOWAS Treaty which allows for free movement of goods and services across all countries in the West African sub region, there is NO PUNISHMENT for whoever trades across borders illegally, in the sense that whosoever trades across border without formal documents will not be punished. While considering the comparative advantages in the two countries, Nigeria specialises in the production of agricultural produce while the Niger Republic is blessed with abundance livestock. These commodities are traded illegally (informally) without paying official Customs Duties and other taxes.

On the porosity of border between Nigeria and the Niger Republic, Tijjani [1993, Pp. 76-90] argued that the easy penetrability at the international boundaries between Nigeria and the Niger Republic can only be controlled by building a great wall around it. But building a wall has its own disadvantage because it can be argued that there is practically no family that does not depend on basic necessities that are imported from each other especially around the Borno and Yobe states of the Federal Republic of Nigeria revealing that the degree of economic interdependence around these areas of the two countries is very significant.

It may be interesting to note that Ibrahim and Singh [2020] pointed out that the Benin Republic which is an immediate neighbour of Nigeria in the south with a population of only twelve million people, was ranked as the fifth rice importing country in the world. Benin in 2018 alone imported rice worth nine hundred and ninety-six ($996) million US Dollars of which 98.2% of the said imported rice was then exported to Nigeria through smuggling and other means of informal trade without payment of appropriate Customs duties to the Federal Republic of Nigeria. This reflects the larger dimension of the problem of smuggling across countries in the region.

It is also pertinent to note that corruption and bribery at the borders aid in smuggling... Hahonou [2016] pointed out that everyday petty corruption at border control points provides supplementary revenues to state agents which

exposes the region to a number of interrelated threats including illegal trade, criminal networks, smuggling of weapons and drugs, human trafficking and spread of terrorists.

Meagher [2014] further revealed that smuggling activities in the countries of Chad Basin (Nigeria, Niger Republic, Chad and Cameroon) are largely conducted by Hausa-Fulani commercial groups who predominantly occupied the border community and hinterland of greater portion in both Nigeria and Niger Republic.

These large-scale operators involved especially in the smuggling of agricultural produce and manufactured goods have their apex markets in and around major cities such as Kano and Maradi of Nigeria and Niger Republic, respectively. Most of the agricultural produce and manufactured good are smuggled through Informal Cross Border Trade (ICBT) which accounts for a significant portion of the total trade in many African countries thereby providing major source of income and employment generation for numerous citizens of African continent. Afrika and Ajumbo [2012] estimated that Informal Cross Border Trade provides income for 43 percent of Africans and generates considerable employment for young people.

Informal Cross Border Trade and Smuggling affects economic development of so many African countries as pointed out by Tendler [2002, Pp. 98-112] as well as Titeca and Kimanuka [2012] who say such trade constitutes a "Devil's Deal" that only perpetuates itself but does not serve the long-run interests of either the government or the private sector of a given country. According to the United Nations Office on Drugs and Crime [UNODC, 2013] Informal trade (smuggling inclusive) involve two types of illegality i. in terms of the goods themselves, for example, narcotics or ii. in the manner of trading (evasion of customs duties and regulations). Both types of illegal trade occur in Africa. According to the agency West Africa serves as an important locus of international trade in narcotics by organised crime.

8. INSTITUTIONAL FAILURES IN THE PAST AND THE PRESENT

The Nigeria Customs Service (NCS) has statutory functions to play a pivotal role in the economic life of the Nigeria economy. The roles earmarked for the NCS includes: collection of custom duties, undertake anti-smuggling activities, generating statistics for planning and budgetary purposes. Other functions relate to working in collaboration with other government agencies at all approved ports and border stations.

Unfortunately, the NC S is heavily under- staffed and needs more personnel to man the legal borders and porous ones for effective and efficient manning of the land borders between Nigeria and Niger Republic. As a government institution, it lacks modern equipment and utility vehicles which help in proper border control. These factors lead to failure or inability of Customs officers to control smuggling across the land border.

The Federal Government of Nigeria on its policy of Border closure has issued a Circular with Reference Number **NCS/ENF/ABJ/058/S.24** dated 20th August, 2019 where in it was declared that there would be total closure of all borders effective from 20th August, 2019 to ensure that goods and services are not traded/moved through the said borders. The Circular instructed for strict compliance of this government policy (See Appendix I). This policy reflects mains a major governance failure on the part of the Nigeria Government. The closure led to loss of revenue through generation of customs duties and other taxes payable at the land borders between Nigeria and the Niger Republic or other neighbouring countries. On the other hand, it paved the way for smuggling through the porous borders as Cross Border Traders and Border Community cannot survive without trading or moving goods and services across border. Moreover, the policy led to collection of bribes by border security agents from traders and smugglers which expanded the extent of corruption at the land borders. Moreover, as pointed out by Babatunde [2021] that despite the government's closure of Nigeria's land borders, arms and ammunitions continued to freely flow into the country illegally.

It is strongly felt that the Bicameral legislature at the Federal level being the Legal Acts enacting Institution of the Central Government should promulgate or enact a law that will mandate the Federal Ministry of Finance to act as a Supervisory Ministry to the NCS so as to enable a legal backing to ensure that the NCS plays an effective role that it is mandated to.

9. SOME USEFUL PRESCRIPTIONS AT THE GROUND LEVEL

The study, based on the analysis undertaken above, recommends the following prescriptions so that smuggling can be reduced and revenue generation will result:

1. That both Nigeria and the Niger Republic should establish Customs offices for (Nigeria) and Bureau of *Duanes* for (Niger Republic) at all International Markets across borders thereby mandating payment of all duties. This will reduce evasion

and circumvention of payment of Customs Duties at the land Border ports of entry.

2. Border Security Agents such as Immigration, Customs and Border Security Patrol Teams should adequately be provided with the necessary equipment, be regularly trained in their use and posted and posted periodically to man the borders. Moreover, the border security agents should be substituted/replaced often and regularly to avoid building familiarity and personal relationships with Cross Border Traders.

3. Border closures should be avoided and repudiated in totality by governments of both Nigeria and the Niger Republic. In the face of closures, the Cross Border Traders use porous borders to import or export their goods across borders without payment of Custom Duties and other charges applicable on traded goods. It would be better if governments open borders and make sure that traders to pay taxes and customs duties, maybe at reduced rates. This will generate a lot of income or revenue to both governments at the same time reduces the rate of smuggling.

4. That considering the existence of "Contiguous Zone" at every border community, it is recommended that, governments of Nigeria and Niger Republic should jointly establish International Border Market at the border community to generate revenue and issue unified Receipt of payment in case of conveying such commodities or goods across border that Customs duties should not be charged so as to avoid "Double Taxation" from the buyers and sellers in the said International Border Market.

10. SUMMARY AND CONCLUDING REMARKS

It is observed that whenever people are engaged in smuggling, they earn their living and their per capita income through informal way. But this happens even when there is a formal way of undertaking trade. This has numerous consequences on the economy one of which is the reduced revenue generation for the authority in power due to avoidance and evasion of statutory taxes which, in turn, affects numerous welfare activities of a government such as health care provision, education initiatives especially for the poor and infrastructure provision, in general. As succinctly put forward by Singh [2015, pp. 28-33] good governance is needed to provide and effective and efficient administration. Accordingly, it

is pertinent to say here that an effective and efficient administration in handling Border Control issues between Nigeria and the Niger Republic is required.

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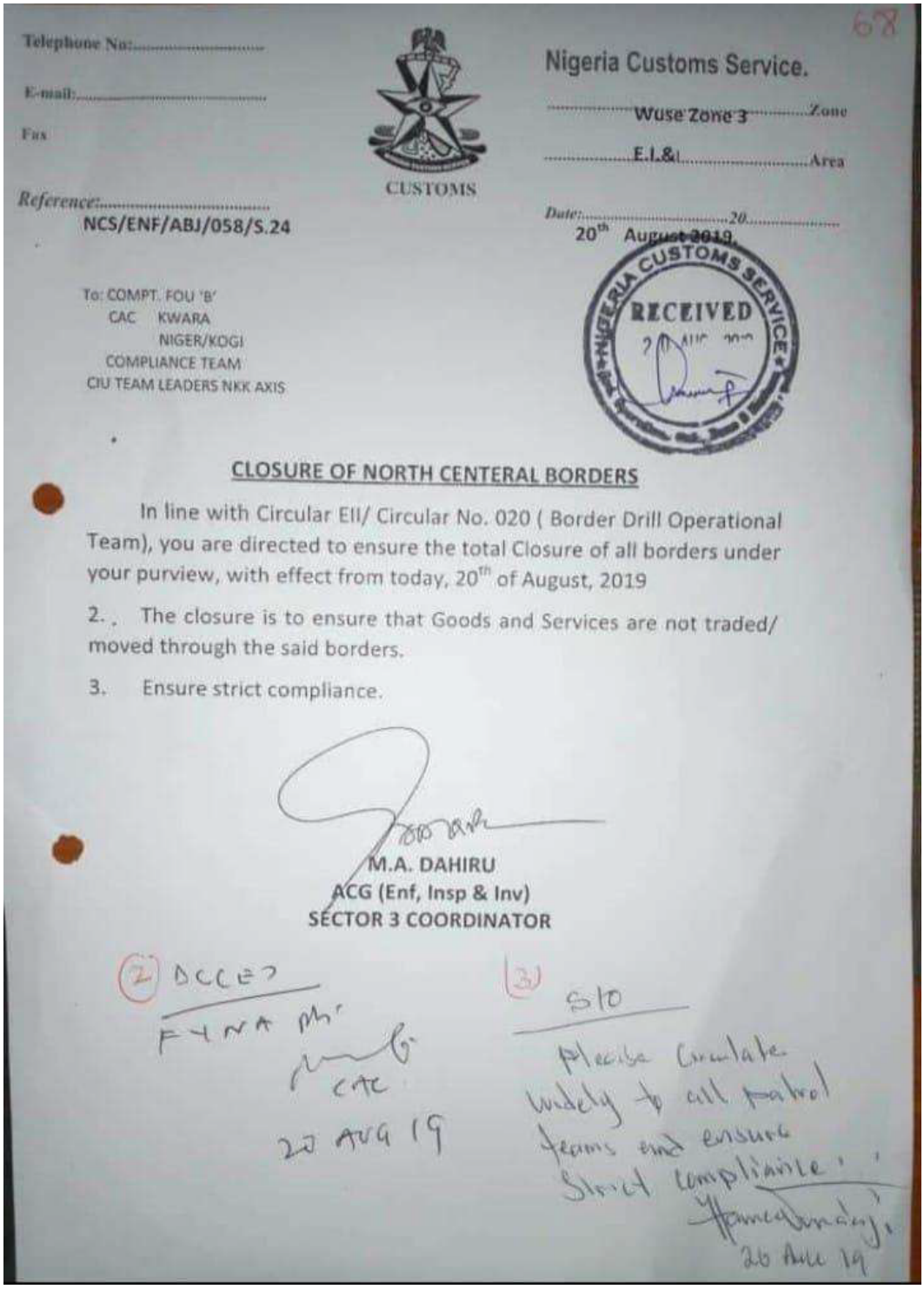

Telephone No:.....
E-mail:.....
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Reference:.....
NCS/ENF/ABJ/058/S.24

CUSTOMS

Nigeria Customs Service.
.....Wuse Zone 3.....Zone
.....E.I.&I.....Area
Date:.....20.....
20th August 2019.

NIGERIA CUSTOMS SERVICE
RECEIVED

To: COMPT. FOU 'B'
CAC KWARA
NIGER/KOGI
COMPLIANCE TEAM
CIU TEAM LEADERS NKK AXIS

CLOSURE OF NORTH CENTERAL BORDERS

In line with Circular EII/ Circular No. 020 (Border Drill Operational Team), you are directed to ensure the total Closure of all borders under your purview, with effect from today, 20th of August, 2019

2. The closure is to ensure that Goods and Services are not traded/ moved through the said borders.

3. Ensure strict compliance.

M.A. DAHIRU
ACG (Enf, Insp & Inv)
SECTOR 3 COORDINATOR

(2) DCCE?
FYNA Mr
CAC
20 AUG 19

(3) SIO
Please Circulate widely to all patrol teams and ensure Strict compliance.
20 Aug 19

V.M. DANDEKAR: SOCIAL SCIENTIST WITH A DIFFERENCE

Nilakantha Rath

Vinayak Mahadeo Dandekar, the first Editor of this Journal and the founder President of the Indian School of Political Economy, who died on 30th July, 1995, at the age of 75, was an unusual Indian Economist in many ways. He had no formal university training in economics beyond the undergraduate level. He studied statistics, a new subject in the Indian University set up at the time, in Professor P.C. Mahalanobis's newly fledgling Indian Statistical Institute at Calcutta and took the Master's degree of the Calcutta University with a gold medal. He obtained admission to the Ph.D. programme in statistics of the University of London. But he was one of the large number of Indian students booked by a steamer to London, who walked out of the steamer at Bombay as a protest against the treatment meted out by the Company, and that saw the end of his further formal education and trip abroad for the purpose. He spent a year as a statistician in the Government of Bombay before joining the Gokhale Institute of Politics and Economics at Pune in its newly established Dorabjee Tata Section in Agricultural Economics. Here began a lifelong association with that Institute, and his career as a researcher in economics.

In analytical economics, Dandekar was largely self-taught. He was not a wide reader; but whatever he read, he read with a sharp, inquisitive and critical mind, His reading of economic analysis never ceased. He read such literature in order to examine the empirical reality. After retirement from the Gokhale Institute of Politics and Economics he spent considerable time reading the Sraffa and von Newmann models and the related literature in order to provide an analytical base for the observed pattern of salaries, wages and income distribution.

Dandekar began his career in economic research on the eve of planning for economic development in India and he unavoidably became one of the main analysts of economic policy in the country.

During his first ten years in the Gokhale Institute he worked on a number of subjects like measurement of national income, stagnation and lapse into illiteracy in primary education, the first demographic survey of a district in India, application of statistical methods in

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anthropometry, and his only paper in statistics. But his main intellectual preoccupation was India's rural economy.

II

His first five years were spent in doing various village and farm surveys which provided an enduring basis for his perceptive understanding of the rural economy and society. This experience and understanding soon came in handy at the time of the first round of the National Sample Survey and the Rural Credit Survey.

Prof. D.R. Gadgil, a member of the National Income Committee, had differences with the chairman Prof. P.C. Mahalanobis on the design of the very first round of the National Sample Survey, indeed on the very idea of an all-embracing statistical survey organisation. In order to try out the different ideas, it was agreed to entrust one-third of the total sample to the Gokhale Institute to conduct the survey according to the Institute's scheme. Dandekar was the designer of this scheme, and wrote the final report. This was the first survey attempting, amongst other things, the measurement of the magnitude of rural employment. While the subsequent rounds of the N.S.S. incorporated some of the enquiry items and forms of the Gokhale Institute survey, the employment part of it was ignored till after the first all-India Agricultural Labour Enquiry in 1950-51.

Dandekar was closely associated with the design of the questionnaires of the All-India Rural Credit Survey (RCS) of the Reserve Bank of India; he was in charge of the tabulation of the survey data, and wrote two of the district monographs.

His survey report into the working of the Bombay Tenancy Act of 1948 brought out clearly the limitations in the implementation of the law fixing the maximum rent payable and restricting the termination of tenancy. The greater power in the village of the larger landowners who leased out land and the weaker position of the tenants made it very difficult for the latter to seek redressal of their grievance under the law. The implication was termination of tenancy by transfer of ownership right to the tenants. This is what was done by the new Bombay Tenancy Act of 1956 - a revolutionary step at that time.

Subsequently, in a review (1962) of the various enquiry reports into land reforms, sponsored by the Planning Commission, Dandekar brought out clearly the fact that in different states, the small landowning lessors constituted half or more of all

lessors, but they leased out only a very small proportion of the total land leased out, and that to not only other small tenants, but also to medium and large landowning tenants. The smaller proportion of large landowning lessors leased out very large proportion of total leased land, mainly to small tenants. With this evidence, Dandekar argued that the implementation of any land-to-the-tiller legislation (like the 1956 Bombay Act) would take only half the time, while covering the bulk of the leased land, if the implementation of the law were to exclude the small landowning lessors from its purview. The government of Maharashtra took nearly two decades to legally decide all transfer cases under the 1956 law, when following Dandekar's plea, it could have been completed in half that time. Moreover, applying the law, virtually abolishing tenancy, affected the small landholding lessors adversely in many ways. It led to poor cultivation of such land reducing the little income from it. It made decision to migrate for alternative work opportunities difficult for the poor landowners. And, it resulted in the small landowning lessors losing their land to medium and large landowning tenants. The government of Maharashtra reversed this unhappy consequence, in some instances, in the middle seventies, following agitations by small tribal landowners. In states where the land-to-the- tiller laws were not passed or implemented, incidence of tenancy steadily declined, partly because of the fears and uncertainties associated with tenancy protection and land ceiling laws, but mainly because, following the introduction of new technologies in agriculture, the larger land-owners found it more profitable to cultivate land on their own than lease out. This led to a situation where it was largely the small land owners who continued to lease out land, a significant part of it to medium and large farmers - a phenomenon that in recent years has been characterised as 'reverse tenancy', without remembering that this had existed in the past as Dandekar had pointed out.

Towards the end of his life, which was four decades after the land-to-the-tiller legislation in Bombay Presidency, he persisted in his proposal to free small landowners from the rigours of such a tenancy law. He also advocated a gradual raising of the land ceiling. Both these, he felt, were necessary because of the pressure of population on land on the one hand and the possibilities opened up by the new technology in agriculture on the other. He had argued that co-operative farming, advocated in the first and second Five-Year Plan Reports, would reduce labour employment unless the co-operatives were operated on feudal lines. Therefore, they cannot be the solution to the problems faced by small farmers in

India. The proper way to prevent exploitation of labour in rural India, he argued, was for the state to ensure employment for labour at a minimum subsistence wage.

His study on the use of food surpluses for economic development, conducted at the instance of the Food and Agricultural Organisation (FAO) in 1956, gave him, for the first time, an under standing of the irrelevance of the time measure of unemployment amongst the self-employed and even some wage-employed in rural India. He advocated assured daily employment at a minimum subsistence wage rate which would lead to self-identification of the unemployed and the underemployed. Such employment programme in the public sector was proposed by him for the use of food surpluses.

This later formed the basis of the famous monograph *Poverty in India*, (written in collaboration with N. Rath) in 1971. Poverty is an income related concept. But data on income distribution were not available. Therefore, consumption expenditure data were used for the purpose. Since the line - the Poverty Line - had to be drawn at some level of per capita consumption expenditure, that level of per capita expenditure which enabled the consumer to consume food that gave the necessary k. calories was defined as the poverty line. The line was based on the average calorie availability in different per capita expenditure groups; and this was different for different states of India. Poverty and unemployment are, of course, two different concepts. But, it was argued that the two were strongly related. Excluding the bottom ten per cent population which was poor because of old age or heavy dependency load on the earners, it was suggested that the remaining were poor because of unemployment or very low earnings - less than the subsistence level wages. It was shown that if able bodied persons in these households had full employment during the year at the prevailing daily wage rate, they would not have been below the poverty line. The difference between the average subsistence wage rate or the per capita daily expenditure on the poverty line and the observed average per capita expenditure (or earning) of the poor (the ratio of the latter to the former was, later on, christened as the Sen Index) provided the basis for estimating the employment to be generated at the subsistence wage level for eradication of poverty. How was this employment to be generated? Dandekar had earlier been very critical about the promotion of household industries for the purpose and had illustrated his criticism with detailed examination of the Ambar Charkha programme. In *Poverty in India*, the theme was elaborated to show that it

was in effect a very expensive administrative device to distribute an equal amount of subsidy. What the monograph advocated was a rural works programme for creating various common facilities and infrastructure in the countryside, which would provide wage work to the people to get over poverty. The state government of Maharashtra alone formulated such a project, which, with all its inadequacies and limitations, attracted wide attention in the country and outside.

Dandekar later on went forward to suggest either labour co-operatives or a land army of workers in order to ensure regular wage employment anywhere - not only near the village - at a better than subsistence wage.

Dandekar never repeated this exercise of measurement of poverty; for he considered attention to poverty eradication measures as more important and relevant. Towards the end of his life he was associated with a Planning Commission Committee on measurement of poverty in India. It is surprising that he signed this report; for, its recommendations were contrary to his earlier formulations, and he later criticised the recommendations of the Committee in the second volume of his collected writings (now in press).

Dandekar's long debate with Dr. P.V. Sukhatme (from whose study were taken the k.calorie norms for estimation of poverty) related to the statistical method used as also the data base of Sukhatme's later formulation of a lower k.calorie norm.

His long critique of Prof. T.W. Schultz's *Transforming Traditional Agriculture* shows Dandekar at his critical best. While not disputing Schultz's case for technological improvement for transforming traditional agriculture, he pointed out the irrelevance and flaw in two of Schultz's major preludes to his central thesis. He showed the author's contention of absence of rural unemployment or underemployment in traditional agrarian societies to be highly questionable and pointed out its irrelevance to the author's central thesis. He made a distinction between the viable and the non-viable segments of traditional agriculture and argued that increase in rural population and labour will lead to deterioration of the land, labour and capital of the non-viable segment and consequent downward sliding from the equilibrium visualised by Prof. Schultz.

This also led him to write a paper on the logic of price policy in agriculture. A paper by P.N. Mathur and M. Ezekial published in *Kyklos* purported to show

with empirical data that Indian farmers had a backward bending supply curve for foodgrains due to a fixed cash need of the farm household for expenditure on non-farm products. Dandekar pointed out that the data had been wrongly presented and handled, and, when correctly examined, showed no such thing. It is surprising that long after the publication of Dandekar's paper, the *Kyklos* article is found quoted by scholars as evidence of a backward bending supply curve in agriculture. In his article, Dandekar went forward and explained why in Indian conditions supply of farm products would respond favourably to rising relative prices.

These formulations about price response of farm production led him to formulate a scheme for marketing of foodgrains in India in which inter-district trade would be handled by trading monopolies in every district, helping thereby competitive equalisation of prices across the country. In such a situation, the state can obtain any quantity it needed for the public distribution system and buffer stock by pre-empting purchase at the highest bid auction price in different regulated markets in the country. Dandekar was opposed to restriction on free movement of agricultural commodities and preferred the state subsidising sales through the public distribution system than forcing producers to bear a part of this cost through restriction on movement and forced deliveries at lower than market price.

When the government had almost given up the idea of introducing crop insurance, Dandekar wrote a paper advocating a limited insurance scheme to cover the 'crop loans' (short term production loans) taken by the farmers. On the General Insurance Corporation showing interest in the scheme, he formulated detailed schemes for different crops in such states where the corporation and the state government came forward to introduce it. He worked as an adviser to the corporation for a number of years in the beginning.

Another question relating to agriculture in which Dandekar took great interest related to flow irrigation in the dry water-short regions, like most of Maharashtra. A couple of enquiries by his colleagues in the Gokhale Institute showed that the prevailing sugarcane based flow irrigation yielded the lowest incremental production and income per acre-inch of irrigation water. As a member of a three man committee on irrigation set up by the state government, Dandekar was able to persuade his colleagues, including a senior irrigation engineer as secretary of the government, that the proper economic and equitable approach to the use of canal water in such

regions should be to restrict its use over a period of eight months than the whole year. This would prevent flow irrigation water being used for growing crops like sugarcane. This created a large body of favourable public and farmer opinion in the dry agricultural regions, forcing policy makers to move in the direction, though very slowly and haltingly.

Another problem on which Dandekar wrote a number of articles in the later half of the sixties with his usual logic, gusto, combativeness and sarcasm was the problem of cattle in India. There was persistent demand from different quarters - religious leaders, the Rashtriya Swayam Sevak Sangh, the sarvodayists, etc. - for a law to ban cow slaughter. Dandekar wrote a paper on the problem of surplus cattle in India, in which he showed that for the steady supply of the requisite number of bullocks as draught animals and for increased production of milk, it was not necessary to have the existing stock of cows nor maintain all the offsprings year after year. 'Family Planning' for cows was contrary to the interest of milk production. The growth in numbers of cattle, including calves, was also contrary to the economics of increased milk production as well as manure supply. There was, he argued only one logical option - slaughter of unnecessary animals. While the print media and the state controlled radio gave wide publicity to Dandekar's writings on the subject, he was strongly opposed by the advocates of ban on cow slaughter. Though cow slaughter was ultimately legally banned in most states, Dandekar's writings gave a fillip to the study of cattle economy in India.

Dandekar worked as a chairman or member of a number of committees of the central or state government and of financial institutions on matters relating to the rural economy, where he made substantial contribution to the formulation of the recommendations. He worked on pricing of farm commodities in the public distribution system and on identification & small farmers for supply of credit at concessional rates. As a member of the K.N. Raj Committee on Agricultural Taxes, he made substantial contribution in the formulation of the proposal for an agricultural holding tax in place of land revenue.

III

Till about the middle of the seventies, Dandekar was preoccupied with the rural economy. From around that time he turned his attention to other aspect of the economy.

In 1962, his services had ken lent by the Gokhale Institute to the State Government of Maharashtra to work as an Officer on Special Duty to tour and report

on the functioning of the newly created Zilla Parishads as planning bodies for the districts. This gave him an opportunity to understand not only the attitude and orientation of the elected members but also the pressing needs of the villages requiring attention from the state. This experience was very useful to him when he was appointed by the state government as chairman of a Fact Finding Committee on Regional Imbalance, a politically burning issue at the time. Dandekar and his colleagues in the Committee examined the facts not at the level of the three broad regions but at the Taluka/District level. The Committee recommended an approach to eradication of such regional imbalance in all items that were the prime task of the government in this country. The method required budgetary allocation to talukas/districts that were below the state average in order to bring these up to the level of the state average. The same exercise was to be repeated with the new state average, until, by such successive measures, the entire state was provided with the facilities which were the state's sole responsibility. Such a scheme of allocation, by rule rather than by discretion, however, was not to the liking of many politicians in all parties. The result was a perfunctory decision by the government which amounted to the filing of the report without taking a decision on it one way or the other. Nevertheless, it must be admitted that the Committee's suggested approach was relevant for every state in India; for, regional imbalance is a common phenomenon in all states.

He strongly advocated decentralization at every level. He was not only for greater freedom and resources to the states in matters like agriculture, health and education, but also asked for decentralisation in such matters to districts, talukas and village panchayats. He argued that decisions by beneficiaries and users would bring not merely greater accountability but also ultimately greater control by the local population.

He advocated labour's participation in the management of industry through shareholding. As a corollary to this, he strongly pleaded with the government as well as the concerned unions to allow labour to take over the management of sick mills.

Dandekar had come to recognise two different classes in the urban industrial context - the organised and the unorganised, and in the agricultural context the viable and the non-viable farmers (including the landless labour). He realised that the organised sector gets a rental while the unorganised sector is reduced to subsistence wages, or less, and unemployment. He used the Sraffa and von Naumann models to ultimately

explain this type of dualism. He was therefore greatly uncomfortable with the high and rising salaries and earnings in the organised sector and was pleading for a cut in their consumption expenditure to provide a subsistence minimum to the poor in the unorganised and non-viable sectors of the economy. While pleading for a freer market economy, he advocated a support price for rural labour and an appropriate fiscal policy to raise and transfer the resource.

He put on khadi all his life. But he was not a Gandhian economist. In a special lecture he paid tributes to Gandhi for not merely his high moral stance but also his consistency. Nevertheless, he found Gandhian economic advocacy unsatisfactory because it did not square with the needs of minimum welfare of a growing population.

During the last two decades of his life he was writing frequently on budgetary and monetary problems in which he was greatly concerned with rising revenue deficits and monetary expansion fuelled by governmental borrowings to fill the gap.

IV

Dandekar spent his professional life at the Gokhale Institute as a researcher, and as its Director for the last thirteen years when he was simultaneously the head of the University of Poona's Department of Economics. But he was not a regular teacher; he had taught classes, post-graduate and undergraduate, off and on. His greater contact was with college and university teachers for whom he very regularly organised refresher courses. He was greatly disturbed at the poor level of teaching and the equally poor and unreliable examination system. He wrote about both these. But he was not one to only describe a situation, but one to prescribe a solution. In the field of examination he advocated a way of framing questions and setting questions for examination that would obviate the possibility of leakage and copying. He advocated a system of higher education, following Adam Smith, in which tile teachers were to be paid by the students for what they received in education. It is not surprising that in a seminar on the subject organised by the University Grants Commission, most participating Vice-Chancellors did not find his proposal acceptable because they thought the deficiencies of the existing university system arose mainly because of the large number of affiliated colleges. Since no one in the country appears willing to seize the bull by the horn, the matter is being sought to be slowly tackled through the backdoor by the entry of private universities.

His article in the sixties on Brain Drain, written with characteristic punch and sarcasm, attracted wide attention, but of course, made little impact otherwise.

Unlike many academic economists, Dandekar was not an ivory tower scholar. He was ever willing to participate in meetings of farmers, farm labourers, workers, etc., not only to discuss problems with them but also on occasions to participate in their demonstrations. As a result he was possibly the most well-known and respected economist in the rural as well as urban areas of Maharashtra.

He was very strong in his conviction that the decision making at various levels - the central, the state, the local and the co-operative - will improve if the elected representatives of the people at these levels are properly informed about the facts of the economy and the polity and the way to read these facts for understanding their relevance for various policy advocacies.

For this reason, in 1969-70, when he was on long leave from the Gokhale Institute, he set up the Indian School of Political Economy at Lonavala, with the major object of training the people's representatives in the facts of Indian economy and polity. His close friends and associates in this endeavour were rather sceptical about the willingness of these representatives from Parliament downwards to Zilla Parishads and co-operatives to participate in such an endeavour. But Dandekar persisted, to start with by organising two-week courses on different subjects of relevance for the Zilla Parishads, Co-operative Banks and Sale-Purchase unions as well as the Legislative Assembly's elected members during three years 1972-75. The programmes were a great success; his sceptical associates were converted, and the participants were so enthusiastic as to ask for a regular arrangement for such continuous learning and interaction. But this promising experiment came to an abrupt end with the declaration of Emergency in 1975. Dandekar tried to persist by organising sessions on the 20 Point Programme. But the elected political persons at the district level felt completely disheartened and disinterested since they saw that they had become utterly irrelevant in the new scheme of things. The lifting of Emergency could not bring back the earlier political ethos for political workers, particularly of the Congress party, and the experiment was given up. Dandekar, as the Founder-Director of the School, and later its President, made the publication of a research journal devoted to the review of development of the Indian economy and polity since Independence, the main work of the School.

He worked on a large number of government committees. From 1970 to 1980, he was Chair man of the National Sample Survey Organisation of the Government of India. He was chairman/member on many committees on land reform, on automation in industry, on reorganisation of the Life Insurance Corporation, and on National Accounts. Except for a one year stint with the F.A.O. in the middle fifties as a consultant on land reforms, he never sewed in any international organisation, though he attended many conferences and seminars abroad and presented papers there. For nine years he was president of the Indian Society of Agricultural Economics which post he voluntarily relinquished on reaching the age of seventy-five. He carried on the tradition of the society so ably developed by Prof. M.L. Dantwala and strengthened the research and training activities of the Society. The Indian Council of Social Science Research and the University Grants Commission honoured him with fellowship and prize. He was elected president of the annual conferences of the Indian Society of Agricultural Economics in 1967, of the Indian Economic Association in 1973, and of the Indian Society of Labour Economics in 1987.

V

His personal interests were wider than economics. Right from his M.A. days in Calcutta, he was fascinated by the possibility of a statistical analysis of astrology which he considered essentially an empirical subject. Whenever he had a little time, he used to collect horoscopes and try out statistical analysis of particular aspects. Some years ago he read a book by two distinguished scholars of England on astrology. In order to write a foreword to a Marathi translation of this book, he carried out statistical analysis of some summary data to relating to twentyfive thousand horoscopes collected by two French scholars reported in this book. He found the preliminary results fascinating enough to try to obtain the original data a more systematic analysis. But death snatched him away before he could use the data.

Music was matter of great personal interest to him. He had tried his hand at writing notations for Indian classical music. He was also a lover of drama and cinema and had written a full film script on a story by him which is still lying in the heap of unexamined scripts with the Doordarshan.

In all these matters Dandekar preferred to do it himself rather than be a passive listener or observer. He often used to quote the remark of the late Mr. Higginbotham, who in reply to a strong criticism of Gandhi by a western educated young Indian as one who abhorred fine things in

life, like music and dance, said, "Gandhi did not advocate watching dance by others; Gandhi said, 'Dance yourself'".

VI

Dandekar was distinguished for his logical and original mind. On every matter under discussion his formulation was original and refreshing. What is more, he was not merely a critic but always had a positive proposition or suggestion to make. His habit of carrying any basic idea to its logical end sometimes resulted in his advocacy of particular public policy finding few acceptors at the political and administrative levels. In his enthusiasm for a logical and equitable solution he sometimes did not fully recognise the limitations of the existing administrative set up. Political considerations were another matter which, beyond a point, did not bother Dandekar.

He was outspoken, enjoyed public debate, and was no respecter of personality. At the age of ten he left home because of differences with his father, and went through school and college with the help of scholarship and private tuitions. He was a favourite student of Prof. Mahalanobis; but he carried on a serious and sharp debate with him on the National Sample Survey in the very beginning. However, Prof. Mahalanobis expressed great happiness to him when he became chairman of the N.S.S.O. in 1970. He worked closely with Prof. D.R. Gadgil, but differed sharply with him in the matter of the Gokhale Institute. He had been a worker in the Rashtriya Swayam Sevak Sangh through school and college days; but, not unexpectedly, fell out because of its authoritarian ideas. He engaged in sharp public debate against Golwalkar Guruji on his ideas on *Chaturvarna*. On cow slaughter his debate with and attack on the Shankaracharya were well known. His unscheduled public debate in a public meeting in Pune with Shri Y.B. Chavan (the then defence minister of India) on Maharashtra's economic performance reverberated through the length and breadth of the state. He spoke against the Emergency and was unafraid of the threats of Police action.

In writing and speech Dandekar could never resist the temptation of making a sharp sarcastic comment. This was not to the liking of many; but most of them remained his friends till the end. In his earlier years his criticism of the papers of fellow scholars, young and old - in the Gokhale Institute and elsewhere - was devastating. The younger scholars were often scared away to the point of forgetting the positive Suggestions. With advancing years Dandekar mellowed, particularly with younger people.

Dandekar was something of a perfectionist, and wanted to mould the world in his image. If any draft paper or monograph shown to him had a central, useful and relevant point, Dandekar wanted to rewrite it the way he would, or ask it to be rewritten that way. The result was unfortunate; he had no time to rewrite every such document, and authors avoided him fearing their pieces would never see the light of day. Many young and not - so - young colleagues who would have benefitted from his criticisms, therefore, could not. In the last five years of his life a very mellowed but basically unchanged Dandekar, as Editor of the *Journal of the Indian School of Political Economy*, spent almost all his time in editing the papers that came for publication. His style of editing must have made most paper writers feel grateful, but set almost impossible standards for his successors.

Dandekar was not a religious man in the conventional sense. But he loved the Ganesh idol greatly: one wonders if it had anything to do with his own name. His idea of secularism confined to public institutional conduct. In private life, he was willing to let people behave as they pleased. He was very much of a Marathi Brahmin despite his wide contacts.

He had a strong sense of values and was unwilling to take any lessons in it from any one. He had no financial greed or aggrandisement. But he had, at the same time, a fascination for the successful clever man, resulting in his doing a tight-rope walk in dealing with such people.

In personal dealings, he was considerate; but he cannot be described as an affectionate person. Though he had a very wide circle of friends, he was basically a loner. He never indulged in entertaining people. Despite his wide public standing, one had the impression that he was more feared than loved. He uncompromising, and that went with his loneliness.

He was a very organised person. No letter remained unanswered for more than twenty-four hours. No time schedules were overshot or forgotten. Death came to him suddenly; had his doctors given him the slightest indication of his suspected illness and its risk, Dandekar would have done everything to keep his word with his publishers about the third volume of his collected writings, which must now remain unpublished.

In his death India has lost a very unique social thinker and advocate of social causes.

DOCUMENTATION

The purpose of this section is to make available to the readers official documents such as reports of committees, commissions, working groups, task forces, etc., appointed by various ministries, departments, agencies of central and state governments and international organisations, which are not readily accessible either because they are old, or because of the usual problems of acquiring governmental publications, or because they were printed but not published, or because they were not printed and remained in mimeographed form. We also present in this section, official documents compiled from scattered electronic and/or other sources for ready reference of the readers. It will be difficult and probably not worthwhile to publish the documents entirely. We shall publish only such parts of them as we think will interest our readers. The readers are requested to send their suggestions regarding official documents or parts thereof for inclusion in this section.

We are also keen to publish Papers, Notes or Comments based on the material included in this section. We invite the readers to contribute the same to our journal, which we shall consider for publication in subsequent issues of the journal, after the usual refereeing process.

In the present section, we publish:

1. Primary Education in Satara District, Report of Two Investigations, 1955.

PRIMARY EDUCATION IN

SATARA DISTRICT

REPORT OF THE TWO INVESTIGATIONS

By

D.R. GADGIL
V. M. DANDEKAR

1955

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PRIMARY EDUCATION IN SATARA DISTRICT
Reports of Two Investigations

D.R. Gadgil and V.M. Dandekar

FOREWORD

This publication contains reports of two investigations which were conducted by the Institute on behalf of the Government of Bombay and which have been previously published by the Government of Bombay. Both the investigations were concerned with aspects of the working of the system of primary education in Bombay State and both related to Satara District; the investigations were also conducted within five years of each other.

One aim of this publication has been to incorporate in the series of publications of the Institute reports prepared by the Institute which had been previously published elsewhere. Further, the reports though published by the Government of Bombay are not readily available now. They contain, I believe, materials regarding the subjects of investigation which are useful not only in themselves but also because of the great dearth of similar surveys of Indian conditions in other parts of the country. Apart from the actual findings, the definition of concepts and attempts at their measurement made in the investigations may also be found of interest. Moreover, the socio-economic data contained in the reports and their relations to educational conditions should also prove valuable.

The conduct of investigations and the writing of reports was entirely the responsibility of the Institute and the Government of Bombay bears no responsibility in the publication or the findings contained in it. I am greatly thankful to the Government of Bombay for permission granted to reprint the reports and to include them in the series of publications of the Institute.

Poona, 16th December 1955. D. R. GADGIL.

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D.R. Gadgil

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CHAPTER I
INITIATION AND PROGRESS OF ENQUIRY

1. Initiation.— The investigation originated in a letter from the Director of Public. Instruction dated 1st July 1941 enquiring whether the Institute would undertake an investigation into the "Problem of Lapse into Illiteracy". This investigation, the letter indicated, was to be directed not only towards ascertaining the incidence of lapses in illiteracy, in a particular area but also the causes for such lapses, social, economic, etc. In reply to this query the Institute expressed readiness to undertake the investigation and submitted a note written by the Director on the project of this enquiry. A portion of this note dealing with the plan of the project is given below.

"An enquiry into relapse into illiteracy must proceed by collecting information about a sample of the population which is expected to suffer from such relapse. This population consists obviously of persons who have passed through, the public primary schools. A sample of this population can best be collected by preparing from the registers of a selected number of primary schools lists of the names of past pupils. The sample need not embrace the entire number of the ex-pupils of these schools. There is little doubt that those who have been less than 3 years in a primary school do not gain sufficient proficiency in letters to remain literate in after-life. It is, therefore, not necessary to enquire into the present attainment of those who did not put in a full year in Standard II* On the other hand the chances of relapse of those who have continued education after passing Standard IV of the present primary system, are insignificant. Also in the majority of our primary schools no provision is made for education after standard IV. Hence the ex-pupils of primary schools to be included in the enquiry should be those who fall between these two limits, i.e., being in standard II for at least a year and passing standard IV. The only way of preparing the lists of these ex-pupils. is to take down their names from the registers of the schools. Definite limits may be laid down as to the period relating to which the enquiry should be conducted. Pupils who were at school less than five or three years ago need not be included in the sample; on the other hand a limit, say 1910 or 1915 may be laid down, farther back than which it is unnecessary to go. The enquiry will, of course, be confined to males.

"The above indicates the class of ex-pupils of primary schools into whose present literacy attainment the enquiry

* In the actual investigation all who had left in the 2nd standard were included.

has to be made. In order to be able to draw valid conclusions the sample enquired into should comprise pupils front all types of schools and all types of environments. This consideration will have to be borne in mind in making up the list of places from which schools are selected. The three main types of schools to be considered are (*i*) IV standard one-teacher schools (*ii*) IV standard schools with more than one teacher (*iii*) VII standard schools. The variations in environment are, of course, considerable. The main factors taken into account in this connection will be the size of village, its accessibility and the character of its agricultural economy. In order to bring out the difference, if any, made by urban or semi-urban conditions there should be included in the sample a few schools from a taluka town, a district town and a city.

"When the composition of this sample of village and other schools is determined the enquiry will proceed by initially compiling lists of the ex-pupils for each school who are to be the subjects of the enquiry. On the preparation of these lists it will be ascertained as to how many of these are residents of the locality and how many have either gone away or are dead. The individual enquiry form, which will be the main instrument of the enquiry, will be filled in for all those in the list who are local residents. An attempt may be made, if possible, to fill in the forms in respect also of a proportion of those who are away. In the individual enquiry form an attempt will be made to collect particulars about the following items regarding each individual. Name, age, religion and caste, earner or dependent, nature of present employment, annual income, years at school, standards attended and examinations passed, post-school educational history, occupational history, migration history, present literacy status, opportunities and habits of reading, occasions for writing.

"The, crucial point in this enquiry will be the definitions of "literacy" and "relapse". It is suggested that the census definition of literacy may be adopted for this purpose and that the class of partially literate, i.e., those who are able to read but are not able to write should also be separately indicated. The details of these definitions and the test to be administered for determining the standard of literacy will have to be fixed in consultation with experts.

While the individual enquiry form will give the bulk of the data, information will have to be collected also about the general environmental conditions of each place from which a school has been included in the sample. The information to be collected will relate chiefly to such features as, nature of approach road, situation on or away from a motor route, distance

from market centre, existence of a post office, a co-operative society, or a reading-room or library, number of newspapers received in the village, nearness to any private educational or philanthropic activity centre, etc.

'It remains to say something about the size of the sample and the area to which it may refer. In order that the various types of educational, environmental, social and economic differences be adequately represented in the sample it seems necessary that the total number of persons included in the enquiry should be between 5,000 and 6,000. On the assumption that in villages with IV standard schools the number of ex-pupils locally available will be 40 on an average and that the corresponding number will be about 100 in villages with a VII standard school, it is proposed that the sample should be made up of ex-pupils of 75 IV standard schools and 25 VII standard schools. To this will be added the number at the rate of 200 for each place of ex-pupils from selected schools of a taluka headquarters, a district town and a city.* As to the area from which these places, are to be chosen, it is suggested that the area should not be larger than that of a big district. If the area is much larger than this there is the danger that the sample will include persons from very dissimilar social environments. In which case it will be difficult to draw valid conclusions from the data collected. In case it is desired to conduct a simultaneous enquiry into the various regions of the province it will be necessary to institute an enquiry into each one of the broad regional divisions of the province, i.e., Gujarat, Konkan, Maharashtra and Karnatak. Or it may be thought desirable to undertake one specimen enquiry immediately and repeat it later in the light of this experience in other parts.

"If the enquiry is entrusted to the Institute, in view of previous rural work and connections, the Satara District will be found to be the most suitable area. The Institute will be ready to undertake an all-Province enquiry also if it is to be conducted simultaneously."

2. *Progress of Enquiry*.— Originally it was contemplated that the Institute should conduct directly the whole of the enquiry including the field work. However, it was later decided that the Institute should plan the enquiry, supervise the collection of the data and tabulate the data and prepare the report of the enquiry, while the actual field work would be done by the Deputy Educational Inspector and his assistants, with the help of the administrative officer, and teachers in charge of Primary Schools in the villages

* This item of the programme was later omitted.

selected for enquiry. After the plan of the enquiry embodied in the Director's note was approved by the Director of Public Instruction the next step was to prepare questionnaires for collecting information regarding villages in which the Schools chosen were boated and regarding the educational, economic, social, etc., condition of the persons tested during the enquiry and the passages to be selected for the reading and writing tests. This was completed and the questionnaires and passages got printed by October 1941 and the first Conference of field workers in the investigation was held at Satara on 28th, 29th, November 1941. In this conference the list of schools chosen by me was discussed and adopted after a few modifications necessitated by local circumstances. The forms, in which information regarding ex-pupils of schools should be obtained from the school registers were also settled at, this Conference and the work of preparing the preliminary lists was undertaken immediately afterwards. In the meanwhile the Assistant Educational Inspectors were asked to obtain results of a few tests in order to discuss whether any modifications in the original plan were necessary. The results of these tests were discussed in the next conference held on 6th January 1942. At this conference a number of difficulties raised by experience during field work were resolved and final instructions were given regarding the conduct of the enquiry. It was found that the non-availability of records in some schools made it desirable to substitute them with other schools where the record was complete. It was however not found possible to bring about this substitution without affecting the representative character of the sample, except in a few cases. The work of investigation proper may be said to have begun after the conference in January. It was originally planned to finish the field work completely by the end of April. This was not, however, found possible and though the bulk of the work was done during the months of February, March and April a certain, amount had to be carried through later months. Some investigational forms had also to be returned to the field workers because they were not completely filled in and the final forms came in completely only by September 1942. The final conference with field workers, especially for discussing their impressions regarding reasons for lapse, etc., was held on 3rd November 1943. The actual conduct of field work was periodically supervised by the Deputy Educational Inspector, Satara. Apart from discussing the progress and resolving difficulties in the periodic conferences of workers held during the course of the investigation, I also visited a few centres and saw, the actual work of the investigation. Mr. V.R. Gadgil, Senior Investigator of the Institute, also visited a few other centres.

CHAPTER II
THE TEST AND THE SAMPLE

1. *Definition of Literacy*. — The problem set for investigation was that of the lapse into illiteracy of those who had passed through the Primary School system of the Province. The first problem was, therefore, to define literacy and to construct a test by which the fact of the lapse into illiteracy could be gauged. The underlying assumption, in the first instance, was that before leaving School the students had become literate. From being at some stage of their lives literate, they had lapsed or fallen back into a state of illiteracy. The content of literacy must be defined before it is possible to say that there has been a falling off from it or a lapse into, illiteracy. The definition very generally accepted in discussions of the Indian question has been the one used and framed for purposes of the Indian Census. The direction to enumerators in the census is as follows:—

> "Enter against all persons who can both read and write a letter in any language, the word literate."

It has some tithes been suggested that ability to perform certain calculations should also be reckoned as part of the content of literacy. This, however, has not been widely accepted and it was not thought either necessary or desirable in this investigation to deviate froth the commonly accepted meaning of the term. Literacy was, therefore, interpreted to include, as in the census, only the two: ability to write and the ability to read. The definition of literacy in the Census has been framed obviously with reference to the most general practical use to which it is expected literacy would be put. But the census authorities do not seem to have framed a standardised test in consonance with the definition nor does it appear that any such test is used at the time of the enumeration. Census enumerators have neither the time nor, in the majority of cases, the ability to administer a literacy test to persons that are being enumerated. Therefore, the practical effect of the census definition is no more than to suggest to the enumerator or to the member of the family giving information about individuals (in case the definition is communicated to him by the enumerator) the general consideration in the light of which to register attainment of literacy.

In this investigation it was not thought possible to follow the definition used in the census. In the first instance, it would be difficult to devise a test regarding the reading or writing of a letter which could be standardised to meet all kinds of conditions and which could ensure the necessary degree of uniformity in application. The reports of the censuses, on account of the fact that the definition has been theoretically conceived and not, to

any marked or systematic extent practically applied, do not give any help regarding the formulation of a proper test based on the definition. Secondly, in respect, especially, of reading ability the reading of letters need not be considered the main field of operation of the ability in the later life of the pupil. The reading of printed matter whether as books or leaflets, newspapers or other periodicals, or various types of circulars and notifications would constitute very much the larger built of reading matter presented or available to the literate individual even in rural areas. From the point of view, therefore, of both the aim of the test and the devising of it, it was thought that reading ability should best be interpreted as ability to read printed matter. In the ability to read mere acquaintance with rudiments of the alphabet might enable one labouriously to make out words. From the practical point of view, however, such ability was of little use and reading ability had, therefore, to be interpreted as ability to read with understanding. A comprehension of printed matter presented had, therefore, to be also tested and reading ability attributed only when the printed matter was not merely read but when the reader was able to convey, in the main, what the passage communicated. In respect of writing the test had to direct itself towards finding ability to write in order adequately to convey meaning. In this respect the test could have been set with reference to matter which the person under the test independently composed and sought to convey, as in the writing of a letter. However, it was thought that uniform judgment regarding degree of attainment would be difficult if this approach was adopted. The requirement to compose sentences independently on the spur of the moment might unnecessarily upset some of the persons under test. Also the matter written could not be supposed to be equally unfamiliar to all under the test. Therefore, the administration of the test would be non-uniform. It was consequently decided to direct the writing ability test to finding out whether a person could write any matter to dictation so as to convey to a reader what had been dictated. Writing ability is much less used and required than reading ability in rural India. The most general use to which writing ability is and can be put is that of signing one's name; but the ability to sign is no real index of the ability to write in general. And this was confirmed during the course of the investigation when it was found that there were cases of people subjected to the test who being able to sign were able not only to write nothing beside but also being able to sign their names were not even able to read printed matter intelligibly. The definition of literacy evolved by us was thus somewhat as follows. Literacy meant ability (*i*) to read printed matter with understanding

and (*ii*) to write matter dictated so as to convey to a reader what had been dictated.

2. *Lapse Test.* — After having settled the definition in this manner it was necessary to devise a concrete test which would measure the fact of the lapse into illiteracy. The test, of course, was directed to attainment in the language, in this case Marathi, which the pupils had learned at School. In respect of reading printed matter the main problem was to select suitable passages in relation to which the reading test could be administered. Passages of undue difficulty had to be avoided. Also, it was necessary to postulate similar degree of unfamiliarity with them in respect of the bulk of the persons to whom the test would be administered. The first requirement, it was supposed, would be met by choosing the passages from a series of recent publications of government designed for the use of those made literate by the adult literacy campaign. Matter which was written for those who had passed through the adult literacy classes could be supposed to be of properly the type, in respect of difficulty for both reading and understanding, required for a test meant for ex-pupils of rural primary schools; three small passages were chosen from these publications. They were printed on one sheet in a fairly bold type and a copy of this sheet was supplied to each officer administering the test. The test consisted in a person reading any one, or parts of more than one, passage with understanding. More than one passage was thought to be necessary in order to enable the person administering the test to test again in case he was unable to form a complete judgment in respect of the reading or understanding of any one passage. The series of publications from which the passages were chosen had been newly brought out by Government and had not yet acquired any general circulation in the District in which the investigation was being carried out. And, as the matter was new, i.e., specially written out and not taken from any of the older books, text or otherwise, general unfamiliarity with the contents of the passages could be presumed. The officer administering the test was, of course, asked to keep the sheet with himself and not allow it to be circulated or read generally in advance so that previous knowledge was not gained of the passages by individuals to whom the test was being administered.

For purposes of the writing test it was directed that two lines from any of the passages selected for the reading test should be dictated. It was laid down that the person undergoing the test should not be allowed to have a look at the printed matter while he was writing. It was suggested that, the time taken by each person

for writing the lines might be noted on the script on which the matter was written. All officers, however, did not find it possible to do this. Wherever it was done the note was found helpful in determining the extent of the retention of the writing ability. The whole test was deliberately put at a very low level of attainment. Officers were instructed not to pay much attention to fluency or to correct pronunciation in reading. It was laid down to be sufficient, if while a person was reading loudly others could follow what he was reading and if he was able to convey, after the reading, the purport of what he had read. Obviously a precise definition of the above was impossible and there might have occurred some variation in the standards in this regard adopted by one officer and another. In the general supervisory visits no marked differences of this type were, however, discovered and the officers also did not report any difficulties in interpreting the directions. The determination of whether reading ability had been retained or not was found, on the whole, to be comparatively easy. While considerable variation would be found regarding the ease with which passages were read and understood the retention of the ability could always be fairly satisfactorily distinguished from a case of non-retention. The task was much more difficult where writing ability was concerned. As has been indicated above some of even those who have been classed as complete relapses could yet sign their names and there was very considerable measure of gradation between those who, could only sign their names and those who could write out dictated matter so as to convey what had been dictated to them. In the test almost no attention was, of course, paid to correct orthography. Not only was the correct writing of compound letters or of long and short vowels and nasals neglected but also any corruption in the writing of words which followed from the current rural usage was also neglected. The omission of a letter in writing was also condoned if this was clearly the result of insufficient attention and not an indication of the inability to write the latter. Given all this, it was yet difficult in many cases to determine whether writing ability, so interpreted had been retained or not. The difficulty was increased by the fact that in some cases officers had omitted to follow instructions completely and had not dictated the full two lines required or had dictated matter other than that in the passages. Such cases, however, were not numerous. The decision whether writing ability had been retained or not was, of course, initially made on the spot by the officer actually administering the test. But as the individual writing scripts were returned by the officers with the recorded information regarding each individual it was possible later to compare the extent to

which uniformity had been maintained in the test. On a comparative review of all the scripts the original classification of the officer was changed in a small number of cases. A change was avoided as far as possible and was made only when it was absolutely called for in the light of the recorded information and the writing on the script. It must be said that the writing ability test defined a very low level of attainment and that with even a slightly more rigorous measure perhaps as many as 5 per cent of the total number of persons, would have, in addition, been adjudged as not retaining writing ability. In justification of the measure actually adopted it might be pointed out that specially in the case of writing ability there had been, with the bulk of individuals tested, long periods of entire disuse. Therefore, their first attempts after a long period were bound to be unsatisfactory. So long as the performance of a person at the test indicated that he could without any further instruction or guidance be able to write if he had only the requisite practice the ability was not supposed to have lapsed. The measure adopted was thought to be fairly indicative of this stage of attainment.

3. *Reliability and Validity of Test*.— In relation to any test the questions that are usually asked are about its proper and uniform administration, and its reliability and validity for the purpose intended. Regarding the competence of the persons administering the test no question need arise. The officers had all some experience and training and the test was a simple one. It had been discussed with them and its operation demonstrated to them before they started work and any special problems or doubts were cleared from time to time in conferences during its course. Regarding the appropriateness of the test enough has been said above. It has been indicated how the phrase 'lapse into illiteracy' was interpreted and how the particular test was framed in the light of this, interpretation. It has also been made clear how a comparatively large degree of uniformity could be maintained in the administration of the test. Also no refined gradation of ability, attainment or retention was attempted in this investigation. Given, the definition of ability and the test the determination was only as to whether there had been retention or not. As regards validity the comparatively simple nature of the problem leads to no considerable difficulty being raised. The test was directed towards, finding out the retention of what might be called a skill rather than towards the retention of the knowledge of a mental process or of the extent of information regarding a subject. As the test had to measure not the content of knowledge or information but the possession of a skill, the problem was greatly simplified. There was in this case what might be called direct measurement.

The reading of the unfamiliar printed passage might be taken to indicate general ability to read printed matter and the particular writing test, though this raises more difficulties, might be taken to indicate general ability to write so as to convey meaning. The test might thus be taken to be sufficiently valid for the purpose and the manner in which it was framed and administered might also be taken to lead adequately reliable results.

4. *Other Survey and Census Data.* — To my knowledge no other data exist in relation to which the measure of lapse indicated by our investigation could be judged. The only field investigation which had similar aims was one conducted as part of the Educational Survey of certain districts in Mysore by Mr. Kini and whose results are noted in chapter 12 of the report of that survey.* Mr. Kini's intensive survey of lapse was confined to one village and the total percentage of lapse into illiteracy for males in the, village as a whole is given as 19 per cent. (Table 1, page 210). It has, however, to be noted that Mr. Kini's sample evidently contained students who had left school even in the earliest standard as well as those whose education was continued after the Primary stage. Also the report does not indicate the nature of the test by which Mr. Kini judged the capability to read and write nor was the test actually administered to all. Mr. Kini's data are, therefore, not strictly comparable with ours. It is, however interesting, in the light of our results, to note the following observation of Mr. Kini. "It was found that many of those who became illiterate had not gone beyond the 2nd primary class while at school". (page 212).

In this connection it is necessary to refer to the statistics of literacy included in the Indian Census. Till 1911 the instructions to census enumerators regarding the division of the population into the two classes literate and illiterate were not very specific, and were not uniform from census to census or for the whole of India. Since 1911 the test of literacy has been both uniform and continuous. Any person who can both read and write any language is to be classed as literate and only those persons are supposed to be able to read and write a language who could write a letter to a friend and read his reply. It has been taken for granted by most census authorities and by other writers who have dealt with these statistics that the data regarding, literacy available since 1911 are of a uniform type and are comparable from period to period. It is, however, difficult to accept this opinion. It has already been pointed out above that no practicable test had been laid down by the census

* K. N. Kini Report on the Educational Survey in Mysore (1929).

authorities which enumerators should or could apply to the persons enumerated. In the absence of a test the information recorded could be based only on information given by the person enumerated or Any member of his family or on certain assumptions made by the enumerator himself. For example, the report of the census of India 1921, (India Vol. I) has the following. "In the North-West Frontier Provinces where the sword is more respected than the pen there is said to have been some reluctance on the part of the tribesmen to confess to so unmanly a quality as literacy. While there seems in, various Provinces to have been an inclination for the census staff to interpret the simple and practical census criterion, in the less elastic terms of the school term, and to allow literacy only to those who had passed the 4th primary course", (page 175). That a uniform criterion was not necessarily being adopted in census enumeration was brought out when literacy in various age groups was compared. The report of the census of India 1911 already raises the question as to why the proportion of literates among persons aged 20 and over is larger than for persons in the age period 15-20. The Census Commissioner is in this case driven to such explanations as that even at the age of 15 a boy may not be sufficiently literate in the sense of being able, to write a letter and read a manuscript, in order to explain this anomaly (Report 1911, Census, page 293). The anomaly continued to be evidenced in many directions in 1921 and the report of the Indian Census for that year, reaches the following conclusion in this regard. "All that we are in a position to say, if there is, as may be expected on general considerations, any lapse from literacy for higher age period at any rate it does not appear in the Census statistics" (page 184). In connection with this question the following remarks included in the report of the Bombay Province Census, 1931, will be found interesting: —

"The Census definition of literacy is not fully satisfactory. It must necessarily be left to the enumerator to decide whether the standard has been reached. There are many ways in which the work can be scrapped quite apart from the difficulty of ever knowing for certain that a person can both read and write a letter.... The loss of literacy is a formidable problem. But there is no method of knowing how far it extends unless a special educational Census is taken for the purpose... The chief influences affecting the accuracy of the Census figures of literacy must be summarised as follows:— (1) The tendency on the part of the enumerators to adopt too lenient a standard of literacy; (2) the acceptance, of school children as literate: (3) the concealment of loss of literacy: (4) the genuine difficulty of finding out whether

a person can really read and write a letter. The cumulative effect of these sources of inaccuracy is probably considerably to over-estimate the number of persons who are literate in the sense the word is used in the Census." (page 288).

It should be noted in this connection that the remarks of the Superintendents of the Census—Imperial and Provincial —regarding the methods of enumerators and the results of their activities are themselves largely in the nature of personal impressions and opinions. While they cannot be taken to prove anything they illustrate the divergent possibilities of the interpretation and working of the census definition of literacy. The points to be emphasized are that in the absence of a test the Census record depends on either (*i*) the opinion of the person himself or of any other member of his family giving the information to the enumerator regarding literacy or (*ii*) judgment formed by the enumerator independently, based chiefly on information regarding the educational career of the person. It is obvious that neither of these sources of information can be held to be reliable in the measurement of such a phenomenon as the lapse into illiteracy. It was found, during the course of our investigation, sometimes very difficult to say definitely after even an elaborate test whether a person was literate or illiterate. On the actual administration of the test it was also sometimes found that persons who professed occasionally to write letters could not even pass the reading test laid down by us. Therefore, it is difficult to believe that the Census definition of literacy, which is really not a simple one, could have been interpreted in a uniform manner from enumerator to enumerator or from period to period. While the Census literacy statistics might, therefore, be useful in giving an indication regarding the broad facts of total numbers of the literate they could not be properly used for measuring the phenomenon of the lapse into illiteracy. No reference is, therefore, made to them at this or any later stage of the report

5. *Selection of Sample*.— After defining literacy and devising a test the next step in investigation was to select a sample of the total population. What was being investigated was obviously, in the ultimate analysis, the durability of results of or efficacy of the system of Public Instruction. The operation of the system in one fairly homogeneous District would, it was thought, shed proper light on the various aspects of the problem. The entire population who had passed through the educational system in a District could not, of course, be subjected to the test. A sample of this population had to be taken and the next stage in this investigation was to determine how the selection was to be made. The School

System is made up of a variety of types of schools and it has been freely postulated that the efficiency of the different types differs greatly. Therefore, in the composition of the sample regard had to be paid not only to an adequate number or representative individuals but also to a proper representation of those who had passed through various types of schools. This aspect was reinforced by the consideration that the products of particular schools represented, with the general rule of only one school in a village, also those who had been subjected to particular environment. It was, therefore, decided to base the sample on a selection of schools of various types and to include in the investigation the entire population of the available ex-pupils of the selected schools instead of at tempting to sample a small proportion from the products of all or a very large number of schools in the district. Obviously this approach made also, for convenience and efficiency in the actual work of investigation. The ability to retain reading or writing skill might be correlated with the length of time passed since the pupil had received instruction. In order to determine whether this was so or not and also in order to ensure a fair test for individual schools whose working and efficiency might vary from time to time, it was necessary to cover a long period over which students had passed out of the system. The question, it was considered, could be fairly determined if a whole generation of students was passed under review. On the other hand, it was thought that the liability to relapse might not be properly evidenced if only a short time had passed since the students had left the school. Therefore, all those who had left school during the five years previous to the investigation were not included in the test sample. The sample was, made to cover ex-pupils of a period of 25 years, which was thought to be long enough. The sample thus consisted of all those who had left school since 1911 but not later than 1936. Another consideration in the determination of the sample was continued maintenance of the character of school over the whole period. If a school had belonged to one type during part of, the period and had changed over for part of it to another the data regarding its ex-pupils could not be useful in interpreting differences between various types of schools. Therefore, it was thought necessary to include in the sample, as far as possible, only such schools as had not changed their type during the period 1911 to 1936. This latter consideration considerably narrowed the possibility of choice. It, however, did not materially affect the character of the distribution of the schools chosen over the whole area. In a small number of cases it was not possible to adhere strictly to the requirement regarding continuity of type.

This was specially so where such adhesion meant leaving unrepresented some particular types of areas. But such cases were not many. The sample included, it will be seen, ex-pupils only of schools that were in existence in 1911. As the equipment, teachers, type of pupils, etc., are, however, similar in schools established in later years by public authority the fact does not detract from the representative character of the sample. In Table No. 1 is given a classification of the schools in each taluka of

Table 1. Classification of Schools for Males in Satara District by Category of Teachers in 1911 and by Standard and Category of Teachers in 1940

Taluka	Schools in 1911 Category of Teachers						Schools in 1940 Category of Teachers in Schools upto 4th Std. or Below									
	Only one untr-ained tea-cher	Two or more untra-ined tea-chers	Only one trai-ned tea-cher	One trai-ned and one or more untr-ained tea-chers	Others	Total	Only one untr-ained tea-cher	Only two untra-ined tea-chers	Only one trai-ned tea-cher	One trai-ned and one or more untra-ined tea-chers	Others	Total	7th stand-ard schools	Others	Total	No. of Schools Surve-yed
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1. Jaoli	17	-	2	2	1	22	7	4	-	2	-	13	5	28	46	8
2. Karad	22	1	4	14	6	47	4	7	3	6	2	22	26	70	118	11
3. Khanapur	18	1	3	8	1	31	17	6	4	6	-	33	5	54	92	8
4. Khatav	23	-	1	11	4	39	8	3	3	7	-	21	6	51	78	10
5. Koregaon	22	2	4	16	1	45	14	10	3	10	1	38	16	44	98	9
6. Man	20	-	1	4	1	26	7	-	3	2	-	12	5	27	44	8
7. Patan	19	3	3	6	2	33	6	4	3	8	-	21	9	44	74	9
8. Satara	26	-	6	9	-	41	6	7	2	10	-	25	15	44	84	8
9. Tasgaon	13	2	-	13	4	32	6	4	4	4	3	21	19	39	79	10
10. Wai	15	1	2	11	1	30	8	5	-	9	-	22	13	36	71	10
11. Shirala & Walwa	22	1	3	14	9	49	2	6	3	5	1	17	34	77	128	13
Total	217	11	29	108	30	395	85	56	28	69	7	245	153	514	912	104

the district by category of teachers in 1911 and by standards and by category of teachers in 1940. In The last column of the table is shown the number of schools selected from each taluka for the purpose of the investigation.

In making up the total sample considerations already indicated in the preliminary note were specially borne in mind.

First, was the size of sample. Second its composition in respect of types of schools and in respect of types of areas. An attempt was made to get a roughly proportionate sample in both these directions. The sample was composed of schools of various types broadly in proportion to the number of such types as it existed in 1911. Also the sample contained a number of schools from each taluka, which was taken as the primary area division, broadly in proportion to the number of schools in the taluka in 1911. Even within the sample for each taluka an attempt was made to have a proper representation of various types of schools and also to distribute the sample as wide]y as possible over the area of the taluka. For this distribution over the taluka the groups made for settlement purposes were taken to indicate the different types of regions within the taluka. It might, however, be noted that absence of an adequate number of schools in many settlement groups in 1911 made it impossible to meet this requirement properly in all cases. Other factors regarding distribution to which some attention must be paid were those indicating accessibility of the village from outside. The attempt to distribute by settlement groups automatically met this requirement in part, Its complete fulfilment was, however, made difficult by the consideration indicated above.

The efficacy of the school system was being judged in this investigation by the extent to which persons who passed through the system retained certain skills which had presumably been imparted to them while at school, in their after life. The total population to be brought under an exhaustive investigation for, the purpose would have been all the ex-pupils of all the schools, in any area, who were alive. As has been indicated previously, the investigation actually tested only a sample of these and in making up that sample certain assumptions were initially made. Most of these have already been mentioned at one or another place above. In the first instance, it was thought that less than five years would be too short a period for properly allowing for a lapse and therefore nobody was included in the sample who was still at school in 1936. Also it was thought unnecessary to go further back than those who had left school in 1911. Again those who had left school either in the infant class or in the first standard were presumed not to have properly acquired reading and writing ability and therefore, as not, constituting subjects of an investigation regarding lapse. On the other hand it was assumed that those who had continued their education after passing the 4th standard examination would not in any circumstances be liable to relapse. That both these assumptions were justified is shown by the high proportion of lapse

among those who left school in the 2nd standard and by the record of only a single case of partial lapse among those who had passed the 4th standard but not continued their schooling further. On the given assumptions the total population to be investigated consisted of those who had left school in the 2nd, the 3rd, or the 4th standard or had ceased to receive instruction after passing the 4th standard examination at any time during the period 1911 to 1936. The sample of schools chosen indicated that the total sample population was the population of ex-pupils of the selected schools satisfying the above conditions.

6. *Composition of Sample.* — In order to ascertain the actual composition of this sample population resort had, of course, to be had to school registers. A preliminary list was made of all those who would constitute the sample population in respect of the particular school as revealed by the register of the school. The next stage was to ascertain who among this population of ex-pupils would at the time of the projected investigation be in the village. Immediately after the lists had been prepared this local enquiry was conducted by the teachers of each selected school. The headmaster of the local school was entrusted with the work of ascertaining the names of those who were actually in the village at the time of the preparation of the lists. These were taken to be the available part of the total population revealed by registers. There were no means of checking whether any errors of inclusion or omission were made in the preparation of these lists. Presumably the liability to error would be greater it the larger villages where contacts were not very close and the difficulty in tracing an ex-pupil might be large. Also the errors of omission would thus be more numerous than those of inclusion. It had been planned in the beginning to follow up some of those who had left the village temporarily or permanently. It was later found that there were considerable difficulties in following them up and that it was really not necessary to do this. The difference between the numbers of those on the registers and those available would, of course, be accounted for by (*i*) death and (*ii*) leaving the village temporarily or permanently after, leaving school. It was not possible to get accurate information regarding the numbers that had died. No data are also available on the basis of which it would be possible to estimate the numbers who would be living of the total number of ex-pupils as obtained from the school registers. It might be noted that the proportion of the persons available to the number as revealed by the registers varied considerably from school to school. It is likely that the extent of this variation indicates, in the main, the variation in tendency to migrate in the different parts

of the district. Reliance was placed on the evidence of the school registers in all matters in which it was available. The year when a student left school and the standard in which he was when he left school were matters determined by the school register. It was initially contemplated to collect information regarding the time that a pupil had spent in the standard in which he was at the time of leaving school. The idea had, however, to be given up because the time of the annual promotions in past years was neither fixed nor uniform in all schools. Also it was realised that the period indicated in the record as that of the student's leaving school would not in a large number of cases represent the actual time of his ceasing attendance at school. The removal of the name from the school register occurred ordinarily after the lapse of considerable time after the pupil had actually ceased to attend.

It might in this connection be noticed that the record was not available in many schools for either a small or large part of the period covered. This caused considerable difficulty in the progress of the investigation. The absence of the record made it impossible to prepare the preliminary list and in this case the persons tested were selected and called on the basis of personal knowledge and enquiry by local teachers. Obviously, the total number of ex-pupils or the total numbers available in the village could not in such cases be accurately known. The lack of records caused difficulty in filling up of individual questionnaire also. Important information regarding the school career of the persons tested could be accurately known only from the registers. The standard in which a pupil was at the time of leaving school, the year in which he left school, the numbers of years at school and even his age were matters regarding which information could be obtained from the registers. The information so obtained was also likely to be much more reliable than the information that the individual himself could supply in this regard. However, where the school record was missing the information had to be put down as obtained from the individual.

The number of persons actually tested was much smaller than the number of persons reported to be available. The failure to persuade a substantial number to submit themselves to the test resulted in the actual numbers tested falling short to a considerable extent of the numbers aimed at. The investigation had been planned so as to cover about 5,000 persons. Actually, only a little over half of this number was reached. The main reason reported by all the investigating officers for the reluctance of considerable numbers to submit themselves to the test was the fear that the enquiry might have

something to do with the efforts at recruiting people for the army. As it happened, the type of person included in the investigation, i.e., males chiefly between ages of 15 and 45 was the type specially affected by recruiting activities. Hence it was found very difficult by the investigating officers to allay suspicions in this matter when they were once aroused. The measure of the lack of response was widely different from village to village. In some the response was extremely meagre, the investigation having really failed to progress materially in those centres. On the other hand, in a number of instances the persons actually tested amounted to over 90 per cent of those reported to be available, which is as high a percentage as might reasonably be expected in an investigation of this type. One point to be noticed in regard to the variation in response is that there was no general common feature about it, i.e., the degree of the response was not related generally to either a regional, environmental or size factor in the village. This shows that its distribution was largely accidental depending purely on temporary, local reactions. While this made it the more difficult effectively to deal with the situation as it arose, it has resulted in affecting the investigation much less than if the reaction had been general or had been associated with a particular type of village or region. In the latter event the representative character of the data might have been seriously affected. As it happens, the random distribution of the lack of response leaves the actual numbers included in the investigation, though much smaller than aimed at or expected, almost equally well distributed over all types of regions or classes. It might be specially emphasized that reluctance to submit to the test was not only not associated with special types of villages or regions but also not evinced by any special class or caste group. It was clearly the experience of all the investigating officers that among those who would not come forward to submit themselves to the test all types of castes and classes, economic and social, were almost equally represented.

In Table Nos. 2 to 6 we give the number of cases listed from the school registers, number available in the villages and the number actually tested in villages classified by various categories. In Table No. 2, the villages are classified according to the number of cases tested as a percentage to those available in the village. It will be seen that in nearly 25 per cent of the villages, only less than half of the cases available in the village could be tested. In Table No. 3, the villages are classified according to the number of cases tested in each. In Table No. 4, they are classified

Table 2. Particulars of Investigation for Villages Classified According to the Proportion of cases Tested to those Available.

Percentage of tested to total available	Villages No.	Cases noted from school register No.	Cases available in village No.	Cases tested No.	Percentage of cases		
					available to those from register	tested to those from register	tested to those available
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
0-10	1	697	123	10	17.65	1.43	8.13
11-20	2	1183	297	53	25.11	4.43	17.85
21-30	2	286	91	24	31.82	8.39	26.37
31-40	9	1491	572	198	88.36	13.27	34.62
41-50	11	1258	530	252	42.30	20.11	47.55
51-60	18	1773	732	402	41.29	22.67	54.92
61-70	7	1051	294	199	27.97	18.93	67.69
71-80	19	2792	912	688	32.66	24.64	75.44
81-90	11	697	267	229	38.31	32.86	85.77
91-100	18	1237	459	455	37.11	36.78	99.13
Not given	6	-	-	168	-	-	-
Total	104	12460	4277	2678	34.33	21.49	62.61

Table 3. Particulars of Investigation for Villages Classified According to the Number of Pupils Tested

Number of pupils tested	Villages No.	Cases noted from register No.	Cases Available in village No.	Cases Tested No.	Percentage of cases		
					available to those from register	tested to those from register	tested to those available
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1-10	15	1263	301	112	28.83	8.87	37.21
11-20	35	2403	759	513	31.69	21.35	67.59
21-30	28	4422	1404	722	31.75	16.33	51.42
31-40	12	1620	609	435	37.59	26.85	71.43
41-60	8	910	505	398	55.49	48.74	78.81
71-85 & 103	6	1842	699	498	37.95	27.04	71.24
Total	104	12460	4277	2678	34.33	21.49	62.61

Table 4. Particulars of Investigation for Villages Classified According to the Population of the Village. (1931 Census).

Population	Villages No.	Cases noted from school register No.	Cases Available in village No.	Cases Tested No.	Percentage of cases		
					available to those from register	tested to those from register	tested to those available
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Below 600	10	316	125	111	39.56	35.13	88.80
600-below 800	19	1389	485	325	34.92	23.40	67.01
800-below 1000	14	1204	384	217	31.89	18.02	56.51
1000-below 1500	25	2426	928	616	38.25	25.39	66.38
1500-below 2000	11	1217	398	343	32.70	28.18	86.18
2000-below 3000	10	2448	610	335	24.92	13.68	54.92
3000 & over	14	3421	1323	709	38.67	20.72	58.59
Not given	1	39	24	22	61.54	56.41	91.67
Total	104	12,460	4,277	2,678	34.33	21.49	62.61

Table 5. Particulars of Investigation for Villages Classified According to the Communication Classes

Communication	Villages No.	Cases noted from register No.	Cases Available in village No.	Cases Tested No.	Percentage of cases		
					available to those from register	tested to those from register	tested to those available
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I	11	3501	996	514	28.45	14.68	51.61
II	11	1788	520	365	29.08	20.41	70.19
III	11	1858	694	405	37.35	21.80	58.36
IV	10	681	327	242	48.02	35.54	74.01
V	9	726	280	170	38.57	23.42	60.71
VI	10	813	291	195	35.79	23.99	67.01
VII	11	961	306	200	31.84	20.81	65.36
VIII	10	757	315	175	41.61	23.12	55.56
IX	11	756	320	240	42.33	31.75	75.00
X	10	619	228	172	36.83	27.79	75.44
Total	104	12460	4277	2,678	34.33	21.49	62.61

Table 6. Particulars of Investigation for Villages Classified According to the Type of School

School type	Villages No.	Cases noted from register No.	Cases Available in village No.	Cases Tested No.	Percentage of cases		
					available to those from register	tested to those from register	tested to those available
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
I	28	1675	609	450	36.36	26.86	73.89
II	17	1276	563	291	39.42	22.81	57.85
III	1	69	50	45	72.46	65.22	90.00
IV	10	534	220	139	41.20	26.03	63.18
V	10	859	349	263	40.63	30.62	75.36
VI	15	2009	611	461	30.41	22.95	75.45
VII	4	796	215	146	27.01	18.34	67.91
VIII	10	2239	824	451	36.80	20.14	54.73
IX	9	3003	896	432	29.84	14.39	48.21
Total	104	12460	4277	2678	34.33	21.49	62.61

by the population in 1931 Census. In Table No. 5, an attempt is made to classify the villages by taking into account several factors of communication of the villages with the outside world. The communication classes shown in the table are in descending order of the communication facilities. For particulars of this classification, reference may be made to section 6 of Chapter III. Finally in Table No. 6 the schools are classified by school types particulars of which are given in section 7 of Chapter III.

7. *Sample Compared with District Population.*— Some idea of the extent to which the sample included in the test represents properly the population of the district may be obtained from the comparison set out in Table Nos. 7 and 8 regarding distribution by age and the composition by caste and religion of the population of the District as revealed by the census, with the constitution in these respects the population of the sample. The data of the 1941 Census are not available for the whole District population in all details. The data of the 1931 census have, therefore, been included in the table. It will be observed, that the constitution of the sample differs from that of the District population chiefly in two respects, of having, a somewhat lesser representation of the higher age groups and of some social groups like the scheduled castes. This, however, need

not be considered as detracting from the representative character of the sample. The sample, of course, seeks to represent not the entire population of the district but rather the population which passed through the school system.

Table 7. Percentage distribution of males in Satara District between 15 and 40 by age groups in the census statistics (1931 and 1941) and in Sample Population

Age	Percentage of males in		
	Sample	1931 Census	1941 Census (2% sample results)
(1)	(2)	(3)	(4)
15-20	17.2	21.15	21.68
20-25	27.0		21.13
25-30	22.5	41.32	20.31
30-35	16.2		19.24
35-40	17.1	37.53	17.64
Total number	2,345	206,075	4,542

Table 8. Percentage Distribution of Males in Satara District by Castes and Religions in the Sample and in the Censuses (1931 and 1941)

Religion & Caste	Percentage of males in		
	Sample	1931 Census	1941 Census (2% sample results)
(1)	(2)	(3)	(4)
I Hindus			
Advanced	3.21	4.47	†
Marathas	48.74	55.77	†
Mali	1.45	1.47	†
Scheduled Castes	10.27	13.34	13.10
Total Hindus	95.20	94.50	94.17
II Muslims	4.75	3.69	3.82
III Others	0.05	1.81	2.01
Total number	2,678	592,303	657,642

† Not shown separately.

The number of pupils in each school has beep increasing over the period covered by the investigation. Therefore, in so far as more pupils have passed out of the schools in recent years, the total population of ex-pupils must contain a larger proportion of younger persons than the total population of the district. With the expansion of the school system and because special efforts have been directed towards this end, the schools have in recent years had larger complements of students from such classes as the depressed than formerly. Even today, however, the proportion of total depressed class students in the school population is less than their proportion in the total population and the disparity was markedly larger in former years. Broadly, the school system includes larger proportions of the socially and economically better placed classes among its pupils than the total population. Conversely, the classes economically and socially depressed are not adequately represented among those receiving instruction. Even though in recent years some efforts have been made to counteract this tendency, they have not been completely successful and, of course, the total population of ex-pupils necessarily continue to be affected in its composition by the older proportions to a very, large extent. The comparison with census data relating to ages is rendered a little difficult by the fact that these are classified in the census tables only by 10 yearly age groups above 20 and that our data includes a full sample only upto the age 45. If the age groups between, 15 and 40 in the two populations are considered by themselves, it will be seen that in our sample the age period 20 to 30 bears a somewhat higher proportion to the total than in the census, while the periods 30 to 40 and 15 to 20 are somewhat less represented. The difference in either case is, however, not large. For the higher age groups it is easily explained by the fact of the continued expansion of the school system noted above. For the lower age group the lesser representation might be due either to a more general lengthening of the schooling age or to a lesser tendency in recent years to leave school from standards 2nd, 3rd and 4th. No data are, however, available to indicate definitely whether these suggestions are valid or not.

In regard to the composition of the population by religion and caste, comparison can be instituted only in the case of a few groups. The comparison shows that our sample has a slightly smaller representation of the advanced classes than the district population. This can be easily explained by the fact that the District population includes urban population within it and that the ratio indicated is affected by this inclusion. The rural population from which alone the sample is taken would have necessarily a

lesser representation of the advanced classes than the population of the whole district. Also pupils of these classes are more likely to continue their education after the 4th standard than those of others. The Maratha population is also a little less represented in the sample than in the District as a whole. It is likely that this is due to the fact that the total enrolment in schools of the cultivating and agricultural labour classes, which largely make up this population, has been proportionately less, specially in the earlier part of the period covered, than that of other classes. It will be observed that the non-agricultural classes such as the artisan and service castes are better represented in the sample than in the district population. According to the concensus of opinion this reflects a condition of affairs which actually obtains in regard to the school system as a whole. The depressed classes are represented in a slightly less proportion in the sample owing to reasons sufficiently explained above. It is noteworthy that the sample though confined to Marathi schools and not including any Urdu schools contains a higher proportionate number of Muslims than the District population. This is all the more remarkable because the number of Muslims included in the sample shows a definite tendency to fall in the lower age groups.

This comparison would have revealed that the variation in the constitution of the sample population either by ages, religions or castes, is not material and that such differences as exist can be adequately explained as being due to the differences between the total district population and the population of ex-pupils of the Primary school system. In the light of this discussion it may be safely claimed that the population actually included in the test represents adequately the total population regarding which the investigation was conducted.

CHAPTER III
SURVEY RESULTS

1. *Complete Lapse, Partial Lapse, and Total Lapse.*— We may now turn to the presentation and examination of the results obtained during the course of the investigation. The investigation related to the retention of the ability to read and the ability to write, as defined, of the ex-pupils of the primary school system. The possession of the two abilities together was supposed to indicate, possession of literacy. The non-possession of both of these skills (as revealed by the test) was taken to indicate lapse into illiteracy. As the tests for the two skills were independent it was possible to find that in a number of cases a person possessed one of the skills without possessing the other. It was assumed that in case a person could write to dictation he could

also read the matter dictated. During the course of the investigation also no case of being able to write but not to read was recorded. Reading ability unaccompanied by ability to write was, however, recorded in many cases. A special category of persons was, therefore, defined by us, i.e., of those who possessed the ability to read and passed the reading test but failed in the writing test and were, therefore, not taken as having writing ability. Those who passed both the tests were classed as literates and were taken as not having lapsed. Those who failed to pass either test were classed illiterates and were taken to have completely lapsed. Those who passed the reading test but not the writing test were classed as semi-literates and were taken to have lapsed partially. The data regarding the results have all been shown according to these three classes.

In the discussion of the results the percentages of complete and partial lapse have mostly been considered together. The failure to pass even the very low test of writing ability laid down by us must be considered as indicating a clear lapse from a presumed attainment. In measuring total lapse, therefore, both complete and partial lapse cases were added together. The number of individual cases in each sub-group when the two measures are independently considered are so small that it becomes difficult to rely on results relating to particular groups with any confidence. Therefore, whereas the data relating to partial lapse and complete lapse are shown separately in all tables the comments have reference, in the majority of cases, only to total lapse, that is, the percentages and numbers of complete and partial lapse taken together. One method to keep the distinction between the cases of complete and partial lapse while at the same time to obtain a joint measure of the lapse, would be to attribute certain numerical scores to literates, semi-literates, and illiterates respectively which would enable the computation of average scores for subjects in various categories. For instance we could attribute the scores of 1, $\frac{1}{2}$ and 0 to literates, semi-literates and illiterates, respectively. A certain statistical reasoning explained in an appendix, suggested the scores of 1, 0.2146 and 0 respectively. By making use of this scale, average scores have, been computed and shown in subsequent tables for subjects in various categories. For the statistical basis determining this scale of scores and the interpretation of the resulting average scores, reference may be made to the Appendix.

One factor which could not be allowed for in the interpretation of the results was the presence of backward pupils in the

sample. Some cases of mentally backward persons must inevitably have been included in the population tested. These persons, though they naturally stagnate a good deal in the primary system, do not necessarily fail to be promoted from standard to standard if they remain in school for a long enough period. It is, however, highly doubtful how far they really benefit in the way of lastingly acquiring any abilities as a result of their school training. A lapse in their cases might be presumed inevitable, so long as there is no special provision for dealing with them. It is likely that a significant proportion of the cases of lapse, especially those occuring from the higher standards would be accounted for by the presence of backward pupils. However, no data are-available in any direction which could enable us to say anything definitely regarding the presence of this element.

2. *Lapse by Standards*.— One of the first features to be noticed in an examination of the data is the very large difference in lapse, according to the standard in which the pupil was when he left school. It has already been pointed out that an attempt made by us at obtaining information regarding the time passed by a pupil in the standard in which he was when he left school was not successful. Therefore, our classification of the data in this regard is confined to only four broad groups, three according to the standard, i.e., 2nd, 3rd and 4th in which the student's name appeared in the school register at the time when it was finally removed from it and the last, 4th group, of those who passed the 4th standard, also as shown by the school register. In some cases students had migrated from one school to another or records for particular periods were not available and the person tested could also not give definite information in this regard. These cases, therefore, had to be left unclassified.

There was, of course, some variation in the extent of instruction that various members of each classified group had received at school. Some might have remained for a long time, even some years, in the standard from which they finally left school; others might have been just promoted to it at the time of leaving school. Presumably little difference was made to their real attainment by this difference in time. The most important criterion in the division is the standard successfully completed, which, in the vast majority of instances was the one previous to the one in which the pupils were recorded as having left school. It should, however, be noticed that in some instances where students left immediately at the close of the year the students might have just passed the examination of the standard in which they were recorded as having left school. The number of such cases was, however, very mall.

Table 9. Survey Results Classified by the Standard at the time of Leaving school.

Standard		Literate	Semi-literate	Illiterate	Total
(1)		(2)	(3)	(4)	(5)
2nd Standard	Number	5O3	132	117	752
	Percent	66.9	17.5	15.6	100
3rd Standard	Number	741	69	34	844
	Percent	87.8	8.2	4.0	100
4th Standard	Number	818	17	9	844
	Percent	96.9	2.0	1.1	100
4th Pass	Number	230	1	-	231
	Percent	99.6	0.4	-	100
Not given	Number	5	-	2	7
	Percent	71.4	-	28.6	100
Total	Number	2,297	219	162	2,678
	Percent	85.8	8.2	6.0	100

In Table No. 9, the survey results are given by the standards at the time of leaving school. The variations in the percentage of lapse according to the standard attained by pupils at school are, of course, to be expected. Those who had passed the 4th standard examination did not show any lapse when tested. The single case of apparent partial lapse was due to the inability of the tested person to write owing to injury to arm. In the class of persons who left school while in the 4th standard, it is seen that the total extent of lapse is very small. Cases of complete lapse are negligible among them and are curiously enough largely concentrated in the period 1931-35. Complete lapse within a short period after having passed the 3rd standard examination might perhaps indicate innate backwardness. Partial lapse is also inconsiderable and on the whole it might be said that literacy is lasting among pupils who have passed the 3rd standard and have gone into the 4th. The extent of lapse is considerable, more than 12 per cent, in those who leave school in the 3rd standard and large, more than 33 per cent, in those who leave school in the 2nd standard. These marked differences in the tendency to lapse according to the standard of schooling that the pupil had received makes it necessary to consider the data, not as a whole, but according to the standard attainments. That is, in enquiring into the causes of lapse the data relating to different standards must be treated separately. Consequently in the large majority of tables an attempt has been made to indicate the results relating to different

standards separately. The measure by standards gives us a broad indication of the phenomenon to be studied. It tells us that while the student who passes the 4th standard is not at all liable to lapse and the student who passes the 3rd and leaves in the 4th only vary slightly so, the student who leaves school in the 3rd standard has a significant tendency to lapse and the one who leaves only in the 2nd a very pronounced liability in that direction. In view of this, in subsequent discussion we shall omit all eases where the students had passed the 4th standard and therefore, showed no lapse. We shall also omit the few cases where the standards at the time of their leaving school could not be ascertained.

3. *Factors Responsible for Lapse.*— In an a priori consideration of the phenomenon a number of factors seem indicated. The factors may be environmental, i.e., the lapse might be due to the general environment, the physical and other circumstances, of the village in which, the pupil was taught and in which he continued to stay after leaving school. Lack of contact with the outside world, a small size or lack of facilities for reading and occasions for writing might lead to lapse, and if this were so, lapse would be associated more largely with certain types of environments than with others. In the alternative or in addition lapse might be due to school conditions or individual conditions. It has been often urged that the one teacher rural school is the weakest link in the chain of Indian Educational Institutions and the lack of training on the part of teachers has been taken to be a very unsatisfactory feature of the system. Now, if the pupils of some types of schools receive worse training or are less well grounded than the pupils of other types of schools then this would be presumably reflected in the extent to which abilities acquired at school are retained by the pupils in after-life. Difference in scholastic career might also lead to difference in liability to lapse. For example, pupils who have stagnated more, i.e., who have stayed at school for a longer period before completing given standards may be or may not be specially liable to lapse. The age at which a pupil leaves school may also prove an important factor in the retention of literacy. Individual factors, are, of course, numerous. There is the social class to which an individual belongs, the occupation which he follows, the income which he earns, the extent to which and the duration for which he goes away from his village and stays in more populous centres. Finally, the lapse may be progressively larger according to the period passed since leaving school. An attempt is made in the following sections to sift and discuss the investigational data in order to see whether they throw any light on these various types of considerations.

4. *Bias in Sample.* — Before going on to a consideration of the various factors that might affect lapse it is necessary to examine whether any feature of the composition of the sample for individual schools might lead to giving a bias to the results. The two features which might be singled out for examination in this regard are (1) the proportion of the number actually tested to the number available in each village and (2) the absolute size of the sample for each school. Table Nos. 10 and 11 give the results of the survey classified in relation to these features. It will be readily seen that apart from the small numbers affected till the percentage of the tested to available reaches 30, the results of total lapse and of complete and of partial lapse do not show a trend associated with either a decrease or an increase of the percentage. It may thus be taken for granted that this feature, i.e., the variation in the proportion of tested to available for individual schools has not given a bias to the results. Similarly except for the samples below 10 which for some reason show particularly low percentage results, samples of other sizes show no variation associated with the variation in size.

5. *Environmental Factors.*— The factors affecting lapse may be considered in the following order (*i*) Physical environment, (*ii*) School type and school career, (*iii*) Individual social and economic circumstances. This order has been fixed so as to proceed from the more general to the specific factors. The general environmental factors may relate to the size of the village, the extent of the contact of the village with the outside world or the presence, within it, of institutions which might be considered to be helpful in the maintenance of literacy. Table Nos. 12 and 13 set out the results of the survey according to different characteristics of the villages in which the selected school was located. Table No. 12 which c]assifies the results by the population of the village in 1931 shows no marked correlation with the variation in size. It may, however, be noticed that the sample from villages of middling sizes, i.e., with a population between 1,000 and 2,000 shows, on an average, the best results. The population groups below 1,000 show a level of result very similar to each other but somewhat worse than the results for the middling size villages, while the groups of places with a population of above 2,000 show definitely the worst results. It is not possible to say whether this broad classification of results definitely points to any consideration which can affect school policy.

Table 10. Survey Results Classified According to the proportion of pupils Tested to those Available in the Village and the Standard at the time of Leaving School.
[L.—Literate, S. L.—Semi-literate, I.—Illiterate]

Percentage of pupils tested to total available in a Village	Villages No.	2nd Std.				3rd Std.			
		L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
0-10	1	66.7	-	33.3	3	100	-	-	2
11-20	2	58.8	16.7	25.0	24	85.7	14.3	-	7
21-30	2	50.0	50.0	-	4	100	-	-	7
31-40	9	78.4	9.8	11.8	51	85.0	6.7	8.3	60
41-50	11	68.8	19.7	11.5	61	88.2	7.1	4.7	85
51-60	19	68.3	16.7	15.0	126	86.2	10.6	3.2	123
61-70	7	69.4	16.3	14.3	49	84.7	13.6	1.7	59
71-80	19	69.6	16.9	13.5	207	88.6	5.7	5.7	212
81-90	11	68.6	11.4	20.0	70	81.7	14.1	4.2	71
91-100	18	57.7	21.2	21.1	104	92.0	6.3	1.7	174
Not given	6	58.5	28.3	13.2	53	86.4	9.1	4.5	44
Total	104	66.9	17.5	15.6	752	87.8	8.2	4.0	844

(Contd.)

Table 10. (Concld.)

Percentage of pupils tested to total available in a Village	Villages No.	4th Std.				Total			
		L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
0-10	1	100	-	-	5	90.0	-	10.0	10
11-20	2	95.5	-	4.5	22	77.4	9.4	13.2	53
21-30	2	100	-	-	9	90.0	10.0	-	20
31-40	9	97.2	1.4	1.4	73	88.0	5.4	6.6	184
41-50	11	95.4	2.3	2.3	86	85.8	8.6	5.6	232
51-60	19	95.7	4.3	-	115	83.0	10.7	6.3	364
61-70	7	97.5	2.5	-	81	86.2	9.5	4.3	189
71-80	19	96.2	1.9	1.9	206	84.8	8.2	7.0	625
81-90	11	100	-	-	62	82.7	8.9	8.4	203
91-100	18	98.4	0.8	0.8	121	85.0	8.5	6.5	399
Not given	6	96.9	3.1	-	64	81.4	13.0	5.6	161
Total	104	96.9	2.0	1.1	844	84.5	8.9	6.6	2440

Table 11. Survey Results Classified According to Number of pupils Tested in the Village and the Standard at the time of Leaving School.
[L.—Literate, S. L.—Semi-literate, I.—Illiterate]

Cases tested	Villages No.	2nd Std.				3rd Std.			
		L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1-10	15	79.1	4.2	16.7	24	93.2	4.5	2.3	44
11-20	35	68.4	23.5	13.1	145	87.0	10.3	2.7	184
21-30	28	67.0	15.7	17.8	185	84.8	10.2	5.5	235
31-40	12	61.1	15.0	23.9	113	87.4	10.8	1.8	111
41-60	8	69.5	18.0	12.5	128	89.4	7.7	2.9	104
71-85 & 103	6	70.1	17.8	12.1	157	91.6	2.4	6.0	166
Total	104	66.9	17.5	15.6	752	87.8	8.2	4.0	844

(Contd.)

Table 11. (Concld.)

Cases tested	Villages No.	4th Std.				Total			
		L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1-10	15	96.9	3.1	-	32	91.0	4.0	5.0	100
11-20	35	100	-	-	125	83.0	11.7	5.3	454
21-30	28	96.1	2.6	1.3	230	83.5	9.1	7.4	650
31-40	12	9L8	3.5	0.7	142	82.5	9.3	8.2	366
41-60	8	96.7	2.6	0.7	153	85.7	9.1	5.2	385
71-85 & 103	6	96.9	0.6	2.5	162	86.4	6.8	6.8	485
Total	104	96.9	2.0	1.1	844	84.5	8.9	6.6	2440

Table 12. Survey Results Classified According to the Population of the village (1931 census) and the Standard at the time of Leaving School.
[L.—Literate, S. L.—Semi-literate, I.—Illiterate]

Population	Villages	2nd Std.				3rd Std.			
		L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Below 600	10	64.5	22.6	12.9	31	94.0	6.0	-	50
600- Below 800	19	64.1	18.5	17.4	92	88.0	10.0	2.0	100
800- Below 1000	13	69.6	16.1	14.3	56	84.9	13.7	1.4	73
1000- Below 1500	25	69.9	17.9	12.2	156	90.2	5:6	4.2	215
1500- Below 2000	11	69.4	11.8	18.8	85	91.8	6.1	2.1	98
2000- Below 3000	10	62.5	20.5	17.0	88	76.4	16.9	6.7	89
3000 & over	14	66.7	17.7	15.6	237	87.7	6.4	5.9	204
Not given	2	57.1	14.3	28.6	7	86.7	-	13.3	15
Total	104	66.9	17.5	15.6	752	87.8	8.2	4.0	844

(Contd.)

Table 12. (Concld.)

Population	Villages	4th Std.				Total			
		L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
Below 600	10	95.0	5.0	-	20	85.1	10.9	4.0	101
600- Below 800	19	100.0	-	-	79	83.4	10.0	6.6	271
800- Below 1000	13	96.7	3.3	-	61	84.2	11.1	4.7	190
1000- Below 1500	25	99.0	1.0	-	192	87.5	7.5	5.0	563
1500- Below 2000	11	98.2	1.8	-	109	87.6	6.2	6.2	292
2000- Below 3000	10	93.2	3.8	3.0	132	79.6	12.3	8.1	309
3000 & over	14	96.0	2.0	2.0	251	83.5	8.7	7.8	692
Not given	2	-	-	-	-	77.3	4.5	18.2	22
Total	104	96.9	2.0	1.1	844	84.5	8.9	6.6	2440

Table 13. Survey Results Classified According to the Communication Class of the Village and the Standard at the Time of Leaving School.
[L.—Literate, S. L.—Semi-literate, I.—Illiterate]

Communication class	Villages No.	2nd Std.				3rd Std.			
		L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
I	11	65.6	17.7	16.7	180	85.7	8.8	5.5	147
II	11	66.3	21.1	12.6	95	79.1	13.9	7.0	86
III	11	70.8	13.5	16.2	111	92.2	5.2	2.6	116
IV	10	67.9	21.4	10.7	56	96.7	2.2	1.1	92
V	9	63.6	14.6	21.8	55	89.1	2.2	8.7	46
VI	10	75.5	20.4	2.1	49	92.2	3.9	3.9	76
VII	11	63.5	19.2	17.3	52	87.8	6.8	5.4	74
VIII	10	67.9	15.1	17.0	53	85.5	11.3	3.2	62
IX	11	68.2	12.1	19.7	66	87.8	10.8	1.4	74
X	10	57.1	25.7	17.2	35	80.3	16.9	2.8	71
Total	104	66.9	17.5	15.6	752	87.8	8.2	4.0	844

(Contd.)

Table 13. *(Concld.)*

Communication class	Villages No.	4th Std.				Total			
		L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
I	11	94.6	3.0	2.4	165	81.3	10.2	8.5	492
II	11	94.3	3.2	2.5	159	82.6	10.9	6.5	340
III	11	97.5	1.9	0.6	159	88.1	6.2	5.7	386
IV	10	100.0	-	-	61	90.0	6.7	3.3	209
V	9	97.7	2.3	-	43	82.0	6.9	11.1	144
VI	10	100.0	-	-	54	89.9	7.3	2.8	179
VII	11	100.0	-	-	42	83.3	8.9	7.8	168
VIII	10	95.5	4.5	-	44	82.4	10.7	6.9	159
IX	11	98.7	1.3	-	77	85.7	7.8	6.5	217
X	10	100.0	-	-	40	80.1	14.4	5.5	146
Total	104	96.9	2.0	1.1	844	84.5	8.9	6.6	2440

In considering the extent of the contact of the village with the outside world four factors have been noted. These are distances from (*i*) the, nearest Railway Station, (*ii*) the Bazaar Village, (*iii*) Motor Road, and (*iv*) the period of months during the year in which bullock-cart transport was possible upto the village. In an examination of these factors singly no definite relation between lapse and the extent of the contact is indicated. The presence of a post office or of co-operative societies and the number of newspapers coming into a village might also be considered important in connection with maintenance of literacy, Here again, when these factors are examined singly they fail to show any influence. It was, therefore, thought worthwhile considering these various, factors jointly and classifying, the villages on the basis of what might be described as a composite index of communication. In Table No. 13, as also in the earlier Table No. 5, the villages have been so classified, the classes being in the descending order of these communication facilities. Thus villages in classes I, II and III all have a post office and most of them have either a co-operative bank or a society. The villages in classes I and II are also themselves bazaar villages though only villages in class I are directly on a motorable road. Villages in classes IV and V are distinguished by having a co-operative bank or a society. However, they have no post office and most of them are not on a motorable road. Most of these villages are also not bazaar villages though the villages in class IV lie within two miles from a bazaar village. The villages in the remaining five classes have neither a post office nor a co-operative bank or a society. Most of them are also not on a motorable road and also are not bazaar villages. Villages in class VI, however, lie within two miles, from a bazaar village and most of them also receive a newspaper. The remaining four classes of villages have unsatisfactory communications in an increasing order. It will be obvious from Table No. 13, that even when these factors are considered jointly, in this manner, they indicate little, influence. On the whole it might be said that the approach by way of a consideration of individual physical and other features of a village does not prove fruitful in the interpretation of the results of our investigation. At least, there is little to warrant a conclusion establishing a relation of the extent of lapse to the presence or absence of any of the general features considered above.

6. *Educational Factors*. — The most important of the educational factors is obviously the type of school in which the pupil was taught. The type of primary schools included in the sample vary from schools with one untrained teacher teaching upto the 3rd standard to fully equipped primary schools teaching upto

the 7th standard with a large staff of trained and untrained teachers. We divided the total number of schools in the sample in the following 9 types. (I) 3rd standard schools with one untrained teacher for the whole period covered by the survey. (II) 4th standard schools with one untrained teacher for the whole period covered by the survey. (III) 4th standard schools with one trained teacher for the whole period covered by the survey. (IV) All other 3rd or 4th standard schools with one teacher, trained or untrained. (V) 4th standard schools with 2 teachers. (VI) 5th and 6th standard schools of all types. (VII) Schools which were 4th or 5th standard schools with less than 100 pupils in 1911 and were 7th standard schools at the time of the investigation. (VIII) Schools which had more than 100 pupils in 1911 and which were 7th standard schools at the time of the investigation. (The large majority of these were also 7th standard schools in 1911). (IX) Schools which were 7th standard schools at the time of the investigation, not included in types VII and VIII This classification aims at distinguishing types of schools by standards taught and is also intended to bring out the effects of the employment of untrained teachers especially in single teacher schools. Table No. 14 gives data relating to the school types. Attention might be concentrated in considering this table on the lapse in pupils who left in the 2nd and 3rd standards. The most remarkable feature revealed by this table is the comparatively good account which ex-pupils of one untrained teacher 3rd standard schools (type I) give of themselves. According to this table the 5th and 6th standard schools (type VI) show the best results and the 7th standard schools. (type VII and VIII) the worst. Both in the case of those who left in the 2nd standard and those who left in the 3rd standard, ex-pupils of type VI schools show a specially low percentage of lapse. On the other hand, types VII and VIII schools show particularly bad results especially in relation to pupils who left schools in the 3rd standard. However, in respect of the pupils of 2nd standard, the one teacher schools of types II and III show worse results. Nevertheless, the one teacher schools of types II, III and IV, as a whole do better than the 7th standard schools of types VII and VIII. Type V, that is, 4th standard schools with 2 teachers, show better results than 3rd or 4th standard one teacher schools belonging to types II, III and IV. However, the showing of type V is not better than that of the one teacher schools of type I. It is not of course

Table 14. Survey Results Classified According to the School Types and the Standard at the time of Leaving School.
[L.—Literate, S. L.—Semi-literate, I.—Illiterate]

School type	Villages No.	2nd Std.				3rd Std.			
		L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
I	28	68.5	17.7	13.8	130	92.5	6.5	1.0	186
II	17	58.9	19.7	21.4	56	80.6	8.7	10.7	103
III	1	59.1	18.2	22.7	22	100	-	-	12
IV	10	66.0	23.4	10.6	47	84.6	9.6	5.8	52
V	10	67.5	15.0	17.5	80	90.2	9.8	-	61
VI	15	73.4	12.8	13.8	94	93.3	5.9	0.8	135
VII	4	63.9	16.7	19.4	36	68.3	24.4	7.3	41
VIII	10	64.2	20.6	15.2	151	79.6	10.2	10.2	127
IX	9	69.1	16.2	14.7	136	94.5	4.7	0.8	127
Total	104	66.9	17.5	15.6	752	87.8	8.2	4.0	844

(Contd.)

Table 14. ***(Concld.)***

School type	Villages No.	4th Std.				Total			
		L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
I	28	97.8 2	.2	-	93	86.1	9.0	4.9	409
II	17	100	-	-	79	81.9	8.4	9.7	238
III	1	100	-	-	11	80.0	8.9	1.11	45
IV	10	100	-	-	31	81.5	12.3	6.2	130
V	10	98.8	1.2	-	82	85.2	8.5	6.3	223
VI	15	97.6	2.4	-	163	90.3	6.1	3.6	392
VII	4	96.8	1.6	1.6	63	80.0	12.1	7.9	140
VIII	10	92.8	3.0	4.2	166	79.3	11.0	9.7	444
IX	9	96.8	2.6	0.6	156	87.1	7.6	5.3	419
Total	104	96.9	2.0	1.1	844	84.5	8.9	6.6	2440

possible to pronounce completely valid decisions on the strength of these data. However, they definitely seem to indicate at least certain negative results. The one teacher schools do not seem to be as largely responsible for lapse as is generally maintained. The lack of training of teachers is also not evidently an important factor in this problem. Very large schools might, it would seem, even be less efficient than very small schools.

This table suggests some other reflections regarding the educational system which might be noted. It is curious that the proportion of ex-pupils who have passed the 4th standard should be specially large in samples of the smaller schools. Evidently ex-pupils of 3rd standard schools go on to a 4th standard in a nearby school to a very considerable extent. Also, possibly because of the fact that they have no access easily to schools with standards beyond the 4th, their education largely stops at that stage. In schools up to the 7th standard the proportion of those who have passed the 4th standard included in the sample is low, because having the facility for continuing education in the school itself a large proportion of those who pass the 4th standard avail themselves of it and continue their education. It has to be noted, however, that in contrast to the proportion in the sample of those who have passed the 4th standard the proportion of those who left in the 4th standard, having failed at the examination or before appearing at it is as large for the 7th standard schools as for any other type.

Other factors of an educational character which might influence lapse are (*i*) the extent of later education received by the student, (*ii*) the period for which he stays at school and (*iii*) the age at which he leaves school. Table No. 15 gives data relating to pupils who received some further education after leaving school. It will be seen that only a very small proportion of the total number of persons tested received such education. The small number shown to have continued in the ordinary school system has, been included either in disregard of the instruction not to include students who had continued their education after passing the 4th standard examination or indicates students who, at the time of the investigation, reported having continued education in a school other than the school included in the sample after passing the 4th standard examination but regarding the extent of which further education no definite information was available to the investigating officers. The group of adult class students indicates chiefly those who had attended the recently opened adult educational classes in the villages. In respect of both these groups little lapse might obviously be

Table 15. Survey Results Classified according to the type of Education Received after Leaving School and the standard at the time of Leaving School
[L.—Literate, S. L.—Semi-literate, I.—Illiterate]

	Further education received	2nd Std.				3rd Std.			
		L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
I	Technical craft	67.2	20.3	12.5	24	97.1	2.9	-	34
II	School(ordinary)	100	-	-	12	100	-	-	16
III	Adult education	100	-	-	1	100	-	-	1
IV	Other education	66.7	26.7	6.6	90	86.3	11.6	2.1	95
V	None	66.2	16.5	17.3	625	87.2	8.2	4.6	698
	Total	66.9	17.5	15.6	752	87.8	8.2	4.0	844

(contd.)

Table 15. ***(Concld.)***

	Further education received	4th Std.				Total			
		L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
	(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
I	Technical craft	100	-	-	37	90.5	6.3	3.2	95
II	School(ordinary)	100	-	-	5	100	-	-	33
III	Adult education	100	-	-	3	100	-	-	5
IV	Other education	99.0	1.0	-	101	84.6	12.6	2.8	286
V	None	96.4	2.3	1.3	698	83.9	8.7	7.4	2021
	Total	96.9	2.0	1.1	844	84.5	8.9	6.6	2440

expected. The two most numerous groups are, however, those who received some kind of technical or craft education and those who received education other than that included in any of the well-defined groups. It is clear that such further education of the latter type as was reported, was of a miscellaneous fragmentary type and made no material difference to lapse into illiteracy. The extent of the lapse in both the 2nd standard and the 3rd standard pupils of those who had received some other undefined type of education is almost the same as of the persons who had not received any further education. The group of those who had received

some technical training shows a smaller percentage of total lapse than the average of total lapse, but this average is obviously due to the group containing a large proportion of students who had left school in the higher standards. This is made clear by the fact that in this group the lapse among those who had left in the 2nd standard is not significantly less than the average percentage for that group. However, the almost total absence of lapse in cases of those who had left in standards higher than the 2nd standard would indicate that craft or trade education, even a little and of the most elementary sort, might help somewhat in the retention of literacy.

The two other types of considerations of educational character relate to periods and ages. Table No. 16 gives the period spent at schools by pupils. The data in this table are divided into two classes showing periods that were continuous and discontinuous. The data in this table have to be interpreted with considerable caution. In the first instance it would seem (this is the opinion of most officers having knowledge of the practical working of the primary school system) that the period indicated by the school register regarding the time spent at school by a pupil is not to be taken as indicating the actual time spent by him there. Further, even when the school register shows continuity this does not mean that attendance of the pupil was really continuous. Moreover, the data were not definitive in case of pupils who had migrated from one school to another. Because of many difficulties no attempt was made to trace the school career of a migratory student in registers of the schools to which he had migrated. Beyond the register of the school actually included in the sample the information taken down was such as was given by the person tested himself. The non-availability of many school registers was also a considerable handicap in compiling information in this regard. The number of those whose schooling has been shown in the table as discontinuous is so small that they might be disregarded in commenting upon the investigational results. In considering this table the average total results by years are not very significant. The percentage of lapse decreases progressively with the number of years put at school. But this is chiefly because the pupils who left in the higher standards are more dominant, in the longer period than pupils who have left in the lower standards. The statistics have, therefore, to be interpreted in relation to the standard in which students left school. The need for caution in interpretation is reinforced by such facts as presence of pupils who were reported to have put in only 3 years at school among those who passed the 4th standard or left in the 4th standard. This might, of

Table 16. Survey Results Classified According to the Duration of School-life of the pupil and the Standard at the Time of Leaving School.
[L.——Literate, S. L.——Semi-literate, I.——Illiterate]

Duration of school-life	2nd Std.				3rd Std.			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
I. CONTINUOUS								
3 years	64.2	13.5	22.3	251	88.9	8.1	3.0	99
4 years	64.1	23.3	12.6	167	87.3	10.7	2.0	150
5 years	64.2	21.7	14.1	120	83.3	10.1	6.6	168
6 years	63.8	19.0	17.2	58	91.5	4.4	4.1	136
7 years	81.1	8.1	10.8	37	80.6	14.6	4.8	103
8 years	76.3	19.1	4.6	21	91.3	-	8.7	46
9 & over years	61.5	15.4	23.1	13	97.6	-	2.4	42
II DISCONTINUOUS								
3 & less years	72.7	27.3	-	11	100	-	-	11
4 & 5 less years	50.0	50.0	-	6	66.7	-	33.3	3
6 & 7 less years	75.0	25.0	-	8	66.7	33.3	-	6
8 & 9 less years	66.7	33.3	-	6	71.4	14.3	14.3	7
10 & 11 less years	-	-	-	-	-	-	-	-
12 & over years	-	-	-	-	100	-	-	2
III. Not given	83.3	7.4	9.3	54	94.4	5.6	-	71
Grand Total	66.9	17.5	15.6	752	87.8	8.2	4.0	844

(Contd.)

Table 16. *(Concld.)*

Duration of school-life	4th Std.				Total			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
I. CONTINUOUS								
3 years	100	-	-	20	72.7	11.3	16.0	370
4 years	94.4	4.3	1.3	70	78.6	15.0	6.4	387
5 years	96.3	2.9	0.8	136	82.1	11.1	6.8	424
6 years	96.7	2.0	1.3	154	89.4	5.7	4.9	348
7 years	97.7	1.5	0.8	129	88.9	7.4	3.7	269
8 years	97.6	1.2	1.2	85	92.8	3.3	3.9	152
9 & over years	96.3	2.8	0.9	107	93.8	3.1	3.1	162
II DISCONTINUOUS								
3 & less years	-	-	-	-	86.4	13.6	-	22
4 & 5 less years	77.8	11.1	11.1	9	66.7	22.2	11.1	18
6 & 7 less years	100	-	-	10	83.3	16.7	-	24
8 & 9 less years	100	-	-	10	82.6	13.1	4.3	23
10 & 11 less years	100	-	-	5	100	-	-	5
12 & over years	100	-	-	1	100	-	-	3
III. Not given	99.1	-	0.9	108	94.0	3.4	2.6	233
Grand Total	96.9	2.0	1.1	844	84.5	8.9	6.6	2440

course, be due to the students having received education for earlier standards at home, but is most probably due to their having put in some years at school other than the one included in the sample. Among the group of students who had left in the 2nd standard the proportion of lapse is greater among those who put in only 3 years at school than among those who were in school for either 4 or 5 years. Between the two durations, 4 and 5 little difference is seen in the results. The duration of 6 years, which is also a large group, shows remarkably low percentage of lapse while from the 7th year the extent of lapse seems to increase with the number of years put at school. The last class is obviously of those who are backward. In relation, to the 3rd standard it is to be noticed that those who put in 3 years at school show a smaller percentage of lapse than those who put in 4 years, who in their turn show better results than those who had put in 5 years, Those who were at school for 6 years show in this category also the best results; while those who put in 7 years show worse results than any of the earlier categories of years. Nothing very definite can be said regarding the relation between years at school and the retention of literacy on the basis of these statistics. It is obvious that mere years do not count. On the other hand, if the specially short durations in relation to the standard of attainment might indicate the inclusion of a certain proportion of hasty and ill-judged promotions, then this would explain the better results given by the moderately long periods.

The last factor which might be considered in the educational category is the age at the time of leaving school of the student. Many of the statistical limitations due chiefly to lack of certain school registers mentioned above apply almost equally to a consideration of this factor. Table No. 17 gives the data relating to the age of pupils at the time of leaving school and the standards in which they left school. The results are very similar to those yielded by the data relating to the number of years at school. The average results for the different age groups show a progressive lowering of the percentage till the group 13-15. In the 16-18 group, however, the percentage is higher than in the earlier age group. Examining the data by standards it is similarly observed that there is a progressive lowering of the lapse percentages in each standard for the first 3 groups of ages. The difference in

Table 17. Survey Results Classified According to the Age of the pupil at the Time of Leaving School and Standard at the time of leaving School.
[L.—Literate, S. L.—Semi-literate, I.—Illiterate]

Age at the Time of Leaving School (years)	2nd Std.				3rd Std.			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9 and less	63.0	16.9	20.1	154	77.3	13.7	9.0	44
10-12	66.1	17.6	16.3	369	86.4	10.2	3.4	374
13-15	72.7	18.0	9.8	194	90.8	5.2	4.0	346
16-18	57.0	21.5	21.5	28	86.4	10.6	3.0	66
19-21	100	-	-	2	-	-	-	-
22 & over	100	-	-	1	50.0	-	50.0	2
Not given	50.0	-	50.0	4	100	-	-	12
Total	66.9	17.5	15.0	752	87.8	8.2	4.0	844

(Contd.)

Table 17. ***(Concld.)***

Age at the Time of Leaving School (years)	4th Std.				Total			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
9 and less	90.0	10.0	-	10	67.3	15.9	16.8	208
10-12	96.0	2.2	1.8	274	81.6	10.7	7.7	1017
13-15	97.7	1.6	0.7	431	90.2	6.2	3.6	971
16-18	96.6	2.5	0.9	118	88.2	7.5	4.3	212
19-21	100	-	-	4	100	-	-	6
22 & over	100	-	-	1	75.0	-	25.0	4
Not given	100	-	-	6	90.9	-	9.1	22
Total	96.9	2.0	1.1	844	84.5	8.9	6.6	2440

percentages between two neighbouring groups is marked but not large. The age group 16 to 18 is seen to be worse off in each standard than the age group 13 to 15. The only general tendency that seem to be exhibited by these Statistics is that, as a rule, there is less chance of a lapse, for each standard, the higher the age up to which the student is retained within the school system. This does not however, apply to age groups of about 16 and above at which the continuance of the student

in the primary stage may be taken to be an indication of definite mental backwardness.

7. *Social and Economic Circumstances.*— Among individual social factors the most important, obviously is the caste and religion of the person tested. Table No. 18 sets out the data relating to religion and castes tabulated according to standards at leaving school. The advanced classes have been grouped into two (*i*) the priest and writer class, such as Brahmins, Prabhus, etc., and (*ii*) the trading classes, such as Wani, Sonar, etc. Among these the trading classes show the better result and show, as a matter of fact, the best results of all the religions and social groups. The small Brahmin-Prabhu group shows 2 cases of partial lapse and one case of complete lapse. (The fourth case, of the person who had passed the 4th standard, has to be neglected for reasons stated above). The results of this group are thus better than that of any other Hindu group but are slightly worse than that of the Muslim sample. The sample of Muslims shows much better results than that of any Hindu group except that of the trading communities, both in the average and for all individual standards. Amongst Hindus the group showing results next to the advanced classes are the groups of Lingayats, of Gujarati-Marwadis, and of the artisan castes. The first two groups engage very largely in trading activities and presumably, members belonging to the artisan castes have also to do business or trading in a small way. It will be observed that the average lapse in the case of these classes is low because of a rather higher proportion leaving school in upper standards thin contained in the whole sample. The extent of the lapse by standards does not show the same generally favourable position in their case as the average result. Thus in relation to the lapse from the second standard the showing of the Gujarati-Marwadi group is worse than the average and that of the artisan castes worse than that of the service castes. The small numbers involved in the specific sub-groups make it, however, difficult to postulate a definite gradation. Negatively, at least it may be said that the better showing of this intermediate group of trading or quasi-trading communities is more due to their members ordinarily continuing schooling up to a higher standard than to any special ability to retain literacy even when they had left school in earlier

Table 18. Survey Results Classified According to Caste and Religion of the pupil at the Standard at the time of leaving School.
[L.—Literate, S. L.—Semi-literate, I.—Illiterate]

Caste and Religion	2nd Std.				3rd Std.			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
I. HINDUS								
1. Brahmins, Prabhus, etc.	83.3	-	16.7	6	87.5	12.5	-	8
2. Wani, Sonar, etc.	100	-	-	9	100	-	-	14
3. Marathas	61.6	20.	18.4	365	86.1	9.5	4.4	433
4. Mali	66.7	22.2	11.1	9	73.3	26.7	-	15
5. Artisan castes	66.7	20.0	13.3	30	96.0	-	4.0	50
6. Service castes	73.1	12.0	14.9	67	80.0	15.0	5.0	40
7. Lingayats	75.0	21.5	3.5	28	88.7	7.5	3.8	53
8. Gujaratis & Marwadis	64.7	17.7	17.6	17	100	-	-	16
9. Scheduled castes	63.7	18.7	17.6	102	85.1	9.2	5.7	87
10. Other Hindus	74.7	15.7	9.6	83	92.2	3.9	3.9	77
II Muslims	82.6	5.7	11.7	35	94.0	4.0	2.0	50
III Christians	100	-	-	1	100	-	-	1
Total	66.9	17.5	15.6	752	87.8	8.2	4.0	844

(Contd.)

Table 18. ***(Concld.)***

Caste and Religion	4th Std.				Total			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
I. HINDUS								
1. Brahmins, Prabhus, etc.	100	-	-	16	93.4	3.3	3.3	30
2. Wani, Sonar, etc.	100	-	-	15	100	-	-	38
3. Marathas	95.9	2.6	1.5	388	81.8	10.5	7.7	1186
4. Mali	90.9	9.1	-	11	77.1	20.0	2.9	35
5. Artisan castes	97.0	1.5	1.5	66	90.4	4.8	4.8	146
6. Service castes	97.8	-	2.2	45	82.2	9.2	8.6	152
7. Lingayats	96.9	3.1	-	64	89.6	8.3	2.1	145
8. Gujaratis & Marwadis	100	-	-	26	89.8	5.1	5.1	59
9. Scheduled castes	96.6	3.4	-	68	79.8	11.3	8.9	257
10. Other Hindus	98.2	0.9	0.9	115	89.5	6.2	4.3	275
II Muslims	100	-	-	30	92.2	3.5	4.3	115
III Christians	100	-	-	-	100	-	-	2
Total	96.9	2.0	1.1	844	84.5	8.9	6.6	2440

standards. The same feature is noticeable on a consideration of the data relating to the other substantial groups, i.e., the Marathas, the scheduled castes and the service castes. The average result of the scheduled castes is worse than that of the Marathas, but the lapse shown by the Maratha sample leaving the 2nd standard is greater than that shown by the similar sample of the scheduled castes. The composition of the total sample obviously plays in this case a very important part. The scheduled castes sample contains a much smaller percentage of 4th passed students, for example, than the sample of any other substantial group. It follows also that there is a high concentration in the schedule castes sample of those leaving in the lower standards. These data therefore indicate that except in the case of the advanced Hindus castes and that of the Muslims and, perhaps, the Lingayats, the community factor does not materially affect the extent of the lapse of persons who had left school in specific standards, and that in the other groups there is a marked Variation in average results largely because there is a marked variation in the composition of the sample. The chief difference made in the extent of literacy is thus the difference made by the fact that students of some communities continue their school education, on an average, up to higher standards than those of others.

Apart from the special factor of caste the fact of occupation might have the most considerable importance. The concentration of the sample, Table No. 19, in the occupation of agriculture did not make it possible to obtain many sub-groups for comparative purposes. The numbers in most groups other than agriculture are not large. The very small sub-group of those actually engaged in writing or accounting work, of course, shows no case of lapse. It is, however, to be noted that there are lapses recorded amongst owners of shops. Most rural shops are very small affairs and the business of a majority of them can get on without the maintenance of any written record or accounts or correspondence. The landless labour class shows the highest proportion of lapse, higher than that of the agriculturists, both in the average and for individual standards; Those engaged in labour, other than agricultural, such as service at shop, etc., show a smaller degree of lapse than the agricultural labourers but larger than that of the group of agriculturists. Those engaged in the artisan occupations, on the other hand, show a percentage of lapse which is less than that of the agriculturists, both in the average and for specific standards. None of these results are of an unexpected nature. As the bulk of the rural population belongs to the agriculturist and labouring class, it is their problem with which we are chiefly

Table 19. Survey Results Classified According to the Present Occupation of the pupil and the Standard at the time of leaving School.
[L.—Literate, S. L.—Semi-literate, I.—Illiterate]

Present Occupation	2nd Std.				3rd Std.			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Agriculture	64.8	18.6	16.6	483	86.5	9.5	4.0	569
Shop owner	89.4	5.3	5.3	19	94.4	5.6	-	36
Clerical, accounts, etc.	100	-	-	1	100	-	-	3
Agricultural labour	52.0	20.0	28.0	25	84.6	3.8	11.6	26
Shop-assistants, etc.	62.9	22.3	14.8	27	87.1	9.7	3.2	31
Artisans	72.1	14.5	13.4	89	92.4	4.8	2.8	105
Others	75.8	12.7	11.5	87	90.6	6.3	3.1	64
Not given	75.0	-	25.0	4	100	-	-	2
Non-earners & unemployed	52.9	35.3	11.8	17	75.0	-	25.0	8
Total	66.9	17.5	15.6	752	87.8	8.2	4.0	844
Persons with subsidiary occupations	69.9	16.5	13.6	206	89.0	6.9	4.1	245

(Contd.)

Table 19. ***(Concld.)***

Present Occupation	4th Std.				Total			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Agriculture	96.0	2.6	1.4	506	82.8	10.1	7.1	1558
Shopowner	100	-	-	66	96.7	2.5	0.8	121
Clerical, accounts, etc.	100	-	-	1	100	-	-	5
Agricultural labour	100	-	-	17	76.5	8.8	14.7	68
Shop-assistants, etc.	100	-	-	17	81.3	12.0	6.7	75
Artisans	97.6	1.8	0.6	166	89.7	5.8	4.5	360
Others	98.4	1.6	-	61	86.8	7.5	5.7	212
Not given	100	-	-	2	87.5	-	12.5	8
Non-earners & unemployed	87.5	-	12.5	8	66.7	18.2	15.1	33
Total	96.9	2.	1.1	844	84.5	8.9	6.6	2440
Persons with subsidiary occupations	96.8	2.0	1.2	255	86.3	7.9	5.8	706

concerned. But it is noteworthy that being engaged in even artisan or trading pursuits does not necessarily lead to prevention of a lapse into illiteracy.

The next feature of economic importance is the annual income of the person tested. It might be stated at the outset that information relating to this could not be easily calculated and was not very freely given; and it is, perhaps, subject to a large margin of error. On the whole, however, the information makes it possible to classify results in broad, groups. Table No. 20 shows the results of this classification. The average literacy progressively increases as income mounts up till the figure of Rs. 300 of annual income is reached. The individual standard results are largely similar. The lapse in the second standard cases is progressively lower till the Rs. 200 annual income limit is reached; but as between those whose income varies between Rs. 100 and 199 and those whose income lies between Rs. 200 and 299 the higher income group shows a slightly, greater percentage of lapse. The same is the case with the two groups Rs. 51 to 74 and Rs. 75, to 99. But if the whole group with an annual income of Rs. 51 to 99 is considered together then the percentage of lapse that it shows is markedly greater than the lapse in the group Rs. 100 to 199. Also, the lapse in the group of people whose income is shown to be specially low, i.e., below Rs. 50, is very high not only in the average but also in the 2nd and the 3rd standards. A feature that was brought out in the discussion of the factor of castes is further emphasized by this table. This relates to the composition of the sample. In the high income groups the concentration of the sample in the higher standards is marked. This naturally affects average results. It is, however, to be noted that the variations in the individual standard results are also definitely more marked in the case of income groups than in the case of caste groups; so that among persons leaving school in the same standard persons in the lower income groups seem to tend to suffer from a larger liability to lapse. The progressive tendency is not, however, to be marked after the average income of about Rs. 200 per annum has been reached. Lapse is specially pronounced only in lower ranges, i.e., in the class of the very poor.

Other facts of economic importance are earning status and unemployment. Our enquiry revealed that less than 1 per cent of the persons tested were non-earners and the total number of unemployed recorded was only 8. There is, therefore, no point in discussing these features in relation to our statistics.

A fact which is presumably of some importance in the retention of literacy is the question of migration to outside

Table 20. Survey Results Classified According to the Annual Income of the Pupil and the Standard at the time of Leaving School.
[L.—Literate, S. L.—Semi-literate, I.—Illiterate]

Annual Income	2nd Std.				3rd Std.			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Rs. 50 & below	53.3	26.7	20.0	60	84.5	10.3	5.2	58
Rs. 51-74	66.0	13.6	20.4	162	85.0	8.3	6.7	120
Rs. 75-99	62.5	18.0	19.5	72	85.1	9.9	5.0	101
Rs. 100-199	72.2	15.2	12.6	270	88.6	8.2	3.2	317
Rs. 200-299	71.1	21.1	7.8	90	92.5	6.7	0.8	120
Rs. 300-399	66.7	26.6	6.7	15	83.4	3.3	13.3	30
Rs. 400-499	71.4	14.3	14.3	7	100	-	-	13
Rs. 500-749	81.8	9.1	9.1	11	100	-	-	15
Rs. 750 & over	100	-	-	3	100.	-	-	2
Not given	80.0	20.0	-	5	92.9	7.1	-	14
Common income earners, non-earners, unemployed	50.8	24.6	24.6	57	81.5	13.0	5.5	54
Total	66.9	17.5	15.6	752	87.8	8.2	4.0	844

(Contd.)

Table 20. ***(Concld.)***

Annual Income	4th Std.				Total			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Rs. 50 & below	97.6	-	2.4	41	76.1	13.8	10.1	159
Rs. 51-74	94.5	1.8	3.7	111	79.9	8.7	11.4	393
Rs. 75-99	95.0	2.5	2.5	81	81.9	9.8	8.3	254
Rs. 100-199	98.0	2.0	-	343	87.3	8.0	4.7	930
Rs. 200-299	97.8	2.2	-	134	88.9	8.7	2.4	344
Rs. 300-399	97.1	2.9	-	35	86.3	7.5	6.2	80
Rs. 400-499	100	-	-	15	94.4	2.8	2.8	35
Rs. 500-749	100	-	-	14	95.0	2.5	2.5	40
Rs. 750 & over	100	-	-	7	100	-	-	12
Not given	100	-	-	12	93.5	6.5	-	31
Common income earners, non-earners, unemployed	92.2	3.9	3.9	51	74.1	14.2	11.7	162
Total	96.9	2.0	1.1	844	84.5	8.9	6.6	2440

places or a stay at them for definite periods. The permanent migrants could, of course, not be included in our sample. It included only those who had gone out for some time and had later returned to the village. The vast majority of those who thus migrated temporarily did so seeking employment of some type or another. Of those who had stayed outside the village for a period of some months or more at some time in their previous career 95 per cent did so in order to earn their living. Table Nos. 21-22 give details relating to the places to which migrants had gone and the periods for which they had stayed away. The bulk of the migrants went to Bombay and the Bombay migrants sample, which is the only substantial one, shows results which are on the avenue and for specific standards only a little better than the average of the whole, sample. Similarly the period table does not give any definite indication. While, for example, in the lapse of 2nd standard pupils those who had stayed away for less than a year show larger lapse than those who had gone away for between one year and 2 years, those who had stayed away for more than 4 years do not show a lapse significantly less than those who had stayed away for only between a year and two. On the whole, the table would indicate that occasional or periodic migration to plates like Bombay for earning a living does not help the retention of literacy or the prevention of lapse to any significant extent.

8. Reading and Writing Habits.—Other important factors of individual circumstance in relation to the retention of writing and reading skills are writing and reading habits formed by individuals. It is obvious that to the extent that reading habits have been formed or occasions for exercising skill in writing are available this would prevent a lapse into illiteracy. Information relating to both these facts were, of course, taken down as reported by the person tested himself and could not be separately checked. The information has been tabulated in Table Nos. 23 and 24. It is, noteworthy that quite a substantial number of those who professed to have occasions for reading domestic correspondence, etc., were found not to be possessed of any writing ability and that this was true to a small extent even of those who professed to write letters occasionally. Some of the latter could not pass the writing test administered to them. Apart from this the data are important as revealing the extent to which reading and writing skills remain unutilised in after life. A very substantial proportion confessed to having no occasions either for reading or writing after they had left school. If we consider that those who reported that their reading and writing was confined to domestic

correspondence also fall within the category of general non-use of ability (and this assumption can be made easily because of the great infrequency of rural correspondence) then those who do not find any ordinary use for the skills acquired during school formed evidently a majority in the case of reading and a large majority in the case of writing, of the total population of ex-pupils. This emphasizes the fact that without any special effort being made to see

Table 21. Survey Results Classified According to the Place of Migration and the standard at the time of Leaving School
[L.—Literate, S. L.—Semi-literate, I.—Illiterate]

Place of migration	2nd Std.				3rd Std.			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Bombay	74.3	17.1	8.6	70	86.4	13.6	-	96
Poona, Sholapur, etc.	66.7	16.7	16.6	6	100	-	-	16
Satara, etc.	50.0	50.0	-	2	100	-	-	4
More than one of above	90.0	-	10.0	10	100	-	-	7
Others	65.9	19.2	14.9	47	90.9	6.8	2.3	44
Total migrants	71.9	17.0	11.1	135	89.8	9.6	0.6	167
Non-migrants	65.8	17.7	16.5	617	87.3	7.8	4.9	677
Grand Total	66.9	17.5	15.6	752	87.8	8.2	4.0	844

(Contd.)

Table 21. ***(Concld.)***

Place of migration	4th Std.				Total			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Bombay	96.4	2.4	1.2	83	86.4	10.8	2.8	249
Poona, Sholapur, etc.	100	-	-	14	94.4	2.8	2.8	36
Satara, etc.	100	-	-	10	93.7	6.3	-	16
More than one of above	100	-	-	16	97.0	-	3.0	33
Others	97.2	1.4	1.4	71	86.4	8.0	5.6	162
Total migrants	97.4	1.6	1.0	194	87.9	8.5	3.6	496
Non-migrants	96.8	2.1	1.1	650	83.6	9.1	7.3	1944
Grand Total	96.9	2.0	1.1	844	84.5	8.9	6.6	2440

Table 22. Survey Results Classified According to the Period of Stay Outside the Village and the Standard at the time of Leaving School
[L.—Literate, S. L.—Semi-literate, I.—Illiterate]

Period of stay outside the Village	2nd Std.				3rd Std.			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Below 1 year	63.4	23.8	13.3	30	97.2	2.8	-	36
1 - 2 years	75.0	20.8	4.2	24	83.9	12.9	3.2	31
3 - 4 years	68.8	18.7	12.5	16	84.4	15.6	-	32
4 and over years	75.4	13.1	11.5	61	90.0	10.0	-	60
Not given	75.0	-	25.0	4	100	-	-	8
Total migrants	71.9	17.0	11.1	135	89.8	9.6	0.6	167

(Contd.)

Table 22. ***(Concld.)***

Place of migration	4th Std.				Total			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Below 1 year	97.4	-	2.6	39	87.6	7.6	4.8	1O5
1 - 2 years	100	-	-	26	86.4	11.1	2.5	81
3 - 4 years	93.1	6.9	-	29	84.4	13.0	2.6	77
4 and over years	97.8	1.1	1.1	94	89.3	7.0	3.7	215
Not given	100	-	-	6	94.4	-	5.6	18
Total migrants	97.4	1.6	1.0	194	87.9	8.5	3.6	496

Table 23. Survey Results Classified According to the Present Reading Habit of the pupil and the Standard at the time of Leaving School
[L.—Literate, S. L.—Semi-literate, I.—Illiterate]

Present reading habit	2nd Std.				3rd Std.			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Private correspondent	92.6	7.5	-	172	96.6	3.0	0.4	269
News-papers	98.4	1.6	-	64	98.4	1.6	-	124
Religious books	95.8	4.2	-	24	94.8	5.7	-	35
Miscellaneous (occasional)	89.3	10.7	-	131	90.5	9.5	-	168
None	38.9	28.6	32.5	361	70.1	16.6	13.3	248
Total	66.9	17.5	15.6	752	87.8	8.2	4.0	844

(Contd.)

Table 23. *(Concld.)*

Present reading habit	4th Std.				Total			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Private correspondent	99.3	0.7	-	269	96.7	3.2	0.1	710
News-papers	98.6	1.4	-	208	98.5	1.5	-	396
Religious books	98.1	1.9	-	55	96.5	3.5	-	114
Miscellaneous (occasional)	100	-	-	164	93.5	6.5	-	463
None	86.5	7.4	6.1	148	58.5	20.5	21.0	757
Total	96.9	2.0	1.1	844	84.5	8.9	6.6	2440

Table 24. Survey Results Classified According to the Present Occasions for Writing and the Standard at the Time of Leaving School
[L.—Literate, S. L.—Semi-literate, I.—Illiterate]

Present Occasions for Writing	2nd Std.				3rd Std.			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Occasional correspondence	95.3	4.7	-	244	97.9	2.1	-	381
Accounts	100	-	-	41	97.3	2.7	-	75
Accounts & correspondence	66.7	33.3	-	3	91.7	8.3	-	12
Nil	49.4	25.4	25.2	464	75.5	15.5	9.0	376
Not given	-	-	-	-	-	-	-	-
Total	66.9	17.5	15.6	752	87.8	8.2	4.0	844

(Contd.)

Table 24. ***(Concld.)***

Present Occasions for Writing	4th Std.				Total			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Occasional correspondence	100	-	-	495	98.2	1.8	-	1120
Accounts	99.1	0.9	-	108	98.7	1.3	-	224
Accounts & correspondence	100	-	-	7	90.9	9.1	-	22
Nil	89.3	6.9	3.8	233	67.1	18.0	14.9	1073
Not given	100	-	-	1	100	-	-	1
	96.9	2.0	1.1	844	84.5	8.9	6.6	2440

that reading habits are developed and kept up or that occasions for writing are provided the abilities acquired at school are in the majority of instances unused even though they might not be lost. The case of non-use of an ability throughout life is only theoretically different from actual loss of that ability. A potential that is never realised cannot be considered to have any special significance. Thus while the investigation might be said to reveal a remarkable degree of retention of ability in spite of general non-use, it seems to emphasize that the main problem is not so much relating to the extent of lapse as that relating to making provision for the general use of the faculties with which school education

endows pupils.

9. *Period of Leaving School.* — We may now, go on to consideration of the question of the possibility of the increase in lapse in relation to the duration of the period after leaving school. Table No. 25 gives data relating to the different periods of years during which the pupils left school classified according to the standards in which they left it. The latest period is the single year 1936, and the earliest period is the quinquennium 1911-1915. The most important feature of this table is the lapse shown by the group of students leaving school in 1936. This lapse, for the average, is of almost the same degree as the average lapse for the whole sample for all periods. The examination of the data by standards reveals however, some peculiar features. The lapse amongst students leaving school in the 2nd standard in 1936 is appreciably smaller than the average lapse of students in this class; whereas this feature is not noticeable amongst students leaving in the 3rd standard in 1936. Curiously enough the lapse in students leaving in the 3rd standard is slightly larger than the corresponding percentage for students leaving in the 2nd standard for the group of students, leaving, school in 1936. This curious reversal in proportions, which is not exemplified elsewhere, may be taken as a statistical accident. But the very large lapse among the 3rd standard students of 1936 indicates that most of the lapse into illiteracy takes place within 5 years of the student's leaving school. Our data do not enable us to say definitely whether a further worsening of the situation takes place between the 5 year and the 10 year period. The very considerable difference in the percentage of lapse between students who left school in 1936 in the, 2nd standard and those who left it in the 2nd standard between the years 1931-35 presumably points to such a worsening of the situation. In the data, no further accentuation of the lapse is shown to come about after 10 years of leaving school. The lapse among the group of students leaving school in 1931-35 is the highest among those leaving in the 2nd standard and the 2nd highest among those leaving in the 3rd standard. It is also higher for those leaving it in 4th standard than for the groups of students leaving school between 1921-30. The data do not thus point to any further progressive increase of lapse with the progress of years. In the period groups before 1931 the results do not show any arrangements which can be related to sequence in time. Among students leaving school in the 2nd standard the period 1916-20 shows the best result; whereas for those leaving school in the 3rd and the 4th standards the corresponding periods are 1911-15 and 1921-25. The very broad conclusion which the table may seem to indicate is

that the bulk of the lapse takes place within 5 years of leaving school and that while some further increase in the proportion may take place between the period of 5 and 10 years no progressive increase seems to take place after a group of students has left school for a 10 year period.

Table 25. Survey Results Classified According to the Period of Leaving School and the Standard at the Time of Leaving School.
[L.—Literate, S. L.—Semi-literate, I.—Illiterate]

Period	2nd Std.				3rd Std.			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1911-15	63.8	15.0	21.2	113	92.5	4.7	2.8	106
1916-20	76.3	14.5	9.2	131	90.7	6.0	3.3	150
1921-25	66.1	18.6	15.3	124	83.8	10.2	6.0	117
1926-40	69.5	15.0	15.5	174	86.8	10.0	3.2	189
1931-35	58.4	21.9	19.7	137	86.5	8.6	5.9	186
1936	66.6	24.7	8.7	69	88.2	9.4	2.4	85
Not given	60.0	-	50.0	4	100	-	-	11
Total	66.9	17.5	15.6	752	87.8	8.2	4.0	844

(Contd.)

Table 25. ***(Concld.)***

Period	4th Std.				Total			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1911-15	94.9	5.1	-	98	83.0	8.5	8.5	317
1916-20	96.0	3.2	0.8	126	87.7	7.9	4.4	407
1921-25	98.2	0.9	0.9	117	82.4	10.1	7.5	358
1926-40	97.2	2.3	0.5	215	85.5	8.6	5.9	578
1931-35	96.7	0.5	2.8	213	83.0	8.8	8.2	536
1936	98.6	1.4	-	70	84.8	11.6	3.6	224
Not given	100	-	-	5	90.0	-	10.0	20
Total	96.9	2.0	1.1	844	84.5	8.9	6.6	2440

It is likely that the interpretation of the data contained in this table is complicated by other educational factors influencing lapse than the mere passage of time. It may perhaps be contended that the quality of teaching may deteriorate or that the composition of the student population may change with different periods and that this would lead to changes in results which may conceal the fact of progressive lapse with passage of time. With the data available it is not possible to deal completely with suggestions of this type. It might, however, be pointed out that if there has been a progressive deterioration in the quality of teaching the fact should be evidenced in the results by some regular trend. As pointed out above, however, there is no definite relation, inverse or direct, to be seen with progressive periods in the table. The results for each quinquennium do not differ from the preceding and the succeeding quinquenniums always in given directions. Unless, therefore, it is postulated that deterioration in teaching standards, and consequently, of the attainment of students at leaving school, varied from period to period in a hap-hazard manner the suggestion of this factor affecting the statistics materially does, not seem to be tenable. An individual factor, information regarding, which is available in our data, is the present age of persons in the sample. The data relating to this classified by standards is set out in table No. 26. The only remarkable feature about this table, is that the younger age groups for all standards show large percentages of lapses which are, in some cases, even larger than the average. It shows further that there is no tendency for the lapse to increase with advance in age. On the other hand, it is not necessarily the oldest age groups which show the most considerable retention of literacy. The present age of students cannot be directly connected with the phenomenon of lapse but has to be connected with it through the two factors of the age at leaving school and the length of time since a pupil left school. More detailed comments have therefore been made in paragraphs dealing with those features of the situation.

10. *Talukas.* — The talukas are, of course, not in themselves homogeneous and from each, as has been pointed out above, are included samples of different types of schools and different types of physical environment. However, in some broad respects the characteristics of the sample for the taluka as a whole may be uniform within the taluka and differ from the samples of other talukas. It would be interesting, therefore, to see whether the results show any marked difference between taluka and taluka which could be significantly interpreted. Table No. 27 gives data relating to talukas classified by standards. Its most arresting feature is perhaps the large differences in the results as between the different talukas.

Table 26. Survey Results Classified According to the Present Age of the Pupil and the Standard at the Time of Leaving School.
[L.—Literate, S. L.—Semi-literate, I.—Illiterate]

Present Age	2nd Std.				3rd Std.			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11-15	56.0	20.0	24.0	25	77.8	11.1	11.1	9
16-20	58.6	24.1	17.3	133	87.6	8.8	3.6	137
21-25	66.2	18.5	15.3	157	85.9	9.6	4.5	198
26-30	69.4	13.9	16.7	144	86.3	10.6	3.1	161
31-35	74.5	16.2	9.3	108	86.7	6.2	7.1	113
36-40	69.4	16.2	14.4	118	91.9	6.5	1.6	124
41-45	69.8	12.7	17.5	63	91.0	5.6	3.4	88
46 & over years	-	33.3	66.7	3	92.3	-	7.7	13
Not given	100	-	-	1	100	-	-	1
Total	66.9	17.5	15.6	752	87.8	8.2	4.0	844

(Contd.)

Table 26. ***(Concld.)***

Period	4th Std.				Total			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
11-15	100	-	-	4	65.8	15.8	18.4	38
16-20	93.5	1.9	4.6	107	79.0	12.2	8.8	377
21-25	98.7	0.9	0.4	222	85.4	8.7	5.9	577
26-30	97.6	1.2	1.2	170	85.3	8.2	6.5	475
31-35	98.3	1.7	-	118	86.7	8.0	5.3	339
36-40	96.2	3.1	0.7	126	86.1	8.4	5.5	368
41-45	94.4	5.6	-	89	86.7	7.5	5.8	240
46 & over years	100	-	-	7	82.6	4.3	13.1	23
Not given	100	-	-	1	100	-	-	3
Total	96.9	2.0	1.1	844	84.5	8.9	6.6	2440

It is almost equally surprising that the talukas which do the best or the worst have not necessarily much in common. The best results are shown by talukas of such diverse types as Wai, Man and Shirala. On the other hand the worst two, i.e., Jaoli and Khanapur are equally divergent in characteristics. The somewhat random distribution of results, i.e., their non-association with any specific types of taluka is further brought out on an examination of the results by standards. Those who do the worst for pupils leaving school in the 2nd standard do not necessarily show the worst results for pupils leaving in the 3rd standard. For example, Khanapur which has the 2nd worst result for second standard pupils has a better showing than the average for pupils of the 3rd standard while Man which has, a remarkably low percentage of lapse among 2nd standard pupils (by far the least among talukas) has a percentage of lapse among 3rd standard pupils which is much higher than the average. Among all the talukas the Jaoli group, however, shows a consistently bad result. Whether interpreted by standards or by types of schools the Jaoli data are, seen to be among the worst in each sub-group. In its composition the Jaoli sample is not overloaded with such groups as that of the scheduled castes. It would, therefore, seem that the *ensemble* of Jaoli conditions whatever they might be, has definitely led to a greater lapse than in the other talukas. Elsewhere, no such conclusion, favourable or unfavourable, can evidently be drawn from the data. The taluka data might thus modify our previous conclusion to this extent that whereas single features of environment might not affect the situation a large conjunction of unfavourable physical, social and economic circumstances might lead to lapse being specially pronounced for a particular region.

11. *Conclusion.* — We may now summarise the composite results of the various factors affecting lapse which have been separately discussed so far. The important negative results may in the first instance be reiterated as they are somewhat remarkable. Our investigational data do not indicate that one-teacher schools are specially responsible for lapse of ex-pupils of the school system into illiteracy. To the extent that it has been possible to classify our results in that direction, the lack of training on the part of teachers does not also seem to be responsible for any special degree of such lapse. Confining ourselves to the specific phenomenon investigated and to the data collected during investigation we might state that one-teacher schools and untrained teachers do not in this connection seem to constitute problems of major importance.

Table 27. Survey Results Classified According to the Talukas and the Standard at the Time of Leaving School. [L.—Literate, S. L.—Semi-literate, I.—Illiterate]

Taluka	2nd Std.				3rd Std.			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Jaoli	52.6	10.6	36.8	19	70.0	15.0	15.0	20
Karad	60.3	19.1	20.6	68	83.3	13.9	2.8	72
Khanapur	47.5	32.8	19.7	61	88.2	7.4	4.4	68
Khatav	66.6	20.3	13.1	84	82.9	15.8	1.3	76
Koregaon	63.8	8.5	21.7	47	90.2	9.8	-	61
Man	88.0	-	12.0	50	84.5	7.0	8.5	71
Patan	79.2	11.9	8.9	67	92.8	4.3	2.9	70
Satara	45.4	27.3	27.3	33	81.6	18.4	-	49
Shirala	74.5	15.3	10.2	59	98.8	1.7	-	58
Tasgaon	59.4	22.4	18.2	116	88.4	2.3	9.3	129
Wai	84.1	2.3	13.6	44	90.4	4.8	4.8	63
Walwa	72.1	22.1	5.8	104	89.7	8.4	1.9	107
Total	66.9	17.5	15.6	752	87.8	8.2	4.0	844

(Contd.)

Table 27. *(Concld.)*

Period	4th Std.				Total			
	L %	S.L %	I %	Total No.	L %	S.L %	I %	Total No.
(1)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Jaoli	85.3	8.8	5.9	34	72.6	11.0	16.4	73
Karad	96.7	3.3	-	91	81.8	11.3	6.9	231
Khanapur	95.4	4.6	-	43	75.6	15.7	8.7	172
Khatav	97.0	3.0	-	67	81.1	13.6	5.3	227
Koregaon	93.7	4.2	2.1	48	83.3	7.7	9.0	156
Man	98.8	1.2	-	84	91.2	2.9	5.9	205
Patan	100	-	-	65	90.6	5.4	4.0	202
Satara	96.0	2.7	1.3	75	80.9	12.7	6.4	157
Shirala	100	-	-	64	91.2	5.5	3.3	181
Tasgaon	95.8	-	4.2	71	79.4	9.2	11.4	316
Wai	97.0	1.5	1.5	67	91.4	2.9	5.7	174
Walwa	98.6	0.7	0.7	135	87.9	9.5	2.6	346
Total	96.9	2.0	1.1	844	84.5	8.9	6.6	2440

The most important positive result of the investigation is to show a sharp fall in the lapse into illiteracy with the progressive increase of the standard in which a student leaves school. To a small extent the lapse seems also to be affected by the age at which a student leaves school, the lapse being smaller the higher the age at leaving. The most important obvious step towards preventing lapse is thus to keep the pupil at school up to as high a standard as possible. The investigational data would indicate that, as a minimum, it is necessary for a pupil to complete a 4-year course at school in order to ensure the retention of literacy through all his later life. Compulsion in this regard seems to be the only remedy that is likely to prove effective.

A feature of the situation brought out by this investigation which appears to be even more important than the extent of lapse is the large current non-use of ability or skill acquired at school. It appears that in the majority of instances reading and writing habits are neither developed nor maintained and that the educational effort is effectively wasted even though there is no actual lapse into illiteracy. It is to be noted that a small proportion of even those who have passed the 4th, standard examination report no current use at all of reading ability and that a very substantial proportion of them report no use of it other than that required in domestic correspondence. This indicates that the problem is not one to be met by mere increase of standards of years at school. Similarly it would appear that mere provision of passive agencies such as libraries could not materially affect the results. The percentages of lapse among those belonging to 7th standard schools, and among those inhabiting villages with a population of 2,000 and above and among those who have stayed at cities like Bombay, make it clear that mere increase in facilities or equipment would not solve the problem. If the abilities acquired at school are to be used and to prove fruitful their constant utilization must be stimulated by some active external efforts. These considerations are further emphasized by the fact that the incidence of lapse into illiteracy is specially high among the so called intermediate and backward classes, among agriculturists and agricultural labourers and among the very poor. A further intensification of educational effort will increase the proportion of students in the primary school system belonging to the above categories. It is highly unlikely that such persons will of themselves take steps to prevent a lapse or a non-use of abilities acquired at school. Therefore, in order to ensure that expenditure incurred on the system of Primary Education is not wasted the authorities must also accept the responsibility of providing for the stimulation and continued use of powers attained during a pupil's career at school. Our investigation indicates that a lapse into illiteracy, when it takes place, does so within a comparatively early period after leaving school. The efforts intended to be supplementary to the school system

must, therefore, be planned to begin almost immediately after the pupil's leaving school. The work aimed at preventing non-use of ability acquired at school will thus have two aspects (i) some type of continuation work in the period immediately after a pupil leaves school and (ii) activity aiming at stimulation and maintenance of reading and writing, etc., habits among adult ex-pupils. The continuation work should obviously be in the nature of extension, of the work of the school itself. In places where the present number of pupils handled per teacher is low this activity can be undertaken without any addition to the school staff. In other places additional staff would be necessary but the results would repay the expenditure. The second type of effort mentioned above would mean the branching out of adult education into aspects other than the mere imparting of literacy. Special classes for adults could of course, be conducted and adult education also must, in any event, be linked on to the work of the rural school. Activities such as special classes for adults might not, however, be administratively or financially possible in all areas and localities. It would, therefore, be of the greatest help if the aim of the stimulation of reading and writing ability is constantly borne in mind in all the Activities of the State. All kinds of rural development programmes might, if properly directed, help towards this end. What is really most required is that there should constantly flow into the village a stream of literature, of the casual sort circulars, notifications, leaflets, broadsheet, etc., printed in attractive manner, in bold type, containing material that would really interest the rural adult. It might even be suggested that this aspect of the stimulation of reading might be borne in mind even in the drawing up and printing of ordinary official notices publicly exhibited, such as those of the revenue department. And it should be defined, as the business of some agency, preferably of the rural school, to get as large a bulk of the population as possible interested in the literature so made available.

It does not fall within the scope of this report to enter into any details of the problem of educational reconstruction. It might, however, be claimed that the situation revealed by our investigation indicates the need of a minimum period of compulsory schooling being integrated with continuation and adult education activities. This in its turn leads to the conclusion that the future plan of educational reconstruction should not be based on the planting of a small number of highly developed central institutions in a large area, but should aim at continuing and developing educational activity as far as possible in each locality. The results pertaining to one-teacher schools and small villages in this investigation lead to the expectation that such a programme will not only be feasible but will also prove fruitful.

APPENDIX 1.
A Statistical Note on the Numerical Scoring of the Categories — Literate, Semi-literate and Illiterate.

As was explained in Chapter III, the investigation related to the retention of the ability to read and ability to write. The possession of the two abilities together, as revealed by a certain test procedure, was supposed to indicate possession of literacy. The non-possession of both these skills was taken to indicate lapse into illiteracy. There appeared, however, many cases where the reading ability was unaccompanied by ability to write. A special and intermediate category of persons was therefore defined and called semi-literates. They were considered as cases of partial lapse into illiteracy. However, though this distinction between the complete and partial lapse was made and was retained in the several statistical tables presented, on account of analytical difficulties, during the discussion on the tables, the complete and the partial lapse cases were often added together to obtain a measure of total lapse. A method to keep the distinction between the cases of complete and partial lapse while at the same time to obtain a joint measure of the total lapse, would be to attribute certain numerical scores to literates, semi-literates and illiterates, respectively which would enable the computation of average scores for subjects in various categories. A statistical basis of determining such numerical scores is explained in the following note.

To begin with we might note that obviously the literate must be assigned the maximum and the illiterate the minimum of the scores and that the semiliterate should have a score intermediate between the two. Next, in every system of numerical scoring, there is need to determine what is called the origin or zero point and the unit of measurement. In the present context, this means that we must decide initially to what degree of literacy we should assign the score zero and what difference in literacy should be called a unit difference. For instance, we might assign the 'illiterates' that is those who could neither read nor write, the score 0 and assign the 'literates' that is those who could both read and write the score 1, so that the difference between the two abilities is regarded as the unit difference. It is easy to see that both these decisions are arbitrary and are not more than a matter of convenience so that any other choice of the zero point and the unit of measurement would do equally well. For instance, we might assign the score 10 to the illiterate and the, score 11 to the semi-literate. This would mean that the difference between the degree of the literacy of the 'illiterate' and the 'semi-literate' was to be regarded as a unit and the zero point of literacy was to be placed 10 such units below the degree of literacy of the 'illiterate'.

It may be readily seen that the choice of a zero point and a scale of measurement does not affect the comparison between two groups of subjects. In the first place the difference between the scores of two subjects or average scores of two groups of subjects is not at all affected by the choice of the zero point just as the distance between two places on a road is not affected by the choice of a zero point wherefrom the mile stones have been laid. On the other hand the choice of the scale of measurement affects this difference but only in the same way as is affected the distance between the two places by our choice to measure it either in miles or in kilometers. It is obvious therefore, that the

choice of the zero point and the unit or scale of measurement may be made according to convenience and we propose that we might take the degree of literacy of the 'illiterate' as the zero and the difference between the 'illiterate' and the 'literate' as the unit difference.

The problem in scoring now to resolve is that if we regard the difference between the illiterate and the literate to be unity, what should be the difference between the semi-literate and the literate on the one hand and the semi-literate and the illiterate on the other. In other words, the scoring problem to resolve is that having placed the illiterate and the literate at the 0 and 1 points of a scale, respectively, where should we place the semi-literate. Obviously, it should be placed somewhere between the two we have therefore to determine the precise score between 0 and 1 that we should assign to the semi-literate.

This decision may be taken quite arbitrarily such that the semi-literate might be assigned the score $\frac{1}{2}$. It might also be taken on the basis of a more objective principle. We propose the following:-

Among the many factors we have considered as possibly affecting the retention of literacy, the most important, of course, is the standards from which the persons left the school. While determining the score between 0 and 1 to be assigned to the semi-literates, we might, therefore, so fix it as would maximise the differences between the average scores between groups of persons who left the schools in different standards. The actual computation of such a score is a matter of standard statistical procedure and we shall give below only the main computational steps.

If we assign the scores 0, x, and 1 to the illiterate, semi-illiterate and literate, respectively, the average scores of persons who left the school in 2nd, 3rd and 4th standards turn out to be (503 + 132 x) /752, (741 + 69 x) /844, and (818 + 17 x) /844, respectively. The average score of all the persons together is (2062 +218 x)/ 2440.

A statistical measure of the variation in the scores of all persons is called the Total Sum of Squares (Total S. S.) which in the present case is given by:—

$$\text{TotalS.S.} = 2062 + 218x^2 - \frac{2062 + 218x^2}{2440}$$

This measure of total variation is analysed into two components, namely, variation between groups of persons who left school in different standards and variation within these, groups. The component of variation between groups is called the Between Sum, of Squares (Between S. S.) and in the present case it is given by:—

$$\text{BetweenS.S.} = \frac{(503 + 132r)^2}{752} + \frac{(741 + 69x)^2}{844} + \frac{(918 + 17x)^2}{844} - \frac{(2062 + 218x)^2}{2440}$$

The other component, namely, variation within groups is obtained by subtracting the Between S.S. from the Total S. S. and is called the Within Sum of Squares (Within S. S.).

Now it is proposed to determine x, that is the score to be assigned to the semi-literate, so as to maximise the variation between the groups who left the school, in different standards as compared with the variation within these groups. For this purpose it is necessary to determine the value of x such as to maximise the ratio between the Between S. S. and the Within S. S.

The mathematical solution to this problem yields the value 0.2146 for x and that is the score we propose to assign to the semi-literate. It will be seen that thus determined the semi-literate is placed much nearer to the illiterate than to the literate.

In a series of tables numbered from No. 10-A to No. 27-A and given at the end of this appendix are given the average scores of persons classified by several factors earlier discussed. It will be seen that these tables are only extensions of the correspondingly numbered tables appearing in Chapter III. Hence for the details of the classifying factors, reference may be made to that chapter.

In order to judge the effect of any factor on the retention of literacy, it is, however, not enough to compare the average scores of groups of persons classified by the factor under examination. As we have seen, the main factor affecting the retention of literacy was the standard in which the persons left the school. The average scores of the groups of persons who left the school in II, III and IV standards, respectively turn out to be 0.7066, 0.8955 and 0.9735. Now the average scores of groups of persons classified by any factor such as say age at leaving school, might be different for no other reason except that the composition of the different groups in respect of the standards in which the persons left the school was different. Thus, the average score of persons who left the school at a younger age, might be low for no other reason except that a larger proportion of them left the school in lower standards. Hence in order to compare different groups of persons classified by any factor, we must make due allowance for possible differences in their compositions in respect of the, standards in which the persons left the school. A method to do this is to suppose that the factor under consideration was in fact not effective and that the differences in the average scores of different groups based on the factor under consideration were entirely due to the different composition of these groups in respect of the standards of leaving the school. We could then compute the average scores for the different groups to be expected on the basis of the above hypothesis. If the actual average scores are in close agreement with the average scores to be expected on the hypothesis, the hypothesis must be regarded as substantially true and hence the factor under consideration as ineffective. On the other hand, if the actual average scores do not agree with the expected scores, there is reason to suppose that the factor under consideration is effective.

In Tables, from No. 10-A to No. 27-A, we have shown, along with the actual average scores, the average scores to be expected on the hypothesis that the factor under consideration was not effective. In those groups where the actual score is more than the expected, the conditions might be regarded as more favourable to the retention of literacy. In order to facilitate the comparing of the actual average scores with the expected scores, the former are expressed as percentages of the latter.

An examination of these results would show that they are in general agreement with the observations earlier, made in Chapter III and that in some cases they would enable the earlier analysis to be carried a step further.

Table showing actual scores and the average scores to be expected on the the hypothesis that the factors under consideration were not effective in retaining literacy.

Table No. 10-A

Percentage of Pupils Tested to total available in Village	Villages no.	Average score	Expected score	Average score as percent of expected score
0-10	1	.900	.878	102.5
11-20	2	.794	.842	94.3
21-30	2	.921	.893	103.1
31-40	9	.892	.874	102.1
41-50	11	.876	.875	100.1
51-60	18	.853	.855	99.8
61-70	7	.883	.880	100.8
71-80	19	.866	.859	100.8
81-90	11	.847	.854	99.2
91-100	18	.868	.870	998
Not given	6	.842	.864	97.5
Total	104	.864	.864	100.0

Table No. 11-A

Cases tested	Villages no.	Average score	Expected score	Average score as percent of expected score
0-10	15	.919	.875	105.0
11-20	35	.855	.857	99.8
21-30	28	.855	.869	98.4
31-40	12	.845	.867	97.5
41-60	8	.877	.864	101.5
71-85 and 103	6	.879	.860	102.2
Total	104	.864	.864	100.0

Table No. 12-A

Population (1931 Census)	Villages no.	Average score	Expected score	Average score as percent of expected score
Below 600	10	.875	.853	102.6
Below 800	19	.855	.854	100.1
- Below 1000	13	.866	.865	100.1
- Below 1500	25	.892	.870	102.5
- Below 2000	11	.890	.870	102.8
- Below 3000	10	.823	.875	94.1
3000 & over	14	.854	.859	99.4
Not given	2	.782	.885	93.7
Total	104	.864	.864	100.0

Table No. 13-A

Communication class of village	Villages no.	Average score	Expected score	Average score as percent of expected score
I	11	.835	.853	97.9
II	11	.850	.879	96.7
III	11	.894	.873	102.4
IV	10	.914	.868	105.3
V	9	.834	.847	98.5
VI	10	.915	.867	105.5
VII	11	.852	.857	994
VIII	10	.847	.854	99.2
IX	11	.874	.866	100.9
X	10	.882	.872	95.4
Total	104	.864	.864	100.0

Table No. 14-A

School type	Villages no.	Average score	Expected score	Average score as percent of expected score
I	28	.880	.853	103.2
II	17	.837	.877	95.4
III	1	.819	.822	99.6
IV	10	.842	.846	99.5
V	10	.870	.856	101.6
VI	15	.916	.883	103.7
VII	4	.826	.882	93.7
VIII	10	.816	.860	94.9
IX	9	.888	.863	102.9
Total	104	.864	.864	100.0

Table No. 15-A

Further education received	Villages no.	Average score	Expected score	Average score as percent of expected score
I Technical craft	95	0.919	.878	104.7
II School (ordinary)	33	1.000	.839	119.2
III Adult education	5	1.000	.905	110.5
IV Other education	286	0.873	.864	101.0
V None	2021	0.858	.864	99,3
Total	2440	0.864	.864	100.0

Table No. 16-A

Duration of school-life	Villages no.	Average score	Expected score	Average score as percent of expected score
I Continuous				
3 years	370	.751	.772	97.3
4 years	387	.818	.828	98.8
5 years	424	.845	.867	97.5
6 years	348	.906	.899	100.8
7 years	269	.904	.907	99.7
8 years	152	.935	.913	102.4
9 & over years	162	.945	.932	101.4
II Discontinuous				
3 & less years	22	.893	.801	111.5
4 & 5	18	.714	.872	81.9
6 & 7	24	.869	.865	100.5
8 & 9	23	.854	.880	97.0
10 & 11	5	1.000	.974	102.7
12 & over years	3	1.000	.922	108.5
III Not given	233	.947	.888	106.6
Grand Total	2440	.864	.864	100.0

Table No. 17-A

Age at the time of leaving school (years)	Villages no.	Average score	Expected score	Average score as percent of expected score
9 and less	208	.707	.759	93.1
10-12	1,017	.839	.848	98.9
13-15	971	.915	.892	102.6
16-18	212	.898	.914	98.2
19-21	6	1.000	.885	113.0
22 & over	4	.750	.868	86.4
Not given	22	.909	.882	103.1
Total	2,440	.864	.864	100.0

Table No. 18-A

Caste & religion	Cases no.	Average score	Expected score	Average score as percent of expected score
I Hindus				
1 Brahmins, Prabhus, etc.	80	.940	.899	104.6
2 Wani, Sonar, etc.,	38	1.000	.882	118.4
3 Marathas	1,186	.840	.863	97.3
4 Mali	35	.814	.871	93.6
5 Artisan castes	146	.914	.892	102.5
6 Service castes	152	.842	.835	100.8
7 Lingayats	145	.914	.893	102:4
8 Gujaratis & Marwadis	59	.909	.875	103.9
9 Scheduled castes	257	.822	.841	97.7
10 Other Hindus	275	.908	.871	104.2
II Muslims	115	.929	.858	108.3
III Christians	2	1.000	.801	124.8
Grand Total	2,440	.864	.864	100.0

Table No. 19-A

Present Occupation	Cases no.	Average score	Expected score	Average score as percent of expected score
Agriculture	1,558	.850	.862	98.6
Shop owners	121	.972	.908	107.0
Clerical, accounts, etc.	5	1.000	.873	114.5
Agricultural labour	68	.784	.846	92.7
Shop-assistants, etc.	75	.839	.845	99.8
Artisans	360	.910	.885	102.8
Others	212	.884	.840	105.2
Not given	8	.875	.821	106.6
Non-earners & unemployed	33	.706	.817	86.4
Total	2,440	.864	.864	100.0
Persons with subsidiary occupations	706	.880	.869	101.3

TABLE No. 20-A

Annual income	Cases no.	Average score	Expected score	Average score as percent of expected score
Rs. 60 & below	159	.791	.844	93.7
Rs. 51- 74	393	.818	.840	97.4
Rs. 75- 99	254	.840	.867	96.9
Rs. 100-199	930	.890	.869	102.4
Rs. 200-299	344	.908	.876	103.7
Rs. 300-399	80	.879	.894	98.3
Rs. 400-499	35	.949	.891	106.5
Rs. 500-749	40	.955	.871	109.6
Rs. 750 & over	12	1.000	.894	111.9
Not given	31	.949	.895	106.0
Common income earners, non-earners, unemployed	162	.771	.854	90.3
Total	2.440	.864	.864	100.0

Table No. 21-A

Place of migration	Cases no.	Average score	Expected score	Average score as percent of expected score
Bombay	249	.887	.868	102.2
Poona, Sholapur, etc.	36	.960	.894	106.8
Satara, etc.	16	.951	.921	103.3
More than one of above	83	.970	.876	110.7
Others	162	.881	.875	100.7
Total migrants	496	.897	.875	102.5
Non-migrants	1,944	.856	.862	99.3
Grand total	2,440	.864	.864	100.0

Table No. 22-A

Period of stay outside the village	Cases no.	Average score	Expected score	Average score as percent of expected score
Below 1 year	105	.893	.871	102.5
1-2 years	81	.888	.865	102.7
3-4 years	77	.872	.886	98.4
4 and over years	215	.908	.876	103.7
Not given	18	.944	.880	107.3
Total migrants	496	.897	.875	102.5

Table No. 23-A

Present reading habits	Cases no.	Average score	Expected score	Average score as percent of expected score
Private correspondence	710	.973	.879	110.7
News-papers	396	.988	.906	109.1
Religious books	114	.972	.893	108.8
Miscellaneous (occasional)	463	.949	.870	109.1
None	757	.629	.821	76.6
Total	2,440	.864	.864	100.0

Table No. 24-A

Present occasions for writing	Cases no.	Average score	Expected score	Average score as percent of expected score
Occasional correspondence	1120	.986	.889	110.9
Accounts	224	.989	.899	110.0
Accounts and correspon-	22	.929	.895	103.8
dence	1073	.710	.831	85.4
Nil	1	1.000	.874	102.7
Not given				
Total	2,440	.864	.864	100.

Table No. 25-A

Period	Cases no.	Average score	Expected score	Average score as percent of expected score
1911-15	317	.848	.852	99.5
1916-20	407	.894	.859	104.1
1921-25	358	.846	.856	98.8
1926-40	578	.873	.868	100.6
1931-35	536	.849	.878	96.7
1936	224	.873	.862	101.3
Not given	20	.900	.877	102.6
Total	2,440	.864	.864	100.0

TABLE No. 26-A

Present age years	Cases no.	Average score	Expected score	Average score as percent of expected score
11-15	38	.692	.779	88.8
16-20	377	.817	.851	96.0
21-25	577	.873	.874	99.9
26-30	475	.870	.866	100.5
31-35	339	.884	.862	102.6
36-40	368	.879	.862	102.0
41-45	240	.883	.875	100.9
46 & over	23	.835	.895	93.8
Not given	3	1.000	.858	116.6
Total	2,440	.864	.864	100.0

Table No. 27-A

Taluka	Cases no.	Average score	Expected score	Average score as percent of expected score
Jaoli	73	.750	.883	84.9
Karad	231	.842	.871	96.7
Khanapur	172	.789	.848	93.0
Khatav	227	.840	.849	98.9
Koregaon	156	.850	.863	98.5
Man	205	.918	.881	104.2
Patan	202	.918	.858	107.0
Satara	157	.836	.893	93.6
Shirala	181	.923	.862	107.1
Tasgaon	316	.814	.844	96.4
Wai	174	.920	.878	104.8
Walwa	346	.899	.869	103.5
Total	2,440	.864	864	100.0

APPENDIX II
Village Information Questionnaire (Lapse into Illiteracy)

Village.....

(1) Distance from the nearest motor road
(2) Distance from the railway station
(3) Distance from the Bazaar village
(4) Distance from the taluka head-quarter
(5) Is there a motorable road upto the village?
(6) Is the cart-tract to the village serviceable throughout the year?
(7) If not, for how many months is it serviceable?
(8) Is there a post-office?
(9) Are there any co-operative and/or multi-purpose societies, banks; or other financial institutions?
(10) Is there a Gram-Panchayat?
(11) Are there reading-rooms and libraries?
(12) Number of news-papers and periodicals coming into the village
(13) Is there a weekly or fortnightly Bazaar?
(14) Particulars of fairs, annual or otherwise
(15) Are there any schools and dispensaries in or near the village conducted by Missionaries, and other public or private bodies?
(16) Population (Census) in 1911, 1921, 1931, and 1941
(17) History of the School

Date ..... Investigator’s signature.

APPENDIX III
Questionnaire for the ex-pupils of Primary School (Lapse into Illiteracy)

Village.....

(1) Name of ex-pupil

(2) Age.....(3) Religion .....(4) Caste .....

(5) (i) Literate ..... (ii) Semi-literate.....(iii) Illiterate .....

(6) Year of leaving school.....

(7) Number of years in school .....

(8) Standard at the time of leaving school:
(i) 2nd standard..... (ii) 3rd standard..... (iii) 4th standard.....

(9) Number of years in the standard at the time of leaving school .....

(10) Did he pass the 4th standard before leaving school?.....

(11) Post-school education.....

(12) Habit of reading written and printed matter .....

(13) Habit of writing and occasions for the same.....

(14) (i) Earner..... (ii) Non-earner..... (iii) Unemployed .....

(15) Period of unemployment.....

(16) Occupation: main..... Subsidiary.....

(17) Total annual income Rs.....

(18) Nature of various occupations followed after leaving school.....

(19) Details of migration from the village on account of service
or otherwise:- .....

Turns	Place	Period	Reason

Date ..... Investigator's signature

Appendix III-(contd.)

Instructions to investigators filling in the questionnaire for the ex-pupils of Primary School.

General:

This questionnaire is not to be filled in in cases of those who had passed the 4th standard examination and continued higher education.
Check by crossing the appropriate square wherever given.

Specific Items:

(5) Note the result of reading test and writing test.

(6) to 10) Primarily these are to be filled in from school register and later verified, by personal interview. If the person was educated in more than one school, all the relevant registers may have to be consulted.

(11) Note clearly the period and nature of post-school vocational, industrial, adult, etc., education undertaken.

(12) Specify fully the reading of religious and other types of books, pamphlets, newspapers, periodicals, monthlies, etc., printed material either owned or borrowed from, neighbours, libraries, etc., and also the reading of personal letters and other hand written material.

(13) Mention clearly specific occasions of writing letters, accounts, etc., personal or otherwise.

(15) Note the present period of continuous unemployment.

(16) Note the main and subsidiary occupations of those who are earners; in the case of unemployed note the occupation that was followed immediately before the present period of unemployment.

(17) Give here the total annual income of the person tested from all sources but *excluding* the income of other members of his family. When the person tested is solely dependent, write ‘no income’.

(18) When occupational pursuits after leaving school have been more than one, list various occupations followed.

(19) List the occasions of stay outside the village, for more than a month specifying the reasons for the same. In the case of seasonal migration, note the number of years for which the person was so migrating.

APPENDIX IV

Instructions to investigators administering writing and reading tests.

Make use of the selected passages printed in bold type and take care that these are not available for prior perusal to those who are to be tested.

If the pronunciation is not correct, so long as it is clear enough to convey the full meaning of the passage read, it should be admitted for passing the reading test. One or two sentences each from any two of the passages may be asked to be read.

For writing test at least two sentences from one of the passages be dictated. The hand-writing need be no more than legible in order to pass the test. But mere capacity to put ones signature should not be regarded as adequate writing ability. Attach written slip of paper to the appropriate form.

Literates are those who can read the printed passage and write at least two lines.

Semi-literates are those who can read the printed passage but cannot write anything except his own signature.

Illiterates are those who cannot both read and write.

REPORT OF INVESTIGATION INTO WASTAGE & STAGNATION IN PRIMARY EDUCATION IN SATARA DISTRICT

V. M. Dandekar

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CHAPTER I
INTRODUCTORY

1. *Initiation*.—In 1942, the Institute conducted, on behalf of the Government of Bombay, an investigation in to the Problem of Lapse into illiteracy, the report of which was published by the Government in 1945. Immediately after the completion of this investigation, the Government considered the possibility of a similar inquiry into another important phenomenon concerning primary education, namely, the "Wastage in Primary Education" and by a letter from the Director of Public Instruction dated the 6th October, 1944, enquired whether the Institute could undertake to conduct such an investigation. On 22nd January, the Institute proposed that "it could undertake to plan the investigation, supervise its conduct, tabulate the data and write the report". At the same time, the Director of the Institute gave a brief idea as to the scope and method of the contemplated enquiry. In the following is given an extract from his note:—

"An investigation into wastage will have to start with an assumed definition. In the light of the results of the earlier investigation, it might be taken for granted that students who leave school in the infant, first or second standards fail to gain lasting literacy and that expenditure of public funds on their training has been practically wasted. Investigation will, therefore, be directed to finding out the conditions under which and the reasons for which students leave schools at these stages. It would not be possible to obtain reliable information in these respects, relating to pupils who left school some years ago. Therefore, the investigation must be confined to a sample of such pupils who had left school not more than 3 years previously. The number of individuals included in the sample should at least be 5,000. It is not known what numbers leave school per year, on an average, in these standards, and, therefore, what the total number of schools to be included in the investigation will be. This point could be determined after obtaining the relevant statistics from a small sample of schools. As in the former investigation, the school sample will be made of a variety of types of schools spread over areas with different natural and other conditions".

"The sample of pupils will be, all the ex-pupils, as defined above, of the selected schools. As in the previous investigation the staff of each selected school could prepare the lists of these pupils and could ascertain which of them are locally available. There will be no test administered in this investigation. The enquiry will be directed to ascertaining in detail the reasons of withdrawal of the student from school and into the present

occupation and conditions, social and economic of the ex-student and his guardian. Appropriate questionnaires will have to be drawn up for this purpose. In the larger schools it might be possible to entrust the Headmasters with this enquiry and only a sample check by A.D.E.I.'s would perhaps suffice. Elsewhere it might be better if the A.D.E.I.'s themselves conduct the enquiry."

By their letter dated the 3rd May, 1945, the Government accepted these proposals and entrusted the work to the Institute. On 19th June, the Institute further proposed that "the problem of stagnation is usually considered in connection with that of wastage and that some investigation into it could be very usefully combined with the projected investigation into wastage." The Government approved of this suggestion on the 13th October, 1945 and agreed to combining of the two enquiries.

As to the area in which the investigation might be undertaken it was proposed and agreed to that, as in the previous enquiry, it should be the Satara District. In the present case, however, the investigation was to be confined to only the northern six talukas of the district, as the political situation then, was rather disturbed and unsettled in the southern talukas.

The questionnaire schedules were prepared and sent to the Government on the 20th October, for getting them printed. There were two schedules, one relating to the individual student and his guardian and the other relating to the conditions in the selected village and the school. The questionnaire relating to the individual student completely covered both the Wastage and Stagnation enquiries; only in the latter case, some of the questions would not be required to be asked.

Copies of the printed questionnaire schedules were ready and received on the 13th of December, 1945 and the first conference with the Assistant Deputy Educational Inspectors was held on the 14th December in the office of the Deputy Educational Inspector at Satara.

2. *Sample of Schools.*—In the meanwhile a sample of primary schools was selected for the purpose of the investigation. As will be clear from the definitions of the problems under study it was necessary that the selected schools were working at least from 1940 and were providing, instructions at least upto the third primary standard. A list of such Local Board Schools was available from the office of the Deputy Educational

Inspector, Satara. The schools were classified according to the standard up to which instruction was provided in them. This is given in Table No. 1.

Table No. 1. District Local Board Primary Schools in Six Talukas of Satara District Distributed According to the Standard up to which Tuition was Provided for

Taluka	Standard up to which tuition provided				
	I, II	III.	IV.	V, VI, VII.	Total.
Jaoli	2	24	13	7	46
Khatao	6	26	21	21	74
Koregaon	1	26	38	33	98
Man	3	15	12	13	43
Satara	8	22	25	34	84
Wai	6	23	22	20	71
Total	21	186	131	128	416

Omitting all schools not providing instruction up to the third standard a 40 per cent sample was selected out of the remaining schools. The number of schools of various categories selected from the different talukas are given in Table No. 2.

Table No. 2. Number of Local Board Schools Selected for Investigation Distributed by Talukas and by School Types.

Taluka	Standard up to which tuition provided			
	III.	IV.	V, VI, VII.	Total.
Jaoli	9	5	3	17
Khatao	10	8	8	26
Koregaon	10	14	12	36
Man	5	5	5	15
Satara	8	9	13	30
Wai	9	8	7	24
Total	51	49	48	148

Besides the Local Board Schools, there are in this district a large number of voluntary schools managed by the Rayat Shikshan Sanstha of Satara. It was thought that a sample of these voluntary schools might be usefully included. In Table No. 3 are given the total number of working voluntary schools in the six talukas and the number selected out of them.

Table No. 3. Total Number of Voluntary Schools and the Number Selected for Investigation Distributed by Talukas.

Taluka	Total Number	Number, selected
Jaoli	36	18
Khatao	57	28
Koregaon	8	4
Man	52	26
Satara	26	13
Wai	25	13
Total	204	102

3. *The Preliminary Conference.*—At the first conference with the Assistant Deputy Educational Inspectors held at Satara, on the 14th December, 1945, which was also attended by the supervisors of the voluntary schools, the questionnaire schedules and the list of selected villages were, discussed. The questions in the schedules and the manner of answering them were explained to the ADEI's and the supervisors. No change was made in the list of selected villages except the omitting of a few, where it was reported that the schools were not working for sometime past, either due to the village sites having been acquired by military or due to plague which was then prevalent in an epidemic form in many parts of the district. The ADEI's and the supervisors were each given a few copies of the questionnaire schedule relating to the individual student and they were requested to fill them in for any students convenient to them, so that the schedule might be discussed at the next conference in greater detail and from the point of view of the field work. Secondly, separate lists of the selected schools falling in the beats of the several ADEI's and the supervisors were prepared and handed over to the respective officers and they were requested to require the headmasters to prepare lists of students requiring further investigation either as Wastage or as Stagnation cases, as per definitions.

4. *Definitions.*—For the purpose of the investigation the following definitions were decided upon and explained at the conference:—

Wastage:-

A pupil who without passing the third standard left the school between 1st June 1942 and 31st December, 1945, both dais inclusive, should be considered a wastage case.

Stagnation:—

The following four types of pupils were to be regarded as cases of stagnation:—

(*i*) One who was first admitted to the school on or before 30th April, 1944 and was in January, 1946 on roll of the Infant class.

(*ii*) One who was first admitted to the school on or before 30th April, 1943 and was in January, 1946 on roll of the First Standard.

(*iii*) One who was first admitted to the school dn or before 30th April, 1942 and was in January, 1946 on roll of the Second Standard.

(*iv*) One who was first admitted to the school on or before 30th April 1941 and was in January, 1946 on roll of the Third Standard.

In all cases, the investigation was to be restricted only to the boys.

5. *The Second Conference.*—The second conference with the ADEI's and the supervisors was held at Satara on the 1st of February, 1946. A few of the ADEl's had brought with them the trial questionnaires filled in. With the aid of these, the questions and the manner of answering them were discussed over again. A few list of wastage and stagnation cases prepared by headmasters were also available and provided an opportunity to clarify the definitions. On the whole, however, it seemed that the response of the ADEI's and the headmasters of the selected schools was rather cold. It may be remembered that at that time considerable agitation regarding the payscales and other allowances receivable by the primary teachers was in progress throughout the province. The ADEI's actually hinted that it would be impossible to proceed with the enquiry unless the school teachers concerned were adequately remunerated for the work of the investigation. It was proposed that a remuneration on the basis of one rupee per ten completed schedules might be found acceptable. The Institute by its letter dated 12th February, 1946 requested the Government for sanction. This was subsequently obtained.

6. *Subsequent Difficulties.*—The agitation among the primary school teachers regarding the scales was daily growing in strength and in March, 1946, they actually went on strike. When in April they returned to the schools, the teachers and ADEI's were busy with the annual examinations and no progress could be made. Conditions in the voluntary schools were comparatively normal and an attempt was made to proceed with the investigation in voluntary schools. In February and March, I toured along with the super visors and visited a number of voluntary schools. Conferences with the headmasters of the selected schools were arranged in groups at a number of suitable places and the questionnaire schedules and the basic definitions were explained to them. In June and July the procedure was repeated in respect of the Local Board Schools. However, from these Conferences it soon became clear, that the investigation could not proceed satisfactorily on these lines. In the first instance, it was discovered that the ADEI's could not explain to the teachers the basic definitions so that the two lists of Wastage and Stagnation cases prepared by them were in most cases incomplete and erroneous. The same was true regarding the questionnaire, with this additional difficulty that one important tabular question relating to the school career of the pupil was found to be not in a form suitable for both a clear understanding and entering. Finally, on account of the recent agitation, the general attitude of and relations between the teachers and the ADEI's were not on the whole conducive to an efficient and speedy completion of the enquiry. On the one hand, a few ADEI's were a little sympathetic towards the general agitation among the teachers and were inclined to ignore lapses on their part, regarding any additional work. On the other hand, many teachers were not, in a mood to listen to the directives and reminders from the department and in many cases ignored and in some actually defied the instructions. It was decided therefore, to abandon the attempt at conducting the enquiry through the departmental agency and through the aid of the ADEI's. Instead, it was thought that the investigation could proceed better if conducted directly through the teachers.

7. *Revised Plan of Investigation.*—With this in view the Institute addressed to headmasters of all the selected schools, a circular letter dated 1st September, 1946 requesting them to cooperate with the Institute. After explaining briefly the objects of the investigation and giving precise definitions of the basic concepts involved, the letter contained detailed instructions for preparing the two lists of Wastage and

Stagnation cases from the school registers. Prescribed forms in duplicate for making the lists were enclosed and the headmasters were requested to prepare the lists and return one copy to the office of the Institute as soon as possible. The letter concluded with a short sketch of the future lines of work involved and an assurance that the labour of the teachers in this connection would be adequately paid for directly by the Institute. The letter is reproduced in full in Appendix I.

The response to this letter was not altogether poor and we started receiving the requisite lists. Reminders were issued in the case of defaulters and finally by the end of December, 1946, a majority of the schools had returned the lists prepared. These were examined and in a few cases were actually checked. On the whole they appeared complete and accurate.

In the meanwhile, the two questionnaire schedules, one for the individual student and the other for the village and the school, were revised, rearranged and reprinted so as to suit the convenience of the teachers. On 15th January, 1947, another circular letter was addressed to them. It contained detailed explanation of all the questions in the two schedules and instructions as regards the manner of answering them. Along with this letter were enclosed sufficient copies of the printed questionnaire forms. The headmasters were requested to complete the forms for each one of the Wastage and Stagnation cases in their lists and return them to the Institute. The letter is reproduced in Appendix II. The revised questionnaire schedules are given in Appendix III.

The forms slowly started coming in. As soon as received, they were immediately checked for completeness and consistency. In cases where the work done was found satisfactory, the teachers concerned were paid directly by money orders at the agreed rate of one rupee per ten completed schedules plus all postage charges. It may be noted incidentally that there were several letters from the school teachers complaining that the remuneration was totally in adequate for the amount of labour involved. Not in all cases was the work satisfactory nor was the response very encouraging. Frequent reminders were issued through the office of the Deputy Educational Inspector, the last of these being in the middle of June, 1947.

It was soon realised that any further reminders were of no avail. In many cases the reminders were apparently ignored. In some cases, although the school teachers appeared to have informed the office of the Deputy Educational Inspector that the forms were returned

duly completed, actually none were received in this office. Nothing could be done except convincing ourselves that they were lost in transit, Some others, having received the reminders, returned the forms either blank or in a worse condition. It was, therefore, thought neither useful nor advisable to continue the investigation any longer and it was decided to close it by the end of June, 1947.

In Table No. 4 is shown the final position regarding the returns. It will be seen that only about half of the selected Local Board Schools returned the forms satisfactorily completed. About thirty per cent did not return them at all, while the remaining twenty per cent returned them, but in a very unsatisfactory manner and in some cases actually blank. The position regarding the voluntary schools is about the same and is shown in Table No. 5.

Table No. 4. Returns from the Local Board Schools.

Taluka	No. of selected schools	No. with satisfactory returns	No. with bad returns	No. with no return
Jaoli	17	3	4	10
Khatao	26	16	3	7
Koregaon	36	13	9	14
Man	15	12	1	2
Satara	30	15	5	10
Wai	24	13	5	6
Total	148	72	27	49

Table No. 5. Returns from the Voluntary Schools.

Taluka	No. of selected schools	No. with satisfactory returns	No. with bad returns	No. with no return
Jaoli	18	7	4	7
Khatao	28	16	4	8
Koregaon	4	-	2	2
Man	26	11	3	12
Satara	13	4	4	5
Wai	13	7	2	4
Total	102	45	19	38

8. *Nature of the Default.*—It will thus be seen that due to circumstances beyond our control and mainly due to the rather militant spirit then prevalent among the primary school teachers, the response to the investigation was not very satisfactory. Nevertheless, even as it is, the number of schedules we admitted as satisfactorily completed is not altogether small. We have in fact 1,778 cases of wastage and 1,264 cases of stagnation studied. However, due to the partial response, the representative character of the residual sample becomes highly doubtful. We shall presently discuss this point in greater detail, but plainly it must be admitted that there is no way of judging whether any serious bias has, been introduced and if so in which direction. We may note, however, that it is not true, as might at first be imagined, that it is only the worse types of schools with rather incapable teachers that failed to respond. Of course in certain cases when the returned forms were very unsatisfactorily filled in, there were indications that the school teacher, even though he meant to do an honest job, failed because he could not follow instructions in the circular letter. But equally there were cases where the teachers were qualified men of good standing and apparent ability, who either did not return the forms or returned them either blank or filled in, in a very scrappy manner. It appears, therefore, that it is not only the better or worse types of schools that were the defaulters so that if there is any bias in the final residual sample, it is at least not so obvious.

9. *Representative Character of the Residual Sample*.—We present below a series of tables in respect of the Local Board Schools designed to indicate the representative character of the residual sample of these schools.

Table No. 6. Distribution of all Schools and the Residual Sample Schools According to Talukas.

Taluka	Total number of schools	Number of schools in the Residual sample	Percentage in the sample
Jaoli	44	3	6.8
Khatao	68	16	23.5
Koregaon	79	13	13.4
Man	40	12	30.0
Satara	81	15	18.5
Wai	65	13	20.0
Total	395	72	18.2

As will be seen from Table No. 6, we have obviously too few schools from Jaoli taluka, so much so that we may as well say that our investigation did not cover that area. Therefore, in the tables that follow, we shall omit all schools from this taluka.

Table No. 7. Distribution of all Schools and the Residual Sample Schools According to the standards taught.

Up to standards	Total number of schools	Number of schools in the Residual sample	Percentage in the sample
III, IV	230	43	18.7
V, VI, VIII	121	26	21.5
Total	351	69	19.6

Table No. 8. Distribution of all Schools and the Residual Sample Schools According to the teacher type.

Teacher type	Total number of schools	Number of schools in the Residual sample	Percentage in the sample
One untrained	126	26	20.6
One trained	33	5	15.2
Two teachers	76	15	19.7
Three or more teachers	116	23	19.8
Total	851	69	19.6

Table No. 9. Distribution of all Schools and Residual Sample Schools According to the Number of Students.

Number of Students	Total number of schools	Number of schools in the Residual sample	Percentage in the sample
1-39	127	22	17.3
40-79	103	20	19.4
80 and more	121	27	21.6
Total	351	69	19.6

We have a practically 20 per cent sample of Local Board Schools from the remaining five talukas. Considered from the point of view of the three characteristics, namely, the standards taught, teacher type and number of students, the sample is seen to be very well distributed and if the partial response has introduced any bias, its nature is by no means obvious. There appears, therefore, no obvious reason to believe that the results of the investigation even though based on a partial response are not representative of the schooling conditions in the five talukas.

As to the Voluntary Schools, they are most of them a homogeneous lot. It is unlikely, therefore, that the residual sample suffers from any bias. We do not propose, therefore, to consider more than the geographical distribution of the sample. This is done in Table No. 10. It is clear that except in Koregaon taluka, the residual sample of voluntary schools is well distributed.

10. *Final Data.*—In Table Nos. 11 and 12 are given the final data in our hand of which an analysis is attempted in this report. It will be clear that in spite of the partial response, the number of wastage and stagnation cases in the sample is not altogether small.

Table No. 10. Voluntary Schools.

Taluka	Total number of Voluntary schools	Number of schools in the Residual sample	Percentage in the sample
Jaoli	36	7	19.4
Khatao	57	16	28.1
Koregaon	8	-	-
Man	52	11	21.2
Satara	26	4	15.4
Wai	25	7	28.0
Total	204	45	22.0

Table No. 11. Number of Wastage cases in the Final Samples.

Standard in which left the School	Cases from Local Board Schools	Cases from Voluntary Schools	Total No. of Cases
Infant	695	244	939
First	254	84	338
Second	178	68	246
Third	171	84	255
Total	1,298	480	1,778

Table No. 12. Number of Stagnation Cases in the Final Sample

Present Standard	Cases from Local Board Schools	Cases from Voluntary Schools	Total No. of Cases
Infant	199	137	336
First	248	85	333
Second	274	44	318
Third	243	34	277
Total	964	300	1,264

11. *Plan of the Report*.—The existence of the two phenomena wastage and stagnation in primary education was perhaps first noted by the Hartog Committee. The second chapter of this report begins with an examination of the observations of the Committee in this respect. Later, by means of a somewhat different approach than that adopted by the Committee, and on the basis of the statistical returns of the Director of Public Instruction, we obtain estimates of wastage for the Bombay Province, separately for the two periods 1927-28 to 1935-36 and 1936-37 to 1944-45. It is noteworthy that though the conditions in Bombay Province in this respect appear substantially better than the general conditions in India they seem to remain about the same throughout the seventeen year period from 1927-28 to 1944-45. This is followed by an examination of the wastage conditions in Satara District, which in comparison with the average conditions in the provinces, again, appear somewhat better.

In subsequent chapters are presented the results of the investigation.

In Chapters III and IV we obtain the estimates of Wastage and Stagnation in the Local Board Schools. In Chapter III, while obtaining the estimates of wastage, we discover sufficient internal evidence to indicate that the reporting of wastage cases in our investigation was very nearly complete. In Chapter IV, on the other hand, while deriving estimates of stagnation, we feel doubtful as to the completeness of enumeration of such cases. A certain statistical reasoning is seen to confirm these doubts and actually to indicate the extent of such underenumeration.

In Chapter V, we examine the conditions in the Voluntary Schools and compare them with those prevailing in the Local Board Schools. Due to the smallness of our sample from these schools, it is not found possible to obtain separate estimates of wastage and stagnation. Nevertheless, sufficient evidence

is presented to indicate that the extent of wastage in Voluntary Schools is actually smaller in the infant class, but that it is increasingly greater in higher standards. On the other hand, stagnation appears more prevalent in the infant class, but less so in the higher standards.

Causes underlying the two phenomena are discussed in chapter VI. A major analytical difficulty arises due to the fact that our investigation does not provide for anything like a normal or control group with which to compare the wastage and stagnation cases. Nevertheless, much coherent internal evidence is presented to indicate the existence of several causes underlying the phenomena of wastage and stagnation.

In the appendices are given details of the investigational procedure and certain technical points of statistical analysis.

CHAPTER II
NATURE OF THE PHENOMENA

1. *The Hartog Committee.*—It was perhaps the Hartog Committee in 1929, which for the first time drew pointed attention to the phenomena of Wastage and Stagnation in Primary Education. We quote below from the Committee's observations in this respect:—

"Primary Education is ineffective unless it at least produces literacy and the only definite material for ascertaining the prevalence of literacy in India is that provided by the census.... Unfortunately for our purpose, this census was taken as far back as 1921 and, therefore, it is not possible to estimate with any accuracy the effect which the large quantitative expansion of education during the last seven years had on literacy. For the period subsequent to 1921, all that can be done is to estimate the probable effect of the schools on literacy by examining the conditions which prevail in them. Are these conditions such as to justify the belief that a larger number or a larger proportion of the pupils who attend them are attaining effective and permanent literacy? We think it justifiable to assume that, on the average, no child who has not completed a primary course of at least four years will become permanently literate; and for our purpose, we shall, therefore, examine the enrolment of each class, to find out whether the pupils are progressing satisfactorily from class to class and whether in large numbers they reach class IV".

"The following table shows the successive diminution in numbers as we pass from class I to class IV and V

at the primary stage." (Only the figures for British India and the Bombay Presidency are quoted below).

"The diminution is enormous... The diminution is mainly due to two causes, which we shall term "Wastage" and "Stagnation". By "Wastage" in what follows, we mean the premature withdrawal of children from school at any stage before completion of the primary course. There is of course a diminution in numbers from class to class due to natural causes, such as death and illness, but the mortality figures show that such diminution must be small compared to the total diminution. By "Stagnation" we mean the retention in a lower class of a child for a period of more than one year. Such stagnation obviously leads to the disproportionate size of the lower as compared with the higher classes. The figures taken by themselves do not indicate how far the excessive diminution in numbers from class to class is due to "Wastage" and how far it is due to "Stagnation", but our enquiries show that by far the more potent factor is "Wastage".

Number of Pupils in Boys Schools by Stages.

Class (Bombay terminology)	I Infant	II I Std.	III II Std.	IV III Std.	V IV Std.
Year	1922-23	1923-24	1924-25	1925-26	1926-27
No. of pupils, British India	3,458,046	1,218,758	897,512	655,101	393,465
Per 1,000 in infant class	1,000	353	260	190	144
Bombay Presidency	252,274	134,513	121,607	102,506	90,638
Per 1,000 in infant class	1000	533	482	406	359

"In interpreting the figures, it is true that some allowance must be made for special circumstances. A period of rapid expansion naturally results in an abnormal enlargement of class I and as a consequence a temporary disproportion between the numbers in class I and those in the higher classes. Again in many provinces a certain number of new admissions are usually made towards the end of the school year with the result that the new recruits while swelling the enrolment of class I cannot hope to obtain promotion till after the completion of the following year. But even when we make all possible

allowances and discount the figures liberally, the hard facts of wastage and stagnation are shocking."

It will be noted that the proportion of pupils in class IV, to that in class I, for the British India is only 19 per cent, the same for the Bombay Presidency is 41 per cent. The Committee then proceeds to observe as follows:—

"On the assumption which we have made that on the average no child who has not completed a primary course of at least four years will become permanently literate, we find that taking British India as a whole, the present system produced in 1925-26 only eighteen potential literates out of every hundred who joined class I in 1922-23."

A similar statement for the Bombay Presidency would be that the present system produced in 1925-26 only 41 potential literates out of every hundred who joined class I (that is infant class) in 1922-23.

The principal defect from which the Committee's analysis seems to suffer is their inability to make due allowance for the phenomenon of "Stagnation" and their consequent failure to appreciate the relationship between the number in infant class in 1922-23 and the number in III standard in 1925-26. The Committee recognise that the figures taken by themselves do not indicate how far the excessive diminution in numbers from class to class is due to "Wastage" and how far it is due to "Stagnation". Nevertheless, they proceed on the assumption that "by far the more potent factor is wastage" and actually attribute the whole of it to that cause. As to the relationship between the numbers in different classes in different years, it was obviously difficult to have grasped it without a more detailed analysis for which the Committee, of course, could not have time enough to go into. With more time and fuller statistics, we attempt below a somewhat different approach to the problem.

2. *Statistics of Public Instruction*. —We give below two tables compiled from the "Annual Reports on Public Instruction" for the Bombay Presidency. In Table No. 13 are given number of boys in different classes at year ends for the period from 1927-28 to 1944-45.

Table No. 13. Number of boys in Different Classes of Primary Schools in Bombay Presidency at year ends for the period from 1927-28 to 1944-45.

	Infant	I	II	III	IV
1927-28	269,048	143,888	126,713	102,393	86,842
1928-29	274,842	143,752	130,867	105,814	89,484
1929-30	285,800	145,786	130,188	105,800	90,569
1930-31	293,178	147,809	131,569	107,184	91,629
1931-32	289,334	154,320	136,715	111,014	96,225
1932-33	271,090	154,383	140,669	114,203	98,070
1933-34	278,111	152,583	141,921	116,966	101,066
1934-35	283,915	158,372	143,815	119,924	104,582
1935-36	288,715	163,062	148,952	122,648	107,620
1936-37	257,112	149,074	136,997	112,640	97,329
1937-38	262,974	155,699	143,812	117,071	102,698
1938-39	357,350	162,230	147,198	117,624	100,890
1939-40	405,225	200,586	155,838	126,872	104,677
1940-41	368,114	218,951	180,379	135,036	112,585
1941-42	348,496	208,005	190,976	151,215	116,415
1942-43	326,127	192,150	177,311	157,258	126,462
1943-44	329,490	187,535	169,536	150,583	131,864
1944-45	347,602	187,201	161,508	142,525	127,031

In Table No. 14 are given the number of boys who during this period passed and were promoted from the several classes to the upper classes. The numbers up to 1935-36 include those for Sind, while from 1936-37 onwards, Sind, having been formed into a separate province, has been excluded. We shall, therefore, consider this period in two portions- one from 1927-28 to 1935-36 and another from 1936-37 to 1944-45.

Table No. 14. Number of boys Passing from Different Classes to Upper Classes of Primary Schools in Bombay Presidency each year During the Period from 1927-28 to 1943-44.

	Infant	I	II	III	IV
1927-28	183,926	98,037	83,046	68,793	51,229
1928-29	134,784	96,758	84,093	67,345	49,587
1929-30	122,050	95,820	80,238	67,066	49,806
1930-31	140,244	103,181	88,605	76,815	56,026
1931-32	138,554	106,097	88,329	74,592	57,014
1932-33	135,791	112,548	94,663	79,108	59,845
1933-34	136,963	111,832	98,175	82,598	63,576
1934-35	131,129	104,095	90,639	78,524	61,378
1935-36	143,445	114,021	98,126	82,162	68,602
1936-37	134,884	103,673	87,137	74,360	60,690
1937-38	134,335	106,416	91,968	77,329	62,586
1938-39	156,484	111,798	101,968	82,473	67,352
1939-40	195,475	129,788	106,852	88,484	69,775
1940-41	202,130	149,610	121,130	96,191	71,653
1941-42	200,946	142,269	136,893	107,979	81,077
1942-43	178,983	136,585	130,413	110,891	84,864
1943-44	172,689	132,313	120,327	111,919	88,635

3. *Wastage during 1927-28 to 1935-36.*—We now note that during the period of eight years from 1927-28 to 1934-35, in all 1,073,441 boys were promoted from the Infant Class to I standard. Similar numbers from other standards are given in Table No. 15.

We have on the other hand the following number of boys in different classes at the beginning and at the end of the period:—

Table No. 15. Number of Boys Promoted from Various Classes During 1927-28 to 1934-35.

Class	Number promoted
Infant	1,073,441
I	828,368
II	707,788
III	594,841
IV	448,461

Table No. 16. Number of Boys in Different Classes at Year ends.

Class	1927-28	1985-86
I	143,888	168,062
II	126,713	148,952
III	102,398	122,648
IV	86,842	101,620

Thus at the end of 1927-28 there were 148,888 boys in I standard. During next eight years, 10,73,441 were promoted from the infant class and the same passed into this class; on the other hand 828,368 boys passed out of this class. If there were no wastage from any causes whatsoever, that is all those who were in I standard at the end of 1927-28, and all those who passed into it subsequently would not leave that class without passing out then we would expect that there would be 143,888 + 1,078,441 - 828,368 = 388,961 students in this class at the year end 1935-36. Actually there were only 163,062 boys in this class. Hence the difference,

388,961 - 163,062 = 225,899

must be presumed to have left I standard during the course of eight years.

The estimated wastage is from all causes and thus includes deaths as well. On the other hand it is based on the assumption that there is to direct recruitment to I standard, that is, not except through promotion from the infant class. This presumption is of course substantially true; nevertheless, in that sense the estimated wastage is the minimum to be expected. Similar estimates of wastage from different classes during the eight year period are given in Table No. 17.

Table No. 17. Estimates of Wastage from Various Classes During Eight Years 1928-29 to 1935-36

Class	Expected No. at the end of 1935-36	Actual	Difference wastage
I	888,961	168,062	225,899
II	241,293	148,952	98,341
III	215,340	22,648	92,692
IV	238,222	107,620	125,602

This, therefore, is the estimated wastage in the course of eight years. Dividing these figures by eight we get the average wastage per year. We shall relate this average wastage from each class to the average number in that class at the end of a year. Taking the average of the year end numbers for the years 1928-29 to 1935-36, we have the following:—

Table No. 18. Average Number in Various Classes at the year end for the Period 1928-29 to 1935-36 and the Average Wastage every year Through these Classes.

Class	Average Number at an year end	Average wastage during the year	Average No. at the beginning of a year	Annual wastage as percentage of the number at the beginning
Infant	283,123	-	-	-
I	152,508	28,237	180,745	15.62
II	138,087	12,293	150,380	8.17
III	112,942	11,587	124,529	9.30
IV	97,406	15,700	113,106	13.88

Thus it appears that during the period from 1928-29 to 1935-36 on an average, of the students who were in I standard at the beginning of an year, 15.62 per cent left the school before the end of the year. Similarly, of those at the beginning of an year in II standard, 8.17 per cent left the school during the year. These wastage percentages are given in the last column of the above table. It is obvious that a similar estimate of wastage through the Infant, class could not be obtained. Provisionally we put it at 20 per cent. This is merely for a formal completeness of analysis.

This is the story of a single year, that is to say, of the 10,000 students who are in I standard, 1,562 leave the school during the year, leaving only 8,438 on roll of that class at the year end. Not all of these, however, pass the standard and are promoted. Some of these pass while others fail. Those who fail, have to spend another year in the same standard and 15.62 per cent of them again leave the school. The process continues and in order to find exactly how many of the original 10,000 in I standard actually pass that standard and how many leave the school without even completing that standard we must trace this process to its end. Before we do it we must know the average passing percentages during this period. On the basis of the figures for the period 1927-28 to 1935-36, we have the following passing percentages.

Table No. 19. Average Passing Percentages in Different Classes, During the Period 1927-28 to 1935-36

Class Infant	Average passing percentage 48.02
I	69.09
II	65.45
III	67.30
IV	59.47

Thus during this period, on an average, of the boys who were in Infant Class at an year end, only 48.02 per cent passed and were promoted to the higher class; similarly for the, other standards. With

the aid of these wastage and passing percentages, we can work out the total wastage through each class. The arithmetical procedure is given in Appendix IV. In Table No. 20 are given the net wastage through each class:-

Table No. 20. Total Wastage through each class during 1928-29 to 1935-36.

Class	Total wastage percent
Infant	34.24
I	21.13
II	11.97
III	13.22
IV	21.32

The meaning of these figures should be clearly understood. They mean that of 100 boys who enter the Infant Class, only 66 pass and are promoted to I standard while 34 leave the school from the infant class itself; similarly, of 100 boys who enter I standard, only 79 pass and are promoted to II standard while 21 leave the school from I standard itself, and so on for the other standards.

Applying these total wastage percentages to a cohort of 10,000 boys freshly entering the school we may now estimate the number out of them who reach various standards and the numbers who leave the school at, various stages.

Thus of 10,000 fresh entrants only 3,117 complete the primary course, while 6,883 leave the school at various stages as shown above. This appears to be the appropriate forms to describe the phenomenon of wastage.

Table No. 21. Numbers out of 10,000 Fresh Entrants in the Infant Class who Pass Various Standards, and who Leave the School from Various Standards.

Class	Number who pass this class and are promoted to the next	Numbers who leave the school from this class
Infant	6,576	3,424
I	5,186	1,390
II	4,566	620
III	3,962	604
IV	3,117	845
	Total	6,883

The other phenomenon, namely, that of stagnation, consists in the fact that, of the boys who complete the primary course up to various stages, some take more than the normal period to reach that stage. Thus, for instance, of the 6,576 boys who passed out of the Infant Class, some might have spent only one year in that class, but others might have spent more than one year. Published statistics are inadequate to discuss the extent of this phenomenon. Therefore, we postpone its

discussion, to a subsequent section, where we shall present the investigational material.

4. *Wastage During 1936-37 to 1944-45.*—For comparison with the conditions in the earlier period, we shall now estimate, by the same method, the extent of wastage during the period from 1936-37 to 1944-45.

In Table No. 22, are given the estimates of the average annual wastage, and the passing percentages for this period corresponding to those derived in the last column of Table No. 18 and in Table No. 19 for the earlier period.

Table No. 22. Average Annual Wastage and Passing Percentage in Different Classes for the Period from 1986-37 to 1944-45.

Class	Annual wastage as percent of the number on roll of the class at the beginning of the year	Average passing as percent of the number on roll at the end of the year
Infant	-	51.88
I	17.75	68.91
II	6.44	68.87
III	9.64	70.17
IV	12.62	65.70

We have no estimate for wastage in Infant class, and as before we take it to be 20 per cent. On the basis of these annual wastage and passing percentages, we have the following estimates of the numbers out of an initial cohort of 10,000 fresh entrants in the Infant class, who pass the various stages and the number who leave the school at the various stages.

Table No. 23. Numbers out of 10,000 Fresh Entrants in the Infant class, who Pass Various Standards and who Leave the School from Various Standards

Class	Number who pass the class and are promoted to the next	Number who leave the school from this class
Infant	6,746	3,254
I	5,137	1,609
II	4,670	467
III	4,053	617
IV	3,323	730
	Total	6,677

Comparing this with the Table No. 21, it appears that the average wastage conditions during the period from 1936-37 1944-45 were only slightly better than the average conditions during the period from 1927-28 to 1935-36.

5. Wastage Conditions in Satara District.—We shall now briefly examine the wastage conditions prevalent in Satara District.

From the point of view of primary education Satara District forms about 6 per cent of the whole province. Thus we have the following:-

Table No. 24. Total Number of Male Students in the Primary Schools (infant to standard IV).

Year	Province	Satara	Percent
1931-32	684,523	47,769	6.98
1936-37	753,152	54,594	7.25
1938-39	885,292	64,646	7.30
1940-41	10,15,065	60,620	5.97
1941-42	10,10,107	61,544	6.09
1942-43	979,308	60,348	6.16
1943-44	969,008	56,506	5.83

The proportion that Satara District bears to the whole province has somewhat decreased after 1938-39. This proportion is more or less steady during the four years from 1940-41 to 1943-44. In order to compare the wastage conditions in Satara District with that in the Whole province, we shall, therefore, depend only on figures for this period. In Table No. 25, we compare the average distribution of students among different classes during the period from 1940-41 to 1943-44 for the province and the district.

Table No. 25. Average Distribution of Students in Different Classes for 10,000 in Infant Class During the Period 1940-41 to 1943-44.

Class	Province	Satara District
Infant	10,000	10,000
I	5,842	6,329
II	5,234	6,130
III	4,829	5,808
IV	3,672	4,860

It is obvious that the decrement in numbers from class to class is considerably less in Satara than the whole province. We should expect, therefore, that the wastage in Satara District would be smaller than in the whole province.

We do not possess sufficient statistical material for Satara District to make the comparison more precise. The above figures are, however, probably sufficient to indicate that the wastage in Satara District is considerably smaller than in the whole province.

We now proceed to present the results of the sample investigation.

CHAPTER III
WASTAGE IN THE LOCAL BOARD SCHOOLS

1. *Estimates of Annual Wastage by Standards.*—As has been said, returns from only 72 Local Board Schools have been admitted for the purpose of this report. Table No. 26 gives, year by year, and for each standard separately, the total strength at each year end, of the 72 schools combined, and the number of students passed and promoted to the higher standard.

Table No. 26. Numbers on year end rolls of Different Standards and the Numbers who passed and were Promoted to the next class-by years, in 72 Local Board Primary Schools.

Year	Infant		I		II		III	
	Total	Pass	Total	Pass	Total	Pass	Total	Pass
1941-42	1,475	714	1,006	727	885	652	884	636
1942-43	1,490	754	911	656	935	670	846	619
1943-44	1,428	687	954	663	828	574	862	599
1944-45	1,501	680	935	607	883	584	791	536
1945-46	1,615	627	895	535	838	508	733	443

From the number on roll at the year end in any standard, and from the numbers who were promoted from the lower standard to that standard and from that standard to the next one, it should be possible to obtain some idea as to the number who left the school in that standard during the year. For, instance, there were 1,006 students on roll of the first standard at the year end 1941-42. Of these 727 passed and were promoted to the second standard. On the other hand, 714 were at the same time promoted from the infant class to the first standard. If none left the, school in the first standard during 1942-43, we would expect 1,006 - 727 + 714 = 993 students to be on roll of this standard at the year end 1942-43. Actually it is reported that there were only 911 students. The difference 933 - 911 = 82 should have, therefore, left the school in this standard during 1942-43.

This would be a fairly good estimate of the wastage cases if we could make two assumptions. Every year a number of students leave the school only temporarily and come back the next year. Their names are thus only temporarily removed from the roll at the year end and re-entered the next year. We shall assume, in the first instance, that every year such

cases of temporary leaving and re-entry mutually balance. This may not be so with respect to each school every year, but should not be far from the fact when a total of as many as 72 schools is considered. Secondly, there are a few cases every year when students leave one school to join another. It should be noted that this phenomenon is by no means as frequent or as numerous as the one previously mentioned. In this case also we shall assume that in a large group of schools such cases mutually balance. We have no factual material either to support or to substantiate these two assumptions. Both of them, nevertheless, appear reasonable, especially when applied to a group of as many as 72 schools. We shall proceed on this basis.

82 is therefore, the estimated number of students who left the school permanently in the first standard, during 1942-43. Similar estimates for all the standards, except the infant class, for each year, are given in Table No. 27. It is obvious that no such estimates could be obtained for the infant class nor could they be obtained for any class for the year 1941-42.

Table No. 27. Estimates of Wastage Cases by Standards.

Year	I	II	III	Total
1942-43	82	25	54	161
1943-44	55	93	35	183
1944-45	43	34	46	123
1945-46	113	68	106	287
Total	293	220	241	754

2. *The Reported Wastage Cases.*—As against this estimated total of 754 wastage cases who left the school permanently from the standards I, II and III during the four years from 1942-43 to 1945-46, only 603 wastage cases have been reported from these standards. The difference between the estimated and the reported cases of wastage is, as will be apparent from the following table, solely due to the fact that the investigation period, that is the period of reporting wastage cases, did not cover the whole of the school year 1945-46, that is up to the end of May, 1946. Instead it covered the period only up to the end of December, 1945. It will be clear from Table No. 28 that the reporting of wastage cases, for the first three years has been very complete.

Table No. 28. Comparison of the Estimated and Reported Wastage Cases by years.

Period	Estimated	Reported
1942-45	467	468
1945-46	287	135
Total	754	603

Thus the only difference is in the year 1945-46 and that, as explained above, is due to obvious reasons.

We may now compare the estimated and reported wastage cases by their distribution according to standards. This is done in Table No. 29

Table No. 29. Comparison of the Estimated and Reported Wastage Cases by Standards.

Class	Estimated	Per cent of Total	Reported	Per cent of Total
I	293	38.9	254	42.1
II	220	29.2	178	29.5
III	241	32.0	171	28.4
Total	754	100.0	603	100.0

3. *Estimates of the Wastage from Infant Class.*—The two distributions according to standards are seen to be in good agreement. We might, therefore, take this as the basis for estimating the wastage in the, infant class. Corresponding to the 603 wastage cases reported in I, II and III standards together, there are reported 695 wastage cases from infant class. On this basis we might expect an estimated wastage of 869 from the infant class, comparable with the estimated total of 754 for the three standards together.

We shall now try to so distribute these estimated 869 cases over the four years, that for each year the estimated wastage in infant class would bear approximately the same ratio to the estimated wastage in the three standards as bears the reported wastage in infant class to the reported total for the three standards. This is done in Table No. 30.

4. *Estimates of fresh entrants in the infant class.*—From these estimates of wastage in infant class, we shall now try to obtain estimates of fresh entrants in this class, year by year. This may be done as follows: At the year end 1941-42, for instance, there were 1,475 students on roll of this class. Of these 714 passed and were promoted to the first standard. Further, during 1942-43, 179 students have been estimated to have left the school in this class, leaving a total of 1,490 on the roll at the year end. In order that this should be so, it is necessary that 1,490 - 1,475 + 714 + 179 = 903 students should have freshly entered the school during the year 1942-43. Figures for other years may be similarly worked out. They are given in Table No. 31.

Table No. 30. Estimated Wastage from the Infant Class During the four years 1942-43 to 1945-46.

Year	Wastage from Infant Class
1942-43	179
1943-44	204
1944-45	137
1945-46	349
Total	869

Table No. 31. Estimated Fresh Entrants in the Infant Class during the four years 1942-43 to 1945-46

Year	Fresh entrants during the year
1942-43	908
1943-44	896
1944-45	897
1945-46	1143

Except for the last year all the estimates are in good mutual agreement. In 1945-46, both the number of new entrants and the number who left the school during the year are very high. The abnormal circumstances of this year, are due to the system of compulsory primary education that was being initiated in this district during the year. Even in villages where compulsion was not brought into force, due to ignorance, large numbers of children were got enrolled into the school registers. Many of these never attended the school and their names were subsequently removed. This of course, happened in the infant class. A part of both the high numbers of fresh entrants and those who left the school mutually cancel. It may also be noted that the number standing on roll of this class at the end of the year is also higher than similar numbers for other years. These figures, therefore, do not represent normal conditions.

We, shall now summarise the argument so far. From the numbers on roll of each standard at each year end and the number who passed and were promoted to the higher standard, we obtained estimates of wastage cases, that is of those who left the school permanently, in each standard and for each year. Such estimates could not of course be obtained for the infant class. There were obtained by means of a comparison of the estimated wastage in I, II and III standards with the corresponding reported cases. Having satisfied that the reporting of wastage cases front the selected schools was very complete, we compared the estimated and the reported wastage by standards. The distribution of the estimated and the reported wastage cases according to the three standards were in good agreement. This therefore, was made the basis of estimating the wastage in the infant class. On this basis was estimated a total of 869 wastage cases in infant class during the four years. These were distributed over the four years so that in each year the ratio of wastage in the infant class to the wastage, in the three standards would be the same for the reported and the estimated.

From these estimated wastage cases in the infant class, were further estimated, year by year, the numbers of new entrants in this class. All such estimates, except those for the last year, were found to be mutually consistent. In the case of the last year, the estimated figures, both for the new entrants and wastage cases, were substantially higher than similar estimates for other years. It was pointed out that this excess was attributable to the initiation of compulsory education in this district during the year.

5. *Summary of working of different classes.*—The working of the infant class in the 72 Local Board Schools, during the five year period, is presented in Table No. 32.

The infant class working for the year 1942-43 reads thus:- thus:-

There were 761 students on roll at the beginning of the year, being the remnants of the previous year. To these were added during the year 908 new entrants, making a total of 1,669 enrolled. Of these 179 left the school during the year, leaving 1,490 on roll at the end of it. This forms 89.3 per cent of the total enrolled, namely, 1,669. Thus of all those who ever entered the roll during the year, 89.3 per cent stayed to the end of the year. Out of these 754, that is 50.6 per cent passed the annual examination at the end, of the year, and were promoted to the next standard. The remaining 736 are to be carried forward to the infant class roll for the next year, namely 1943-44.

Table No. 32. Working of the Infant Class During the five year period, in 72 Local Board Schools.

Year	1941-42	1942-43	1943-44	1944-45	1945-46
Old students from *the previous year*	-	761	736	741	821
New entrants during the year (estimated).	-	908	896	897	1,143
Total enrolled *during the year*	-	1,669	1,682	1,638	1,964
Of whom left during year (estimated)	-	179	204	137	349
On roll at *year end*	1,475	1,490	1,428	1,501	1,615
% at the end to total *enrolled*	-	87.3	87.5	91.6	82.2
Promoted to the *next standard*	714	754	687	680	627
% promoted to total on *roll at end*	48.4	506	48.1	45.3	38.8
Remainder	761	736	741	821	988

Similar statements for the other years may be read from the Table No. 32.

Similar tabulated statements for the other standards follow. The only difference between these and the above statement for the infant class is that while the new entrants to the infant class are fresh students to the school, similar entrants in the other standards are those passed and promoted from the lower standard to this standard.

Table No. 33. Working of the First Standard During the five year Period in 72 Local Board Schools.

Year	1941-42	1942-43	1943-44	1944-45	1945-46
Old students from previous year	-	279	255	291	328
New entrants promoted from infant Class	-	714	754	687	680
Total enrolled during the year	-	993	1,009	978	1,008
Of whom left during year (estimated)	-	82	55	43	113
On roll at year end	1,006	911	954	935	895
% at the end to the total enrolled	-	91.7	94.5	95.6	88.8
Promoted to the next Standard	727	656	663	607	535
% promoted to total on roll at end	-	72.0	69.5	64.9	59.8
Remainder	279	255	291	328	360

Table No. 34. Working of the Second Standard During the five year Period in 72 Local Board Schools.

Year	1941-42	1942-43	1943-44	1944-45	1945-46
Old students from *previous year*	-	288	265	254	299
New entrants promoted from *II Standard*	-	727	656	663	607
Total enrolled *during the year*	-	960	921	917	906
Of whom left during year (*estimated)*	-	25	93	34	68
On roll at *year end*	885	935	828	883	838
% at the end to the total *enrolled*	-	97.4	89.9	6.8	92S
Promoted to the *next Standard*	652	670	574	584	508
% promoted to total on *roll at end*	73.7	71.7	69.8	66.1	60.6
Remainder	233	265	254	299	380

Table No. 35 Working of the Third Standard during the five year period in 72 Local Board Schools.

Year	1941-42	1942-43	1943-44	1944-45	1945-46
Old students from *previous year*	-	248	227	268	255
New entrants promoted from *III Standard*	-	652	670	574	584
Total enrolled *during the year*	-	900	897	837	839
Of whom left during year (*estimated)*	-	54	35	46	106
On roll at *year end*	884	846	862	791	733
% at the end to the total *enrolled*	-	94.0	96.1	94.5	87.4
Promoted to the *next Standard*	636	619	599	536	443
% promoted to total on *roll at end*	71.9	13.2	69.5	67.8	60.4
Remainder	248	227	263	255	290

The working of any standard may be best summarised by means of two percentages - one, which we might call the retention percentage, is the percentage of the total enrolled during a year that remain on roll at the end of the year; and secondly, the percentage of the total on roll at the end that passes and is promoted to the next standard. In Table No. 36 are brought together these sets of percentages for the infant class and the three standards.

6. *The average passing and retention percentages.*—It is clear that there has been a definite decline in the passing percentages during the course of the five years. This trend is apparent in all the standards. It may be either due to a deterioration of the scholastic standard or to a stiffening of the passing standard. The decline begins definitely from the year 1943-44 and continues to the end of the period studied. From what is generally known was the political atmosphere prevalent in this area during the three years 1943-46, a definite deterioration in the scholastic standards rather than any raising of the examining standard, appears most likely to be the cause of this phenomenon. The sharp deterioration in 1945-46 should be attributable to the conditions then prevailing among teachers, to which a reference has already been made.

Table No. 36. Retention and Passing percentages for the Infant Class and the Three Standards.

	Infant		I		II		III	
	Retention per cent	Passing per cent	Retention per cent	Passing per cent	Retention per cent	Passing per cent	Retention per cent	Passing per cent
1941-42	-	48.4	-	72.3	-	73.7	-	71.9
1942-43	89.3	50.6	91.7	72.0	97.4	71.7	94.0	73.2
1943-44	87.5	48.1	94.5	69.5	89.9	69.3	96.1	69.5
1944-45	91.6	45.3	95.6	64.9	96.3	66.1	94.5	67.8
1945-46	82.2	38.8	88.8	59.8	92.5	60.6	87.4	60.4
Average	89.5	49.0	93.9	71.3	94.5	71.5	94.8	71.5

The fact of a deterioration in the scholastic standard rather than raising of the examining standard, is also suggested when it is noted that not only fewer passed the annual examination, but also fewer appeared for them. The passing percentages as given above might be corrected for this factor, by considering percentages of those passed to those who appeared rather than to the total on roll at the year end. This is done in Table No. 37.

Table No. 87 Number of passes as Percentages of those who appeared for examination

Year	Infant	I	II	III
1941-42	66.4	81.6	77.7	78.1
1942-43	66.3	81.8	79.4	79.3
1943-44	66.5	81.7	79.1	78.1
1944-45	63.4	79.3	77.5	78.9
1945-46	58.5	73.3	74.7	75.7

It is clear that so presented the passing percentages are remarkably steady during the first three years There is a slight decline in them in 1944-45 and a definite deterioration in 1945-46. The position in the latter two years is understandable in the light of the then prevailing agitation among teachers. The passing percentages during first three years may, therefore, be taken as the normal examining standard. To obtain the normal passing percentages in the different standards, we have taken the averages for these three years.

Coming to retention percentages, namely the percentages of the total

enrolled that remain on roll to the end of the year, we note that these are not available for the first year. In the case of the last year there is some decline in them for all standards. The abnormality of this year has already been noted. To obtain the normal percentages, therefore, we take the averages for the three years 1942-45.

As in all these cases we are averaging percentages, the geometric mean rather than the usual arithmetic mean has been employed. They are given in the Table No. 38.

Table No. 38. Average Retention and Passing Percentages.

Class	Average percentage of the total enrolled that remain on roll at the year end	Average percentage of the total on roll at-year end that is promoted to the next standard
Infant	89.5	49.0
I	93.9	71.3
II	94.5	71.5
III	94.8	71.5

7. *Expected distribution of students in different classes.*— This summarises the normal working of the Local Board Primary Schools. A system working under such normal conditions as represented by the set of percentages above, for a period of about twelve to fifteen years, if not violently disturbed in the meantime, would stabilise, in the sense that if the number of new entrants in the infant class is relatively steady from year to year, the total number of students that it may hold on its rolls at an year end as well as its distribution among the different standards, would attain stability and would continue to remain unchanged thereafter. Considering a school system for which the number of new entrants in the infant class every year is 10,000, and which is subjected to normal percentages given above, we may now work out the stabilised conditions to which it would reach after a few years of normal working.

Under stabiliser conditions, the number on roll of each standard at an year end continues to remain unchanged. For the infant class, for instance, this number must be such that when 49.0 per cent of it is passed and promoted to the next standard, and when 1O,000 fresh entrants are added to the remainder next year, 89.5 per cent of this total which remains on roll of the class at the year end, must be equal to the original number. A little arithmetic shows that this number should, be 16,466. On similar conditions the stabilised number on roll of each standard, at an year end, may be worked out. These are given in Table No. 39. Arithmetical details of calculation are given in Appendix V.

Table No. 39 Expected Distribution of Students in Different Classes

Number of new entrants in the infant class 10,000. Class Expected on roll at an year end	% of total on roll	
Infant	16,466	36.4
I	10,371	22.9
II	9,564	21.1
III	8,883	19.6
Total	45,284	100.0

We may now compare these stable conditions as we expect them to be, with the actual average conditions during the five year period. The average number of students on roll of each standard during the five year period is given in Table No. 40.

Table No. 40. Average Number on Roll at an year end.

Class	No.	Percent of the total on roll.
Infant	1,502	36.3
I	940	22.7
II	874	21.1
III	823	19.9
Total	4,139	100.00

Thus the actual distribution of the total number of students into the various standards, is seen to be in excellent agreement, with what we would expect if the school system were in fact working, for a considerable period, under relatively undisturbed normal conditions, as represented by the set of percentages in Table No. 38.

The actual total strength which is 4,139 of course depends upon the number of new entrants in the infant class, every year. If this were 10,000, we expect at an year end, a total of 45,284 in the four classes. On this basis, it would require, about 914 new entrants in the infant class, every year, to have the actual total of 4,139. The actual estimated numbers of new entrants in the infant class during the four years 1942-46 are 908, 896, 897 and 1,143, respectively. The required number of 908 new entrants every year appears, therefore, reasonable and in good agreement with the estimated new entrants during the four years. This is particularly so, when we note, that, the number of new entrants in the last year was, abnormally high for reasons already noted.

This remarkable agreement between the actual and the expected total numbers and their distributions among the different standards appear to be a complete justification of the reasoning so far followed.

8. *A slight revision of rates*.—The agreement is somewhat improved if we slightly change the average percentages of the total enrolled that remain on roll,

given in Table No. 38. We, therefore, propose the following modification in this respect:-

Table No. 41. Average Retention percentages.

Class	Average per cent given in Table 38	Modification proposed
Infant	89.5	89.5
I	93.9	93.6
II	94.5	95.0
III	94.8	95.0

In the following we work with these percentages; the passing, percentages are the same as given in Table 38. On this basis, we have the following stable composition for a school system, in which 10,000 fresh students enter every year.

The, improvement in agreement with the actual distribution as given in Table 40 is obvious. The modification is so slight that there appears no harm in working with these figures.

Table No. 42. Expected Distribution of Students in Different Classes.

Class	No.	Percent
Infant	16,466	36.3
I	10,325	22.8
II	9,591	21.2
III	8,984	19.7
Total	45,816	100.0

9. *Total wastage.*—We shall now express the final conclusion in a somewhat different but perhaps in a more direct form. We note that in a school system subject to these percentages, for every 10,000 new entrants in the infant class every year there are found 8,934 students on roll of the third standard; 71.5 per cent of these that is 6,388 students pass the third standard every year. This means that 3,612 students leave the school every year, without completing the third standard. Similarly, out Of the 9,591 students on roll of the second standard at an year end, only 71.5 per cent., that is 6,858 pass that standard, which means that 3,142 students leave the school every year without passing the second standard. Similarly, for the other classes. In short, we may say, that if we follow the progress of 10,000 students newly entering the infant class in a given year, 3,612 will be found to have left the school, without completing the third standard, 3,142 without completing, the second, 2,638 without completing the first standard and 1,932 without even completing the infant class.

Otherwise repressed, this means that out of every 10,000 students entering the school system 3,612 leave the school at various stages without completing the third standard. The number out of the

initial cohort of 10,000, that leave the school at various stages are given in Table No. 43.

Table No. 43. Total Wastage at Various Stages.

Class	Number out of 10,000 leaving the school from this class	Percent of the total
Infant	1,932	53.5
I	706	19.5
II	504	14.0
III	470	13.0
Total	3,612	100.0

It would thus appear that of the total wastage from classes upto the third more than half is through the Infant Class. Detailed percentages are given in a parallel column of the above Table. In Table No. 44, we give the total reported wastage cases by classes.

Table No. 44. Reported Wastage Cases by Classes.

Class	Number	Percent of the total
Infant	695	53.5
I	254	19.6
II	178	13.7
III	171	13.2
Total	1,298	100.00

It will be noted that the percentage distribution of the reported cases is in excellent agreement with derived total wastage. We consider, therefore, the estimates of total wastage given in Table No. 43, as satisfactory. These, it will be observed, are much less than the corresponding provincial estimates earlier derived and given in Table No. 23. That wastage in Satara District would be smaller in comparison with the provincial conditions, was, of course, anticipated earlier.

CHAPTER IV
STAGNATION IN THE LOCAL BOARD SCHOOLS

1. *Stagnation.*—We shall now turn to the phenomenon of stagnation. Stagnation consists, as already said, in the fact that many of the boys who pass out of a class, take more than the normal period to do so. The distribution of students according to the number of years taken to complete a certain standards is, therefore, fundamental to a consideration of this phenomenon. In the last section we estimated, for instance, that out of every 10,000 students entering the infant class, 1932 leave the school from that class, while the remaining 8,068 boys pass through that class to the next one. In this section we shall be concerned with estimating the varying number of years taken by the 8,068 boys to complete the infant class.

2. *Stagnation in the infant class.*—As a preliminary we shall first examine more closely the wastage cases from the infant

class. According to our estimates of Wastage, in this class there are 1,932 wastage cases per 10,000 new entrants. This does not mean that out of every 10,000 new entrants, 1,932 leave the school in the first year of their schooling. Some of the wastage cases, of course, leave the school during the first year of their schooling, but some others might do it in the second year, some in the third year and so on. We shall first obtain the distribution of the 1932 wastage cases according to the number of years they spend in school prior to their leaving it in the infant class. We shall do this on the basis of the information regarding the actually reported wastage cases from this class.

As already stated, we have 695 cases of reported wastage from the infant class. In Table No. 45 is given their distribution according to the number of years they spent in school before leaving it.

In a parallel column is given the percentage distribution. It is reasonable to assume that this distribution will be substantially true for the estimated cases of wastage from the Infant Class. On that basis, Table No. 46 gives, out of every 10,000 that enter the Infant Class, the numbers that leave it without passing through, in the first, second, third, etc., year of their schooling.

Thus out of 10,000 fresh entrants in infant class, 573 leave the school quite in the first year of their schooling, leaving on roll only 9,427 at the year end. Just how many of these do pass the

Table No. 45. Distribution of the Reported Wastage Cases from Infant Class According to the Number of years spent in school.

Number of years spent in school before leaving the infant class	Number of reported wastage cases	Percentage distribution.
1	206	29.64
2	239	34.39
3	114	16.40
4	82	11.80
5	29	4.17
6	14	2.01
7	9	1.29
8	-	-
9	2	0.29
Total	695	99.99

TABLE No. 46. Distribution of the Estimated Wastage Cases from Infant Class According to the Number of Years spent in school.

Year of schooling	Number out of 10,000 leaving the school from the infant class in this year
I	573
II	664
III	317
IV	228
V	81
VI	39
VII	25
VIII	3
IX	1
X	1
Total	1,932

annual examination and are promoted to the next standard? We have earlier seen that the normal passing percentage in the infant class is 49 per cent of those who are on roll at the year end. A class, of course, consists of fresh students who are enrolled only this year, students who are one year old, students two year old and so on. The passing percentage given above is, therefore, only average for all such students. In order to know the number who pass at the end of the first year of schooling we need the passing percentage for the fresh entrants and this might, quite conceivably, be very different from the one given above. Similarly, in order to know the number who pass the infant class at the end of two years of schooling, we need to know the passing percentage specifically for such repeaters; and so on. In short, in order to estimate the number, out of 10,000, who pass out after One, two, three, etc., years of schooling, we need to know not the average passing percentage, but passing percentages for freshers, for one year olds, for two year olds and so on. In the absence of such specific passing percentages we shall assume, to begin with, that they are the same for all boys, old and new. Later on we shall suitably modify this assumption.

On this basis we expect that Out of the 9,427 students who remain on roll at the end of the first year, 49 per cent, that is, 4,619 pass, leaving behind 4,808 as repeaters. Some of these repeaters leave the school during the second year. From Table No. 46, we have that 664 leave during the second year, leaving 4,144 on roll at the year end. If, again, 49 per cent of these pass, we have that 2,031 pass at the end of the second year leaving behind 2,113 to repeat for the third year. The process continues until all of the initial cohort of 10,000 students exhausts, either because the students leave the school or pass and are promoted to the next class. In Table No. 47, we outline this progress of the 10,000 students through the infant class.

The table outlines the progress of 10,000 students through the infant class. We know that 1,932 of them leave the school without passing. The third column gives the numbers leaving in the first, second, third, etc., year of their schooling, and is based on the facts of the actually reported wastage cases; In the last column, we have the estimates of the numbers passing after one, two, three, etc., years of schooling. These are based on the assumption that the same passing percentage is applicable to freshers and repeaters of any length of duration in school.

Consider now a school system in which every year 10,000 students enter

the infant class who later progress through this class as outlined in the table. We have already seen that such a school system will soon accumulate in its infant class a total of 16,466 students and will continue thereafter to hold this number on its rolls at the year end every year. In the fourth column of Table No. 47, number of years they have been in school. Thus 9,427 of them are freshers, 4,144 one year repeaters and so on.

According to the definition of "stagnation in infant class" that we have adopted, we would regard as stagnant only those in, the infant class who have been for more than two years in the school. Thus from the fourth column of Table No. 47, we would have all boys beginning with the entry 1,796 onwards, as stagnant cases. As already noted, the schools, from which we have received returns contain only 1,500 boys in their infant class. On the basis of the fourth column of Table No. 47, therefore, we would expect the following numbers of stagnation cases from the infant class as shown in Table No. 48. In a parallel column of the same table, we give the actual numbers of reported stagnation cases.

Table No. 47. Progress of 10,000 Students Through the Infant Class.

Year of schooling	On roll at the beginning of the year	Leave school during the year	On roll at the end of the year	Pass at the end of the year
I	10,000	573	9,427	4,619
II	4,808	664	4,144	2,031
III	2,113	317	1,796	880
IV	916	228	688	337
V	351	81	270	132
VI	138	39	99	49
VII	50	25	25	12
VIII	13	3	10	5
IX	5	1	4	-
X	-	1	3	3
Total	-	1,982	16,466	8,068

Table No. 48 Estimated and Reported Stagnation Cases from Infant Class Distributed According to number of years spent in school.

Year of schooling	Estimated	Reported
III	164	105
IV	63	60
V	25	22
VI	9	7
VII	2	3
VIII	-	2
Total	263	199

It is obvious that the discrepancy between the estimated and the reported numbers is great. Thus, while we estimate a total of 263 stagnation cases from this class, actually only 199 are reported. The discrepancy is largest in the stagnation cases who have been in infant class for the third year of their schooling.

It will be remembered that the estimated number of stagnation cases is ultimately based on the assumption that we made, namely, one of uniform passing percentages for all boys, old and new. It is likely that the discrepancy between the estimated and the reported numbers is due to this assumption being wrong. That is, of course, a possibility. In that case, it should be possible to minimise this discrepancy by appropriate choice of the passing percentages for the freshers and the successive repeaters. With this possibility in mind, we have allowed some variation in the passing percentages. In so doing, while the aim was to minimise the discrepancy between the estimated and the reported number of stagnation cases, it was borne in mind that the variation in the passing percentages for freshers and repeaters could not be erratic, but that it must be gradual and understandable. The result of such an attempt is given in Table No. 49.

Table No. 49. Progress through Infant Class.

Year of schooling	No. at the beginning	Leave during the year	Remain on roll at the end	Pass out	Per cent at the end	Per cent pass
I	10,000	573	9,427	4,542	94.3	48.2
II	4,885	664	4,221	2,121	86.4	50.3
III	2,100	317	1,783	900	84.9	50.5
IV	883	228	655	330	74.2	50.4
V	325	81	244	123	75.1	50.4
VI	121	39	82	35	67.8	42.7
VII	47	14	33	13	70.2	39.4
VIII	20	7	13	3	65.0	23.1
IX	10	5	5	1	-	-
X	4	2	2	-	-	-
XI	2	1	1	-	-	-
XII	1	1	-	-	-	-
Total	-	1,932	16,466	8,068	-	-

The table outlines as before the progress of an initial cohort of 10,000 students through the infant class. In the last two columns are given the retention and the passing percentages, respectively. By retention percentage is meant, the number remaining on roll at an year end expressed as percentage of the number at the beginning of the year. This number is seen to decrease every year. This is, of course, what we would expect and it means that the proportion of the wastage is larger among boys who have been in infant class for a longer time. As to the passing percentages, though variation in them was allowed, actually as it appears, the variation is not great. Passing percentage for boys who remain in the class for two, three, four or five years is almost the same. It is only afterwards that it decreases. The passing percentage for freshers is a little lower. The difference is slight and not altogether inconceivable. The almost steady passing percentage upto the fifth year is notable. It means that the class, though it consists of freshers and repeaters of all durations, is a remarkably homogeneous lot as regards its scholastic attainments.

We shall now examine the effect of the variation allowed in passing percentages on the agreement between the estimated and the reported numbers of stagnation cases. As before, the fourth column of Table No. 49, gives the distribution of 16,466 students on roll at an year end and according to the number of years they have been in school. Reducing this column to a total of 1,500, which is the actual total number of students in infant class of the selected schools, we obtain their distribution according to the number of years spent in school. From this we obtain the estimates of stagnation cases. In Table No. 50, we give the revised estimates. In a parallel column are also given the reported numbers.

Table No. 50. Estimated (revised) and Reported Stagnation Cases from Infant Class Distributed According to the Number of years Spent in School.

Year of schooling	Estimated	Reported
III	162	105
IV	60	60
V	22	22
VI	7	7
VII	5	5
Total	256	199

It is obvious that the disagreement between the total of estimated, and reported is substantially the same as before. Nevertheless, now the estimated and the reported numbers differ only in one class. While we estimate 162 stagnation cases who have been in the infant class for the third year of their schooling, only 105 such cases have been reported. No conceivable variation in the passing percentages can reduce this discrepancy.

We must, therefore, doubt the completeness of reporting of stagnation cases in our enquiry.

It should be noted that the estimated and reported numbers agree excellently in all classes except one and that the under-reporting, if any, is apparent in only one class. It now appears that such under-reporting was not altogether unexpected. In the definition of stagnation, the reference was to academic years spent in school, so that a boy who enrolled himself even in February must be said to have spent one year in school, by the end of May. This interpretation, even though made sufficiently clear, was not, it appears, strictly adhered to by a number of teachers. This obviously results in under reporting in the third year of schooling, which is the marginal year for the definition of stagnation in infant class. We are inclined to accept this explanation and believe that there has in fact been considerable under-reporting in this category. We shall, therefore, finally accept our estimated numbers of stagnation cases as being closer to facts.

We may now summarise the position as regards wastage and stagnation in the infant class as follows:-

Of every 10,000 students entering this class:-

4,542 pass in the first year of schooling.
2,121 pass in the second year of schooling.
1,405 pass in the third or subsequent year, of schooling.
8,068 pass through the infant class.
1,932 Leave the school without passing through the infant class.

Thus while there, are 1,932 wastage cases in the infant class, there are 1,405 stagnant cases as per our definition. In other words, there is 19.32 per cent wastage and 14.05 per cent stagnation in the infant class.

The position regarding wastage might be summarised in a somewhat different manner. Thus, from Table No. 49, it appears that the 10,000 students entering the infant class, together spend 18,398 years in that class. Of these 4,645 years are spent by the 1,932 students who finally leave the school without passing through the infant class. We may consider, therefore, 4,645 student-years out of a total of 18,398, or about 25.25 per cent as wasted. This way of looking at the problem is probably the more appropriate when, wastage is considered in terms of financial costs.

The balance of 13,753 years was spent by the 8,068 students who passed through the infant class. Thus on an average, the

boys who pass the Infant class require about 1.7 years to do so. On the other hand, the boys who leave the school without passing this class, spend on an average about 2.4 years in it. In so far as the boys who leave, spend on an average considerably more years in this class than do the boys who pass, stagnation might be considered a cause contributory to wastage. The same is indicated by the fact that the retention percentages as given in the sixth column of Table No. 49, continuously diminish, which means that wastage among stagnant boys is increasingly larger. We shall return to this point later.

3. *Stagnation in the first standard.* —Proceeding on exactly similar lines, we may derive the progress of the 10,000 boys through I standard. This is given in Table No. 51:—

TABLE No. 51. Progress through I standard.

Year of schooling	No. at the beginning	Leave during the year	Remain on roll at the end	Pass out	Per cent at the end	Per cent pass
I	-	-	-	-	-	-
II	4,542	125	4,417	3,477	97.25	78.72
III	3,061	167	2,894	1,959	94.54	67.48
IV	1,841	158	1,683	1,130	91.42	67.14
V	883	125	758	505	85.84	67.02
VI	373	64	309	186	82.84	60.19
VII	158	28	130	65	82.28	50.00
VIII	78	16	62	25	79.49	40.32
IX	40	9	31	10	77.50	82.26
X	22	4	16	4	81.82	22.22
XI	14	4	10	2	71.43	20.00
XII	8	2	6	1	-	-
XIII	5	1	4	1	-	-
XIV	3	1	2	-	-	-
XV	2	1	1	-	-	-
XVI	1	1	-	-	-	-
Total	-	706	10,325	7,362	-	-

It should be noted that of the 10,000 boys only 8,068 ever reach the first standard. Of these 706 leave the school without passing through this standard. Their distribution according to their year of schooling is given in the third column of the table. This has been derived on, the basis of a similar distribution of the 254 reported wastage cases from this class. It should be noted that the year in the first column is the year in the school and not the year in the class. Passing percentages in the last column have been adjusted so as to minimise the difference between the estimated and reported stagnation cases. On their basis, the distribution of the 10,325 students to be found in I standard, according, to the year of their schooling is given in the fourth column. According to definition of stagnation, all those who are found in I standard in the fourth or subsequent year of their schooling are to be regarded as stagnant. Omitting the first two figures in the fourth column, we have, therefore, the estimates of stagnant cases in I standard out of a total of 10,325 in the class. In the sample of schools under study, we have only a total of 940 boys in I standard. On the basis of the above estimates of stagnation, we would, therefore, expect the following numbers of stagnant cases reported from I standard. In a parallel column are given the actual reported cases.

TABLE No. 52. Estimated and Reported Stagnation in I Standard by year of Schooling.

Year of schooling	Estimated number	Reported number
IV	153	127
V	69	69
VI	28	28
VII	24	24
Total	274	248

Thus in place of the estimated 274 stagnant cases, only 248 have been reported. The defect again is in the first group, namely, among the students who have been in I standard during the fourth year of their schooling and thus are to be regarded as stagnant by definition. The group is marginal and the possibilities of misinterpretation of the definition and the consequent under-enumeration have already been mentioned. We are, therefore, inclined to believe that there has in fact been under-reporting and that the estimated numbers of stagnant cases are substantially true.

We may now summarise the position as regards wastage and stagnation in I standard as follows:-

Of every 10,000 students entering school, only 8,068 reach I standard. Of these.

3,477 pass I standard in the second year of their schooling.

1,953 pass I standard in the third year of their schooling.

1,932 pass in the fourth or subsequent year.

7,362 pass I standard.

706 Leave school in I standard.
8,068 Total number entering I standard.

Thus there are 706 wastage cases and 1,932 stagnant cases.

The 8,068 who reach I standard spend altogether 24,784 student years in the school before they pass I standard or leave the school. Of these 2,963 or about 11.96 per cent are spent by students who finally leave the school in I standard. This, therefore, is the wastage proportion at this stage as considered from the point of view of financial costs.

4. *Stagnation in the second standard.* —We have seen that of the initial 10,000 only 7,362 pass I standard and reach II standard. Their progress through this class is given in Table No. 53. Underlying considerations and the structure of this table are the same as before.

In II standard of the selected schools, there are only 874 students. On the basis of the fourth column of the above, table, we derive the estimate of stagnant cases in this standard and compare them with the actual reported cases. This is done in Table No. 64.

Table No. 53 Progress through II Standard

Year of schooling	No. at the beginning	Leave during the year	Remaining on roll at the end	Pass out	Per cent at the end	Per cent pass
I	-	-	-	-	-	-
II	-	-	-	-	-	-
III	3,477	54	3,423	2,514	98.45	73.44
IV	2,862	105	2,757	1,954	96.83	70.87
V	1,933	102	1,831	1,296	94.72	70.78
VI	1,043	102	941	666	90.22	70.78
VII	461	62	899	282	86.55	70.68
VIII	182	42	140	98	76.92	70.00
IX	67	16	51	30	76.12	58.82
X	81	7	24	12	77.42	50.10
XI	16	5	11	4	68.75	36.36
XII	9	3	6	1	-	-
XIII	6	2	4	1	-	-
XIV	4	2	2	-	-	-
XV	2	1	1	-	-	-
XVI	1	-	1	-	-	-
XVII	1	1	-	-	-	-
Total	-	504	9,591	6,858	-	-

Here too there has been some under-reporting and though it is not entirely confined to the marginal group, we are inclined to believe that there has been under-reporting rather than to doubt seriously the estimates.

Table No. 54. Estimated and Reported stagnation in II standard by year of schooling.

Year of schooling	Estimated number	Reported number
V	167	145
VI	86	72
VII	36	37
VIII	13	11
IX	9	9
Total	311	274

Thus to summarise the position as regards wastage and stagnation in II standard, we have that of every 10,000 students entering school, only 7,362 reach II standard. Of these,
2,514 pass II standard in the third year of their schooling.
1,954 pass II standard in the fourth year of their schooling.
2,390 pass II standard in the fifth or subsequent year.
6,858 pass II standard.
504 leave the school in II standard.
7,362 Total number entering II standard.

Thus there are 504 wastage and 2,390 stagnation cases at this stage.

The 7,362 who reach II standard spend altogether 31,916 student-years in the school before they pass III standard or leave the school. Of these 2,865 or about 8.98 per cent are spent by students who finally leave the school in II standard. This, therefore, is the wastage proportion at this stage, as considered from the point of view of financial costs.

5. *Stagnation in the third standard.* —The progress of the 6,858 boys reaching the third standard, through that standard is outlined in Table No. 55.

In Table No. 56, we compare the estimated and actual reported stagnant cases by year of schooling.

As judged by our estimates, stagnation in this class must be considered as grossly under-reported in our investigation. There are two possible causes leading to such an under-reporting. Firstly, as a rule many of the school records are not preserved for more than five years and

Table No. 55. Progress through III standard.

Year of schooling	No. at the beginning	Leave during the year	Remain on roll at the end	Pass out	Per cent at the end	Per cent pass
I	-	-	-	-	-	-
II	-	-	-	-	-	-
III	-	-	-	-	-	-
IV	2,514	50	2,464	1,810	98.01	73.46
V	2,608	113	2,495	1,768	95.67	70.86
VI	2,023	96	1,927	1,364	95.25	70.78
VII	1,229	77	1,152	815	93.73	70.75
VIII	619	63	556	393	89.82	70.68
IX	261	36	225	157	86.21	69.78
X	98	27	71	51	72.45	71.83
XI	32	8	24	15	-	-
XII	13	-	13	9	-	-
XIII	5	-	5	4	-	-
XIV	2	-	2	2	-	-

Table No. 56. Estimated and reported stagnation in III standard by year of schooling.

Year of schooling	Estimated number	Reported number
VI	177	107
VII	106	86
VIII	51	24
IX	32	26
Total	366	243

hence in many school no records prior to 1939-40 were at all available. Secondly, even if the records were available, it should be obvious from the definition of stagnation and the detailed procedure required to determine stagnation in a given case, that it was only a very conscientious teacher who would take all pains to report stagnation fully. Under these circumstances, it appears quite possible that there has in fact been very serious under-reporting. We would, therefore, rather take our estimates as closer to the truth.

Thus to summarise the position as regards wastage and stagnation in III standard, we have that of every 10,000 students entering school only 6,858 reach Ill standard. Of these,

1,810 pass III standard in the fourth year of their schooling.

1,768 Pass III standard in the fifth year of their schooling

2,810 pass III standard in the sixth or subsequent year of their schooling.

6,388 pass III standard.

470 Leave the school in III standard.
6,858 Total number entering III standard.

Thus there are 470 wastage and 2,810 stagnation cases at this stage.

The 6,858 Who reach III standard spend altogether 38,455 student-years in the school before they pass III standard or leave the school. Of these, 3,066 or about 7.97 per cent are spent by students who finally leave the school in III standard. This, therefore, is the wastage proportion at this stage, as considered from the point of view of financial costs.

6. *Summary.*—We shall now summarise the position regarding wastage and stagnation.

Of every 10,000 students entering the school system.
6,388 pass III standard.
3,612 Leave the school without passing III.
Of these,
1,932 leave in Infant Class.
706 leave in I standard.
504 leave in II standard.
470 leave in III standard.
Of the 6,388 who pass III standard.
1,810 pass without a single failure in the school career, that is pass in the fourth year of schooling.
1,768 pass with one failure that is pass in the fifth year of schooling.
2,810 pass with two or more failures, that is in the sixth or subsequent year.

Of these,
1,405 meet their second failure in Infant Class.
527 meet their second failure in I standard.
458 meet their second failure in II standard.
420 meet their second failure in III standard.

Considered from the point of view of financial costs, we might summarise the position as under:-

Every 10,000 students entering the school system spend altogether 48,928 student-years in the school before either they pass out of the third standard or leave the school earlier. The distribution among different classes, of the total student-years thus spent is as under:-

Infant Class	18,398
I Standard	11,081
II Standard	10,095
III Standard	9,404
Total	8,928

Of the total student-years spent, 35,389 are spent by the 6,388 boys who finally complete the third standard, the

remaining 13,539 student-years, forming more than 27 per cent of the total, are spent by those who fail to complete the third standard. This is the net wastage from the point of view of financial costs. Considered from the point of view of number of students failing to complete the third standard, we saw that 86.12 per cent students are to be considered as wastage cases. Thus, it would appear that wastage, considered from the point of view of financial costs is considerably smaller than is apparent.

The total wastage of 13,539 student-years is distributed in various classes as under:-

4,645 student years are spent by those who leave the school in the Infant Class.

2,963 by those who leave in I standard.
2,865 by those who leave in II standard.
3,066 by those who leave in III standard.
13,539 Total wastage.

As for stagnation, we have seen that 6,388 boys require in all 35,389 student-years to complete III standard. Had they kept normal progress, they would need 6,388 x 4 = 25,552 student-years. The extra 9,837 student-years taken by them might, therefore, be taken as, a measure of stagnation.

Thus, to conclude, we might say that of the total educational effort expended on the infant class and the first three standards, about 28 per cent is ultimately wasted, while, of the remaining, about 28 per cent is due to the phenomenon of stagnation.

CHAPTER V
WASTAGE AND STAGNATION IN THE VOLUNTARY SCHOOLS

1. *Returns from Voluntary Schools.* —In this section we shall, examine the conditions in the Voluntary Schools and shall compare them with those prevailing in the Local Board Schools.

As has already been pointed out, returns from only 42 Voluntary Schools have been admitted for the purpose of this report. Table No. 57 gives, year by year, and for each standard separately, the total strength at each year end, for the 42 schools combined.

Table No. 57. Number of boys in Different Classes in the Sample of 42 Voluntary Schools.

Year	Infant	I	II	III
1941-42	722	392	392	268
1942-48	620	353	333	316
1948-44	566	269	255	271
1944-45	526	205	214	194
1945-46	698	230	142	204
Average	626	290	267	251

Our returns from the Voluntary Schools are not sufficiently numerous to justify separate and independent estimates of wastage and stagnation. In the first instance, we have too few schools with satisfactory returns and secondly, these schools are on the whole very much smaller than the Local Board Schools, so that our final sample from the Voluntary Schools is rather limited. In Table No. 58 we compare the average year-end strengths, in the 72 Local Board and the 42 Voluntary Schools.

Table No. 53. Average number of boys in Different Classes in the Samples of Local Board and Voluntary Schools.

Class	72 Local Board Schools	42 Voluntary Schools
Infant	1,502	626
I	940	290
II	874	261
III	823	251

Under these circumstances, we shall content ourselves with comparing the conditions in the Local Board and the Voluntary Schools, by comparing the actual reported number of wastage and stagnation cases from the Voluntary Schools with the corresponding numbers estimated on the basis that the conditions in the two schools were about the same.

2. *Wastage in the voluntary schools.* —The average number of students on roll of Infant Class in the 72 Local Board Schools was 1,502, while in the 42 Voluntary schools it was only 626. From the Infant Class of the Local Board schools we have 695 wastage cases reported. We have also seen that the reporting of wastage cases from the Local Board Schools has been very complete. Therefore, on that basis, we would expect 290 wastage cases from the infant class of the voluntary schools. We have actually only 244 cases reported. Table No. 59 gives similarly estimated and actually reported wastage cases from all classes of the voluntary schools.

Table No. 59. Estimated and Reported Wastage Cases from the Voluntary Schools.

Class	Estimated number	Reported number	Reported as percentage of estimated
Infant	290	244	84.14
I	78	84	107.69
II	54	68	125.93
III	52	84	161.54

Thus it appears that, as compared with the Local Board schools, the Voluntary schools have, starting with an actually smaller wastage in the Infant Class, increasingly larger wastage in higher standards.

The smaller wastage in infant class of the voluntary schools is understandable. During the course of this investigation it was noted that the authorities of these schools made great efforts to maintain the strength of the schools and that the teachers also showed considerable personal interest in the matter. Such efforts were, of course, partly due to the social standing of the authorities of these schools; perhaps they were also partly due to the manner in which these schools were aided by Government. Bulk of the response to such efforts was naturally confined to the infant class and, in fact, often it had its compensation in the higher standards. In this connection, a typical argument between the schools authorities and parents might be cited. When a farmer withdrew both of his sons from the school on the plea that he needed them on his farm, the authorities argued, with considerable success, that they would not let at least the younger of the two, to be out of the school. The argument was, of course, good common sense and the parents had to oblige. It was also noted that, perhaps owing to the same set of social and financial circumstances, the school authorities were not always prompt in removing from the roll, the names of boys who were absent from the schools even for considerably long periods.

This somewhat artificially supported strength of the infant class, could not of course be maintained in the higher standards. As a consequence we have comparatively higher wastage in these standards. Compared with that in the Local Board schools the wastage in Voluntary schools is more than 7.5 per cent higher in the first standard, more than 25 per cent higher in the second standard and more than 60 per, cent higher in the third standard.

3. *Stagnation in the voluntary schools.* —The composition of the different standards, as resulting from the smaller wastage in infant class and higher wastage in the higher standards is very well reflected in the passing percentages, in these standards. In Table No. 60 we give

the passing percentages, that is, percentage of the total on roll at an year end that passes or is promoted to the higher standard, in Voluntary schools, averaged for the period 1941-45. In a parallel column are given comparable percentages in the Local Board schools.

Thus, the passing percentage is considerably lower in the infant class and increasingly higher in the higher standards. The passing and the wastage percentages thus go hand in hand. This is as it should be.

Table No. 60. Passing Percentages in Different Classes of the Voluntary and the Local Board Schools.

Class	Voluntary Schools	Local Board Schools
Infant	41.0	49.0
I	75.8	71.3
II	82.4	71.5
III	86.9	71.5

As an immediate consequence of the low wastage and passing percentages in the infant class, we must expect stagnation to a greater extent, in this class. On the other hand, the increasingly larger wastage and larger passing percentages in higher Standards, should result in, relatively speaking, increasingly smaller stagnation in these standards. While examining the returns from Local Board Schools, we expressed doubts regarding the completeness of the stagnation reporting. There are stronger reasons to suspect the same in the case of voluntary schools. No fruitful comparison between the two can, therefore, be made on the basis of the reported stagnation cases.

We might summarise the relative position of the Voluntary schools thus: As compared with the Local Board schools, the wastage in Voluntary schools is smaller in the infant class, but increasingly larger in the higher standards. The smaller wastage in the infant class is, however, somewhat artificially brought about as indicated by the smaller passing percentage in this class. This must result in a greater degree of stagnation in this class. On the other hand, the larger wastage in the higher standards is partly due to the relatively unpromising boys leaving the school and results in increasingly better passing percentages and consequently in a smaller degree of stagnation in these standards.

CHAPTER VI
UNDERLYING CAUSES

1. *Underlying Causes.*—We have so far discussed the magnitude and extent of the two phenomena of wastage and stagnation. In this section we shall proceed to discuss the underlying causes.

It is perhaps worthwhile pointing out that though we have so far considered them separately Wastage and Stagnation are indeed not two distinct phenomena but are perhaps the results of the same set of socio-economic causes. It is obvious for instance, that wastage in some cases might be a direct result of stagnation and in many cases might be very definitely induced by stagnation. This will be clear from the tables in the last section outlining the progress of 10,000 students through the school. In the sixth columns of these tables, we have the retention percentages, that is the number who remain on roll at the end of the year expressed as percentage of those on roll at the beginning of the year. Their complements are the wastage percentages giving the number of students who leave the school during a year as percentage of those at the beginning of the year. In Table No. 61 we give these wastage percentages for all classes and for the successive years spent in the school.

Table No. 61. Percentage of Wastage in Different Classes According to the Number of years Spent in School before Leaving.

Year in School	Infant	I	II	III
I	5.7	-	-	-
II	13.6	2.75	-	-
II	15.1	5.46	1.55	-
IV	25.8	8.58	3.67	1.99
V	24.9	14.16	5.28	4.33
VI	32.2	17.16	9.78	4.75
VII	29.8	17.72	13.45	6.27
VIII	35.0	20.51	23.08	10.18
IX	-	22.50	23.88	13.79
X	-	-	-	27.55

It is obvious that wastage percentage increases for every additional year spent in a class. On the other hand, it is notable that for any year of schooling, the wastage is less in higher classes; that is to say, a boy who in the fourth year of his schooling is still in infant class, is much more likely to leave the school, than a boy who in the same year of his schooling is in a higher class. It is thus clear that stagnation is a contributory cause leading to wastage and that progress in school, very definitely reduces wastage.

The same point might be demonstrated from a somewhat different approach. In the Table No. 62 we give the average number of years spent in school by boys before passing a certain standard or leaving the school in that standard.

Table No. 62. Average Number of years Spent in School.

Standard	By those who pass the standard	By those who leave the school in that standard
Infant	1.705	2.404
I	2.961	4.197
II	4.236	5.685
III	5.540	6.523

Thus it will be observed that at all stages the boys who leave the school at any stage spend more years in the school than the boys who successfully complete that stage. There is, therefore, a clear indication that stagnation, in many cases, is a contributory cause leading to wastage. Hence, while discussing the causes underlying the two phenomena, it would be perhaps appropriate to regard wastage merely as an extreme form of stagnation.

2. *Age.*—Among the complex of causes that might be at work, one of the most obvious is the age of the pupil. We shall, therefore, begin with an examination of its nature. Considering the phenomenon of wastage first, the possibility is obvious that the boys leave school because they come of an age that makes it impossible for them to continue in the school; on the one hand, it is economically impossible to continue schooling after an age; on the other, perhaps, it is mentally uncomfortable to continue to sit with other students very much younger in age. The reasons why these boys grow up to this limiting age are again two-fold. Perhaps they entered the school rather late so that even with normal progress it was too late for them to complete the primary course; or, though they joined in time, they did not or could not maintain the normal progress and were too late to complete the primary course. In the latter event, we might say, that it was primarily a case of stagnation that led to wastage.

As regards stagnation, age of the pupil might be a cause of his stagnation, either because he was too young or too old for the class in which he sat. These are the possibilities. We shall now examine the available data.

A kind of material which should throw some light on this problem, is the age composition of pupils in different classes. The Annual Report on Public Instruction does not publish these statistics. In our sample investigation, we failed to note it because we concerned ourselves with the wastage and stagnation cases only. Though, therefore, we know the age composition of these cases, we do not have the age composition of all pupils in different classes. We could, however, obtain the necessary information from the office of the Deputy Educational Inspector, Satara. In Table No. 63 is given the age-distribution, in percentages, of the boys in different classes. The table is based on figures for all the Local Board Schools in Satara District and represents average conditions in the two years 1942-44.

Table No. 63. Percent Age-distribution of boys in Different Standards (Local Board Schools, Satara District, 1942-44).

Age in Years	Standard				
	Infant	I	II	III	IV
6	17.43	-	-	-	-
7	31.13	7.61	0.98	0.90	-
8	22.86	20.56	11.06	1.72	0.04
9	15.61	28.99	17.46	7.09	1.47
10	8.39	17.15	23.74	12.59	6.62
11	3.40	16.93	22.49	27.80	11.88
12	1.10	5.05	12.67	25.88	28.13
13	0.05	2.74	6.97	12.75	22.91
14	0.03	0.72	3.14	6.54	18.69
15 and over	-	0.25	1.49	4.73	10.26
Total	100.00	100.00	100.06	100.00	100.00
Average age	7.81	9.47	10.47	11.56	12.68
Difference	-	1.66	1.00	1.09	1.12

The average age of boys in different standards is given at the bottom of the table. Thus the average age in the infant class is 7.81 and that in the first standard is 9.47. The difference between these two is 1.66. Similar differences between the average ages in the successive standards is given in the last line of the table. Thus the difference between the average ages in the first and second standard is 1.00, that is just one year.

Now, if age were not a causal factor of wastage, that is to say, if it were not that older boys were more liable to leave the school, then the difference between the average ages in two standards, Such as the first and the second, would also be the average number of years required to pass the lower of the two standards, that is, the first standard in this case.

The average difference between the first and the second, the second and the third and the third and the fourth standard, is 1.00, 1.09 and 1.12 years, respectively, which is roughly one year in all cases. It is obvious that the average time taken to complete these standards could not be just one year. In fact, as we have seen earlier, it is considerably more than one year. The reason why the difference between the average ages in different standards should be less than the average time taken to complete these standards, appears to be that in these standards the older boys leave the school in larger proportions than do the younger boys.

The situation is somewhat different in the infant class. From Table No. 62 it appears that the average time taken to complete this class is 1.7 years. The difference between the average ages in the infant class and the I standard is 1.66 years, which is very nearly the same as 1.7 years. It appears, therefore, that age is not a causal factor for wastage in the infant class.

We shall now examine the age-returns of our sample enquiry. In Table No. 64 we give the average ages of the wastage and the stagnation cases according to the standards in which they either left school or were studying at the time of enquiry.

Table No. 64. Average Ages of Wastage and Stagnation Cases in Different Classes.

Class	Wastage cases	Stagnation cases
Infant	9.28	9.80
I	11.17	10.92
II	11.98	11.76
III	12.92	12.71

It is clear that the average ages in all the cases both for wastage and stagnation are above the average ages of all boys in the respective standards. Perhaps the more remarkable feature of the above table is that the average ages of wastage

cases are, in all standards, except in the infant class, above the average ages of the stagnant cases. That growing age induces wastage in these standards is, therefore, obvious. That the average age of those who leave the school in infant class should be more than average of all boys in that class might be taken as an indication that in this case also, the growing age is a causal factor. It should be noted, nevertheless, that in this class, the stagnation cases have a still higher average age and that, therefore, to this extent the growing age might not be a direct cause of wastage.

In so far as the average age of the stagnation cases is more than the average age of all boys in that class, it is clear that it is not that the stagnant boys are stagnant because they are too young for their class. It appears unlikely that age is directly associated with stagnation as it seems to be with wastage.

We shall now proceed to consider a series of socio-economic factors that might underlie the phenomena of wastage and stagnation.

3. *Caste*.—Among the socio-economic factors, caste is perhaps the most important as it summarises, at any rate in the present state of our rural society, the main sociological facts including heredity, hereditary occupations and consequent economic circumstances of the pupils. In the Table No. 65 we give the percentage distribution of the 1,778 wastage and 1,264 stagnation cases, distributed into principal caste groups.

Table No. 65. Percentage Distribution of Wastage and Stagnation Cases Among Principal Castes.

Caste	wastage cases	Stagnation cases	Stagnation percentage as a multiple of wastage percentage
Brahmins, Jain, Lingayat, Vani, etc.	0.84	3.09	367.86
Muslims	2.52	2.77	137.13
Maratha and Mali	55.58	62.73	112.86
Other cultivating castes	5.96	6.80	114.09
Artisans	8.16	9.26	113.48
Mahar	11.53	7.12	61.75
Chambhar and Mang	7.42	4.98	67.12
Dhanagar	4.16	1.98	47.60
Ramoshi, Kaikadi, etc.	4.33	1.27	29.33

Clearly, the castes fall into two broad groups: One in which stagnation is more prevalent than wastage; the other in which wastage is more than stagnation. It means that in the first group of castes conditions are such that the boys would rather continue schooling than leave it, even in the face of obviously retarded progress in school. On the other hand, it means that in the other group of castes, the conditions are not conducive to education of boys, and certainly not so when the boy is unable to keep the normal progress.

In the last column of Table No 65 the stagnation percentages are expressed as multiples of the wastage percentages. It then appears that the share in stagnation of the literate castes like Brahmins, Jain, Lingayat and Vani, is almost four times as large as their share in wastage. It means that among these castes the absolute minima in education, of their children are kept considerably higher than the primary third standard, so that even in the face of rather disappointing progress, the children are not usually withdrawn from school. That makes their share in stagnation very large, in relation to their share in wastage. Incidentally, we may note that these castes, in rural areas of our investigation, are a negligible minority.

We have then a second group of castes consisting of the main bulk of rural population, namely the Marathas, Malis and other cultivating castes and the Artisans. We might also include the Muslims in this group. The share of this group in stagnation cases is only slightly more than their share in wastage cases. This suggests that the conditions in these castes generally are not such as to deny a minimum of primary, education to their children, but that perhaps no absolute minima in education have yet been firmly accepted, so that little special effort is made to ensure that children do not drop out in the middle.

Finally we come to the lowly stratum of the rural society, consisting of such castes as Mahar, Chambhar, Mang, Ramoshi, Kaikadi and others. In this group of castes wastage must be considered as more prevalent than stagnation. It means that education of children is difficult to obtain and almost impossible when the children, for one reason or the other, fail to keep the normal progress. It is only by sheer merit that a boy might hope to reach any standards.

Dhangars, as a caste, do not really go with the above group of castes. Their position in regard to wastage and stagnation is, however, very similar. In fact, it is actually worse than Mahars and Chambhars. Among Dhanagars, wastage

is much more prevalent than stagnation. This should arise from the nature of their occupation and their nomadic habits. There is perhaps no other occupation than rearing of sheep and goat where children are more useful. Naturally, therefore, unless a boy is positively promising, there is little chance that he is allowed to continue to be in school.

These results are, of course, very much what could be expected. We shall nevertheless make two observations in respect of these. One is the remarkable manner in which our material has brought out these well-known facts. As was noted, we, in our sample investigation, failed to gather any information regarding all the school children, such as, for instance, their caste distribution; we have this information only in respect of the wastage and stagnation cases. No comparison of the wastage and stagnation cases with what might be called a "control" or normal group was thus possible. Therefore, in order to discuss the nature of the underlying factors, we were forced to depend upon whatever internal evidence we could discover. Here, for instance, we merely compare the caste distributions of the wastage and stagnation cases. The relative positions of different cases then appear in the third column of the Table No. 65 where the respective shares of the different castes among stagnation cases are expressed as percentages of their shares in wastage cases. This manner of presenting the material might at first be thought of as rather very, roundabout and perhaps of questionable utility. However, the remarkable manner in which the method places the various castes on a well known social ladder, might now be considered as a full justification of the statistical procedure.

Perhaps the most interesting feature of this arrangement is that the method has not only arranged the various castes in an order, but has actually placed them at certain distances. The second of the two observations which we would make about these results concerns these relative distances between the castes. As will be seen, Marathas, Malis, and other cultivating castes as well as the artisans, forming the bulk and the central core of the rural society, are all a homogeneous lot. In all cases, their shares in stagnation are about 113 or 114 per cent of their shares in wastage. This also is the section which enjoys a reasonable amount of social intercourse and even occupational mobility. On one side of this main group lies a negligible minority, a fraction of the society, very far removed and very much better of than the major group. On the other lies a minority group, but not negligible, again very far removed, but in this case, very much worse than the major group. This three tier structure of our

society, with a negligible minority at the top, a two-third in the centre and one-third at the bottom, is clearly brought out even in this relatively scanty material, of our sample survey. Further the distances revealed by this analysis between the top, the centre and the bottom are astonishing and perhaps unexpected; they are a clear proof of the rigidity with which the caste system has been working until quite recent times, especially at the two levels, one at the top, where it distinguishes the privileged few from the common man and another at the bottom, where it segregates a large section of the society. The shares in stagnation of Maratha, Mali and other cultivating castes and also the artisan castes, in relation to their shares in wastage, are about 113 or 114 per cent. The same for Mahars is about 62 per cent and for Chambhars is 67 per cent. Now, it is remarkable that there is no caste for which this percentage is anywhere between 70 and 110. This is a glaring proof of how thorough and complete the segregation has been.

4. *Income*.—In Table No. 66 is given the income distribution of the wastage and stagnation cases in percentages. Incomes, of course, refer to the family incomes.

In the last column of the table we have as before the stagnation percentages expressed as multiples (in per cent) of the wastage percentages.

Table No. 66. Income Distribution of Wastage and Stagnation Cases in per cents.

Income in Rs.	Wastage Cases	Stagnation Cases	Stagnation percentage as a multiple of wastage percentage
50	6.97	2.80	40.17
100	11.33	7.07	62.40
150	8.74	7.26	83.07
200	14.64	11.98	81.83
250	7.69	8.44	109.75
300	13.43	13.52	100.67
400	14.00	14.98	107.00
500	9.06	13.80	152.32
1,000	12.62	16.70	132.33
Above 1,000	1.54	3.45	224.03
	100.00	100.00	
Total Cases	1,778.00	1264.00.	71.09

Arguing on the same lines as before, we see that income shows an obvious relation to the phenomena of wastage and stagnation; The proportions of lower income groups among stagnation cases are smaller than those in wastage cases. The two proportions are equal at about the annual income of Rs. 250 or Rs. 300. The proportions in stagnation cases are afterwards uniformly and increasingly larger than similar proportions in wastage cases. Thus there is a clear indication that wastage is more prevalent among the lower income groups.

In order to ascertain annual incomes accurately, considerable effort on the part of the investigators is needed. That was not, of possible in the present investigation. Nevertheless, it may be stated that as judged by the income distributions both of wastage and stagnation cases, the information obtained appears reasonable. At any rate, there does not appear any gross under-statement of the incomes.

In so far as the wastage and stagnation proportions are equal at about the annual income of Rs. 250 or Rs. 300 we might say that this is the absolute minimum of annual income which the parents must have so that their children may have education at least upto the primary stage.

5. *Occupation.*—We shall now turn to consider the occupation of parents or guardians as a causal factor. In Table No. 67 is given the distribution of the wastage and stagnation cases according to the occupation of the guardian.

Thus only two occupational groups are proportionately more numerous among stagnant cases than among wastage cases; they are agriculture, and business and salaried employment. The conditions in the latter occupational group, namely business and salaried employment, are obviously more favourable for continuance of education than in agriculture. The other occupational group, agriculture, is of course very heterogeneous consisting of both big and small cultivators. We shall consider it in greater detail in the next section.

Table No. 67. Percentage Distribution of Wastage and Stagnation Cases According to Occupation of the Guardian.

Occupation	Wastage Cases	Stagnation Cases
Agriculture	47.02	58.30
Artisans & Village Servants hereditary	20.90	17.97
Casual Labour	18.81	13.61
Business & Salaried Employment	6.86	10.11
Others	6.86	5.01
	100.00	100.00

All other occupational groups are proportionately more numerous among wastage cases than among stagnant cases and as such it is suggested that conditions in them are not sufficiently favourable for continuance of education. The conditions are perhaps the most unfavourable among casual labourers; this was, of course, to be expected. It is noteworthy, however, that the conditions are not good enough among the artisans and the hereditary village servants.

Except perhaps for the two major artisans, namely, the carpenter and the blacksmith, most others have usually to combine their hereditary occupations with petty cultivation or casual labour. Therefore, though they receive an assured income in kind; they can hardly be classed among the better off in the village. Among them are also included, it should be noted, the three major scheduled castes, namely, the Mahar, Mang and Chambhar, who in addition suffer from social disabilities. The better off artisans, namely the carpenter and the smith, forms of course; a small fraction in this occupational group.

6. *Size, of agricultural holding.*—The occupational category "Agriculture" mentioned in the last section was rather heterogeneous and included big as well as small cultivators. It would be worth while, therefore, to go into this category in greater detail and consider the cultivator in relation to the size of his holding. In Table No. 68 is given the distribution of wastage and stagnation cases according to the size of the agricultural holding of the family.

As in the case of income, the proportion of holders with holding of less than three acres is more among the wastage cases than among the stagnation cases. We might say, therefore, that a minimum of three acres of agricultural holding is needed to make possible continued education of boys upto the primary stage.

Table No. 68. Distribution of Wastage and Stagnation Cases According to the Size of Agricultural Holding.

Size of holding in Acres	Wastage Cases	Stagnation Cases	Stagnation percentage as multiple of Wastage percentage
-1	15.53	10.41	67.0
-2	13.76	11.42	83.0
-3	9.09	10.04	110.5
-4	9.97	9.79	98.2
-5	7.96	8.16	102.5
More than 5	43.69	50.19	114.9

7. *Livestock.*—The number of plough cattle gives a good though broad indication of the size of the agricultural holdings. The number of milch cattle gives a good indication of the well-being of a rural family. In Table No. 69 and 70 we give the distribution of the wastage and stagnation cases according to the plough cattle and the milch cattle, respectively.

Table No. 69. Distribution of Wastage and Stagnation Cases According to the Number of Bullocks owned by the family.

Number of bullocks	Wastage cases	Stagnation Cases
0	32.32	28.91
1	27.87	26.61
2 or more	39.81	44.48
	100.00	100.00

Table No. 70. Distribution of Wastage and Stagnation Cases According to the Number of Milch Cattle Owned by the Family.

Number of Cattle	Wastage cases	Stagnation Cases
0	16.63	13.44
1	32.24	29.74
2 or more	51.13	56.82
	100.00	100.00

Thus the proportion of those with none or one bullock is more among the wastage cases than among stagnation cases. We might say, therefore, that among the agriculturists it is only among those with two or more bullocks that the conditions are favourable enough to a continued education of the boys. This is in good agreement with the earlier indication that a minimum agricultural holding of three acres is needed for the purpose. It is also in accordance with our observation in general socio-economic surveys in rural areas that it is only farmers with two or more bullocks that can look to farming as a full-time employment. Smaller cultivators have to depend upon the casual employment of themselves, their women folk and children as hired labour. Conditions at this level of economic existence are obviously not, very favourable for the continued education of the boys.

Results regarding the number of milch cattle are analogous. Perhaps the number of milch cattle go very much hand in hand with the number of plough cattle. It appears that it is only among those possessing two or more milch animals that economic conditions permit the retention of the boys in schools for a sufficiently long period to ensure full primary education.

Livestock in sheep and goat is in a fundamentally different - economic category. Larger numbers of sheep and goats do not so much indicate better economic status of the family as a specific occupation with positive handicaps for education of boys. It is perhaps in the rearing of sheep and goat that children find the earliest economic employment.

Moreover, the nature of the occupation demands that the families leave the native village for quite long periods in the year and wander about with their flocks. The occupation is thus particularly unfavourable to the education of children. These facts are borne out by the results given in Table No. 71.

Table No. 71. Distribution of Wastage and Stagnation Cases According to the Number of Sheep and Goats Owned by the Family.

Number of Sheep and Goat	Wastage Cases	Stagnation Cases
-0	33.18	34.72
-5	46.60	55.52
More than 5	20.22	9.76
	100.0.0	100.00

Thus the position is reversed. Here it is the proportion of those with flocks of five or more sheep or goats, that is larger among wastage cases, than among stagnation cases. It is clear, therefore, that larger numbers of sheep and goats come in the way of the education of boys.

8. *Relation of the head of the family.*—Among other sociological factors affecting the education of children, family composition is important. From the point of view of education of young boys, the relation of the head of the family with the education is perhaps the most important single aspect of family composition. Table No. 72 is instructive from this point of view.

Table No. 72. Distribution of Wastage and Stagnation Cases According to the Relationship of the head of the Family.

Relationship of the head	Wastage Cases	Stagnation
Father (Working)	63.50	71.43
Father (old or otherwise	14.39	11.59
disabled)	11.71	8.90
Mother	10.40	8.08
Any other	100.00	100.00

It is remarkable that only the proportion of those with a father and he too in a working condition, is smaller among wastage cases than among stagnation cases. All other proportions are larger among wastage than among stagnation cases. It is thus clear that a strong and actively interested guardianship is essential for the retention of the boy in the school for a period sufficiently long to complete the primary education.

9. *Stated reasons of wastage and stagnation.*—We shall finally examine the reasons of wastage and stagnation as stated by the teacher. In Table No. 73 is given the distribution of wastage and stagnation cases according to the reason given.

Table No. 73. Distribution of Wastage and Stagnation Cases According to Reasons noted by the Teachers.

Reason	Wastage Cases	Stagnation Cases
Migrated to other place	18.67	3.01
Employed on the family farm	13.44	7.91
Employed in the non-agricultural occupation of the family	7.26	6.88
Seeks casual employment in the village	4.67	1.11
Tends the cattle or sheep and goat of the family	29.25	41.14
Truant	1.41	3.09
Intellectually Subnormal	1.46	10.36
Other causes	23.84	26.50
	100.00	100.00

It is thus clear that it is in the first four categories where the boys migrate to other places or find employment in the farm or non-farm business of the family or seek casual or hired employment in the village, that the wastage cases are predominant. A considerable migration to other places is itself in search of employment and as such we might say that wastage is predominant in those categories where, for considerations of family economy, the, boys must begin to earn as more or less full earners.

In the three other categories, the boys are reported to be either truant or intellectually subnormal or where they spend most of their day tending the cattle or the sheep. In these three categories stagnation is more predominant. In many, cases the three are not quite distinct. Tending of cattle or sheep is not always an economic occupation of the family. Boys are put on to this job, because it is too occupation for boys except, are put on to this job, because it is too uneconomic to put an adult on to it or when they-are truant or intellectually sub-normal and the parents not keen about their education. In such cases the boys are not necessarily withdrawn from the school; they continue to be on the roll and their attendance is extremely irregular and inevitably leads to stagnation.

10. *School-and teacher-type and related causes*—It would be useful to discuss the influence of a number of factors relating to school, such as the number of trained and untrained teachers, method of allocation of classes among

teachers, school building and accommodation and communication facilities and cultural activities in the village. For reasons of analytical difficulties such comparisons, unfortunately, could not be made.

Firstly, with regard to wastage, this involves estimating differential wastage in different categories of schools and the sub-samples are too small for the purpose. Secondly, due to our own doubts in respect of the completeness of stagnation reporting, it was not thought worthwhile attempting any differential estimates of stagnation in different categories. We have nevertheless attempted, in an earlier section, a comparison between the Local Board and the Voluntary schools and it is hoped that the results indicated therein might be found to be of wider application.

APPENDIX I

First circular letter to school teachers: (Translation).

An investigation into wastage and stagnation in Primary Education.

To
The Headmaster,
Primary School,
————————Village etc.

Sir,

I have the honour to address this to you in connection with an investigation into "wastage and stagnation" in primary education. Sometime ago, the Institute conducted, on behalf of the Government of Bombay an allied enquiry, namely an investigation into "Lapse into Illiteracy".

The main object of that enquiry was to ascertain the minimum educational attainments needed to ensure retention of literacy after leaving school. The results indicated that it was desirable to complete at least the third primary standard. From this point of view, educational effort in the case of those who regarded as "wastage". One of the objects of the present investigation is to discover causes leading to such "wastage".

There is yet another category of students worth investigating into. These are the students who, in spite of their long schooling, fail to make the normal progress. For instance, there might be found boys, who have been in school for as many as five or even seven years and yet who have not progressed much beyond the infant class. We might call these students "Stagnant". The second object of the present investigation is to try to understand causes underlying "Stagnation".

The present investigations thus - concerns two distinct phenomena. Its first object is to discover causes leading to "Wastage"; the second object is to try to understand causes underlying "Stagnation".

Definitions.

The two concepts basic to the investigations are "Wastage" and "Stagnation." In order that they are understood and used with uniform connotation it is necessary to define them clearly. For the purpose of the present investigation, the following definitions are adopted.

At the outset, it should be understood that the investigation is restricted to boys only and that, therefore, the girl students are excluded.

Wastage

If during the period from 1st June 1942 to 31st December 1945 (both days inclusive) a boy student has left the school without completing the third primary standard he should be regarded as a case of wastage.

Stagnation

Following four categories of students are to be regarded as cases of stagnation:-

(1) A student, who during January, 1946, is on roll of the infant class, though he joined the school for the first time on or before 30th April 1944.

(2) A student who during January, 1946, is on roll of the first standard, though he joined the school for the first time on or before 30th April 1943.

(3) A student who during January, 1946, is on roll of the second-standard, though he joined the school for the first time on or before 30th April 1942.

(4) A student who during January, 1946 is on roll of the, third standard, though he joined the school for the first time on or before 30th April 1941.

It is in respect of these two categories of students, namely, those who as per definitions above are to be regarded either as cases of wastage or of stagnation, that we shall need more information. A first task, therefore, is to prepare exhaustive lists of such students from your school.

Perhaps you have, already prepared such lists before. We have received them through the Assistant Deputies. Due to certain misunderstandings regarding definitions, those lists have been found incomplete. The old lists should, be regarded as cancelled and fresh lists prepared on the prescribed forms enclosed herewith.

It is absolutely essential that the two lists are exhaustive and complete. In the following is outlined a detailed procedure for the purpose. It should be followed to the word, without variation and without any attempt at short cutting. Any apparently simpler procedure is likely to result in incomplete lists.

Procedure for making list of wastage cases

You have to begin with the General Register of the School that is to say, school form No. 1. If the opening date of this register is on or before 1st January 1942, it will be found sufficient for making the list of wastage cases. Otherwise the earlier register would have to be looked up. Most probably, the opening date of this earlier register would be one before 1st January, 1942, so that the two registers will be found sufficient. If, however, this were not so, the still earlier register would be needed. In short, you will need the register which was opened on or before 1st January 1942 and all subsequent books of the same.

Please take out the needed books and go through them one by one as prescribed below.

On the right hand of the register is a column headed "date of leaving school". When a boy leaves the school, the date of school leaving is entered in this column. Go through this column and stop at an entry if the date of school leaving is between 1st June 1942 and 31st December 1945, both days inclusive. In the next column is given the class or standard at the time of school leaving. If it is either infant, first, second or third standard, it is a wastage case; if it is third pass, fourth, fifth, sixth or seventh standard, it is not a wastage case, and you have to proceed further. In the cases of wastage thus determined, please look up the next columns in which cause of school leaving and other remarks are entered. We shall exclude two types of wastage cases. Firstly, we shall exclude the case, if the cause of school-leaving is death. Secondly, if the school-leaving certificate has been issued (as mentioned in the remarks column) and there is positive knowledge that the boy joined some other school, we shall also exclude him from the list of wastage cases; Enter all other wastage cases in the enclosed form prescribed for the purpose. All columns of this form, namely Registered number, name, date of school leaving, all these should be entered from the General Register.

In this manner, go through all the books, entering the wastage cases in the prescribed form. Please do not enter the girl students; so also do not enter the same boy twice.

Finally take out the roll-call registers (School Form No. 2 A) of January 1946, for all classes and check that no boy included in the wastage list is on roll of any class. If a case is found, cancel the entry from the wastage list, by drawing across it a clean line.

This completes the list of wastage cases.

Procedure for making List of stagnation cases

Take out the roll-call registers (School Form No. 2A) of January, 1946 for infant, first, second and third standards. Beginning with the infant classes, go through all the registers. Here the names of students are preceded by their register numbers, with the help of which it is possible to trace their respective entries in the General Register, that is, School Form No. 1. When a boy is registered for the first time as a new student in the school, in the last column of the left hand side of the General Register is entered the word "new" against his name. Otherwise, in the same column is entered his previous register number. With the help of this number, it is possible to trace back the name of the boy in the General Register when he was registered as a "new" student. It is necessary to trace every student as far back as that. Here, in the first column of the right hand of the General Register is given the date of first registration. Enter this date in pencil against the name of the boy in the roll-call register of January, 1946. Do this for all boys; it will give you the date of first registration for every boy on roll of infant, first second and third standard in January, 1946. In the roll call register of each class is entered against the name of each boy the date of his entering that class. Please do not confuse this date with the date of his first registration in the school. We need the latter, and it can only be found out from the General Register.

Please note that you have to exclude the girl students. While you are taking down from the General Register, the date of his first registration you should also note in which class the student was first registered. This is given in the immediate column of the General Register. In most cases, boys will be found to have been registered in the infant class. Occasionally, it is possible, however, that a boy migrated from another school to your school. In that case, he could be registered, though for the first time in your school, in a class other than the infant class. In these and such other classes, when the first registration is found in a class other than the infant class, please exclude him from further consideration.

Now turn to the roll-call (form No. 2-A) of the infant class, for the month of January, 1946. Herein you have already noted in pencil, against each boy student, the date of his first registration in school. If this date is either 30th April 1944 or one before that, you have to regard the boy as a case of stagnation and enter his name in the list of stagnant cases.

Repeat the process for I, II and III standards. In order to be considered as a stagnant case, for a boy on roll of I standard, date of his first registration should be on or before 30th April 1943; for a boy on Roll of II standard, on or before 30th April 1942; and, for a boy on roll of III standard, on or before 30th April 1942; and for a boy on roll III standard, it should be on or before 30th April 1941. Names of all such boys should be entered in the list of stagnant cases.

In this list, there are columns made for registered number, name, date of first registration in school, and class or standard in which he is enrolled in January, 1946. In every case, all the columns should be neatly entered.

With this, you have a complete list of stagnant cases.

Indications regarding future lines of work.

Please prepare the two lists of wastage and stagnant cases in their respective forms as per above instructions. You will find the space on the prescribed forms mostly sufficient for the purpose. However, in case it is found insufficient, please attach a blank paper appropriately ruled into columns for the purpose. Two copies of each of the prescribed forms are enclosed for the lists. You should retain one as an "Office copy" for, your reference; the other, you should send to the Institute. An addressed and stamped envelope is enclosed for the purpose.

The Institute is undertaking this investigation on behalf of the Education Department of the Government of Bombay. In respect of every wastage and stagnation case in your school, we shall need to collect certain detailed information bearing on the problem. Prescribed and printed forms are designed for the purpose. Soon after receiving from you the lists of wastage and stagnation cases in your school, you will be sent sufficient numbers of these prescribed forms together with detailed instructions for filling them in. You or your colleagues' efforts in this regard will be remunerated at the rate of one rupee per ten completed forms. The payment will be made by the Institute by direct money order, immediately after receiving from you the completed forms.

It is obviously impossible to conduct this investigation into an important problem of primary education without the active and willing co-operation from you. Your co-operation is, therefore, earnestly solicited.

Yours faithfully,
V. M. DANDEKAR,
Investigator.

Gokhale Institute of Politics,
and, Economics, Poona 4.
Dated: 1st September, 1946.

APPENDIX II

Second Circular Letter to school teachers: (Translation).
An investigation into Wastage and Stagnation in Primary Education.

To
The Headmaster,
Primary School,
————————Village, etc.,

Sir,

Thank you for the lists of Wastage and Stagnation cases from your school. I hope you have retained with you an office copy of the same. As indicated it the earlier circular letter, dated the 1st September, 1946, 1 am now enclosing herewith, sufficient copies of questionnaire schedules to obtain detailed information in respect of each one of the Wastage and Stagnation cases listed. We shall also need some general information regarding the village and the school. I am enclosing a copy of the prescribed form designed for the purpose. You are requested to return these schedules duly filled in as per instructions below.

General information regarding village and school.

Only one copy of this schedule is enclosed. Questions on this schedule are sufficiently clear and perhaps do not need any further explanation. Please read the questions carefully before answering. If the school is conducted in more than one building, questions from 23 to 27 are to be answered in respect of each school building separately. The space against these questions is ruled into three columns; one column for each building. In case there are more than, three school buildings, please attach an extra paper.

Wastage and stagnation schedules.

There is some difference between the two schedules, one for the wastage cases and another for the stagnation cases. The difference is slight and is likely to be overlooked. For distinction, the top left hand corner of the stagnation schedule is cut. Please use the appropriate schedule for each case.

It is most important that for every boy listed in the two list you have necessarily to use one appropriate form. Even when no further information is obtainable, you should write the name of the boy on an appropriate form and leave it blank. This is absolutely necessary. We must receive one form for every boy listed in your wastage and stagnation lists.

Most of the questions are clear enough. Below are given fuller explanations where they are, thought necessary.

Question 10.-Date of first registration of the pupil into the school. You have already found out this date in the case of stagnant pupils. You have now to do the same for the wastage cases. Detailed instructions in this regard are given on page 4 of the circular letter, dated 1-9-1946.

Annual scholastic record for the twelve year period 1934-35 to 1945-46.

This is an important tabular statement. Note that answers to questions 11 to 20 are to be given for each of the twelve years separately in their respective columns. For instance, consider question 12. Against this question, you have to note, for each of the twelve years separately in their respective columns, the class or standard in which the pupil was enrolled during that year.

Before you start to fill in this tabular statement, please go through the following instructions carefully. That should give you a clear understanding of the structure of this table.

In question 10, we ask for the date of first registration of the pupil into the school. If this date falls in the year 1933-34 or earlier, obviously the space, against question 11 will be left blank. On the other hand, if the date falls in 1934-35 or later, then you have to write the same date against question 11 in the proper column for the year. Thus if the date of first registration is 20-7-1937, the same should appear in the tabular statement against question 11 and in the column for the year 1937-38. A pupil can be first registered in the school only once so that question 11 will be answered either nowhere or in only one column of the tabular statement. If a pupil after leaving the school has been registered again, such a date of registration is not the data of first registration and hence such a date must not appear against question 11. It will appear against question 20.

After question 11 has been answered, you have to answer question 12 for every year from the year of first registration. Thus, if the date of first registration is in 1934-35 or before that, question 12 will have to be answered for all the twelve years. On the other hand, for instance, if the pupil was first registered during 1937-38, question 12 will be answered only for that and subsequent years. Answers to question 12 will be of three different kinds.

(*i*) If, for any year, the requisite school records are not available to answer the question, note down accordingly.

(*ii*) If the requisite records for the year are available the boy will be found to be on the rolls of infant, first, second or third standards. Hence note the class or standard. It is not necessary, for this purpose that the boy was in the school, during the whole of that year. Even if he is found on the rolls of any class, only for one month, he might be deemed to be in that class during the year.

(*iii*) If the boy were not in the school at all during the year, note as "not in school".

For every year, during which the pupil is noted, against question 12, to be in some class ar standard, you have to enter against question 13 his date of entry into that class or standard. Such a date is given against the name of the pupil, in the class-roll for every month. (Form No. 2-A).

Question 14, 15, 16 and 17 are self-explanatory.

If from the entries made against question 12, it appears that in a certain year the pupil has changed his class or standard, it would usually mean that in the previous year, he passed the annual examination and was promoted to the higher standard. In such cases the corresponding entries are to be made against questions 16 and 17. For instance, if against question 12, a certain pupil is noted to be in first standard during the year 1940-41 and in the second standard during 1941-42, it is necessary that in the column for the year 1940-41 the fact that he appeared for the annual examination and passed, is recorded against questions 16 and 17. There might, be exceptions; for instance, a pupil might not have appeared for the annual examination, or might have failed to pass it and in spite of it he might have been promoted to the next standard. In such cases the circumstances under which the exception was made should be noted against questions 12, 16 and 17.

Answers to question 18 will be of the following type:-

(*i*) Pupil left the school before annual examination for the year.
(*ii*) Did not appear for the annual examination due to illness.
(*iii*) Did not appear for the annual examination as he was absent from the village at that time.
(*iv*) Did not appear for the examination for either no reason or unknown reasons.

Question 19 is sufficiently clear. If from the entries against question 12 it appears that the pupil was not in the school during any year, it means that sometimes during the previous year, his name must have been removed from the register. The corresponding entry should appear against question 19. In exceptional circumstances, a pupil after once withdrawing from the school might re-enter and withdraw during the same year. In such cases, two or more dates of withdrawal from the school in the same year should appear against question 19. In respect of wastage cases, the date of final withdrawal from the school will appear against question 19 in the year 1942-43 or some subsequent year. This date would be course be the same as the one entered against question 8.

If after once withdrawing the pupil never entered the school again, there will be no entry against question 20. In case, however, he entered; the date of his re-entry should appear against question 20. It should be noted that such a date is not the date of his first registration and hence cannot appear against question 11.

If there is an entry against question 12 to indicate that the pupil withdrew and joined again, the same must be supported by an appropriate entry against question 20.

While making an entry against question 20 please note the class or standard into which he joined. If this class or standard is the same as the one in which he left the school as indicated by entry against question 19, there is no need for further explanation. It might happen, however, that the standard in which he re-joined is not the same as the one he left from. For instance, a boy might leave the school in the first standard, go to another school to complete that standard and return to the old

school in the second standard. In such cases, in our tabular statement, there will be no reference to his having passed the first standard. The appropriate explanation should, therefore, appear against question 20.

It should appear from the above instructions that answers to questions 11 to 20 in the tabular statement, are all inter-related. It is necessary, therefore, to go through the above instructions carefully and try to understand the structure of the tabular statement as a whole. This should avoid giving mutually inconsistent information in this statement of school record of the pupil.

All questions on the reverse side of the schedule are simple. For your convenience, some possible answers to question 28 are given immediately below that question. You might indicate the one which is true in each particular case However, it is not necessary to confine yourself to the given alternatives. If the true answer is somewhat besides the possibilities given, you should note it in full.

In order to answer question 33, you will need certain information from the revenue records of the village. Instructions have been given to the Talathis in this respect. If you meet with any difficulties, please write to us immediately.

In question 38, you are required to give certain details regarding family members in a tabular form. In the left half of this table, enter all earning members of the family; in the right half, enter all the non-earning members. Enter all members of the family including the pupil and his guardian. Ages will of course be approximate. Under education, you have to note each person as either illiterate, can read, can read and write, educated upto such and such standard or in school in such and such standard.

Very important

Please note that every question must be answered. If for any question no information is available, please make such a remark. Only questionnaires so filled in will be considered as complete. If a question is not answered, nor is it remarked that no information is available, the questionnaire shall be deemed as incomplete.

Finally, please check that you have a questionnaire filled in for every boy in the lists of wastage and stagnation cases. Then enter item No. 30 on the schedule for "Village and School information". There you have to note the total work done by yourself.

After completing, you should keep all the work with yourself. I shall personally try to see you sometime during February and March. That will give us an opportunity to clarify any points over which you feel any difficulty or doubts. Nevertheless, if you come across any difficulties, please do not wait for me, but write immediately. AU your postage expenses on this account will be met by this office.

As already said, I shall try to see you sometime before the end of March; keep until then, all the work with you. Whether or not I am able to see you, on the 1st of April please send all your work, that is, the schedule for village and school information, and all schedules for the wastage and stagnant cases, by Registered Book-Post to Gokhale Institute of Politics and Economics, Poona, 4.

Your remuneration at the rate of one rupee per ten completed forms together with all your postage expenses in this connection will be sent to you by money order during the last week of April.

This is an investigational work. The results will entirely depend upon the accuracy with which you will supply the requisite information. You are therefore, earnestly requested to be accurate in whatever information you supply. If on any point information is not available, you can plainly say so. No one loses thereby. But please do not furnish any information which you knew not to be reliable.

I have no doubts that all your work will be very neat and clean.

Yours faithfully,
VINAYAK MAHADEO DANDEKAR,
Investigator.

Gokhale Institute of Polities
and Economics, Poona 4.
Dated 15th January 1947.

APPENDIX III

Revised Questionnaire schedules.

Below are given the translations of the revised questionnaire schedules. Approximate layout of the questions on the schedules have been maintained on the translated forms.

There are three different schedules: -

(1) A schedule for information regarding the village and the school (pages 81, 82).
(2) A schedule for information regarding each pupil reported to be a wastage case. (Pages 83, 84).
(3) A schedule for information regarding each pupil reported to be a stagnant case.

The questionnaire for the stagnant cases differs only slightly from the one for the wastage cases. It has not, therefore, been appended separately. The following points of its differences from the questionnaire for wastage cases might be noted.

Question 8, does not exist.

Question 3 reads as "Which class or standard was the pupil on the roll of, during January, 1946."

Questions 23 and 24 stand but refer to any temporary withdrawals of the pupils.

Questions 25 and 26 are different and read as under :-

Question 25: "What is your own opinion (teacher’s) regarding the sub-normal progress of the pupil?"

Question 26 "If the pupil is irregular in the school attendance, what has the guardian to say about it?"

Questions 27 and 29 are omitted

INFORMATION REGARDING VILLAGE AND SCHOOL

[Information below relates to March, 1946]

Wastage and Stagnation in Primary Education.

1. Village.
2. Taluka.
3. Taluka-town and distance therefrom.
4. Post and distance therefrom.
5. Railway Station and distance therefrom.
6. Weekly bazaar and distance therefrom.
7. Motor-bus road and distance therefrom.
8. Has the village a motorable approach road?
9. Is the approach to village cartable throughout the year?
   If not for how many months it is cartable?
10. Has the village a Government, missionary, public or private dispensary?
11. Has the, village a Panchayat?
12. Is there any credit or other co-operative society?
13. Is there any public reading-room or library?
14. Does anybody in the village get a newspaper regularly?
    Which?
    How many?
15. Is the village school within the village boundaries?
16. Village population,
    in 1981
    in 1941.
17. Foundation year of the school.
18. Since its foundation to March, 1946, was the school closed down at any time?
    If so, when and why?
19. Working classes and standards.
20. Number of trained teachers.
21. Number of untrained, teachers.
22. Are the classes held in one or more buildings?

Information regarding each one of the school buildings.

23. Building owned, rented, free or public place? If rented, monthly rent.
24. Description of the structure.
25. Description of the roof.
26. Number of rooms.
27. Total area.

28. Details of class arrangements as in March 1946.

Class	Working hours.	Any other classes held in the same room along with this class.	Teacher trained or Un-trained.	Is the same teacher in charge of another class simultaneously. If so, which?
Infant.				
I Standard.				
II Standard.				
III Standard.				

(Reverse Side)

29. SCHOOL RECORD DURING LAST 5 YEARS —— ALL INFORMATION RELATES TO THE RESPECTIVE YEAR ENDS

	Infant Class			I Standard			II Standard			III Standard		
Year	No. of Students	No.of Students appeared for the Annual Exam.	No.of Students who passed the Annual Exam.	No.of Students	No.of Students appeared for the Annual Exam.	No.of Students who passed the Annual Exam.	No.of Students	No.of Students appeared for the Annual Exam.	No.of Students who passed the Annual Exam.	No.of Students	No.of Students appeared for the Annual Exam.	No.of Students who passed the Annual Exam.
1941-1942												
1942-1943												
1943-1944												
1944-1945												
1945-1946												

29 (Contd.)

29. SCHOOL RECORD DURING LAST 5 YEARS —— ALL INFORMATION RELATES TO THE RESPECTIVE YEAR ENDS *(Concld.)*

Year	IV Standard			Total	Average	Teachers		No. of Transfers		Remarks.
	No.of Students	No.of Students appeared for the Annual Exam.	No.of Students who passed the Annual Exam.	No.of pupils in the School	School Attendance (Annual).	No.of trained teachers	No.of untrained teachers.	Trained teachers	untrained teachers.	
1941-1942										
1942-1943										
1943-1944										
1944-1945										
1945-1946										

30. Report of work done-
No. of schedules filled in of wastage cases.
Stagnation cases

Signature of Head Master.

Date

For I Office use only
(Not to be filled in by the teacher).
No. of schedules received:-
of wastage cases of stagnation cases

Amount remitted.
Date of remittance.
Signature of Investigator.

WASTAGE IN PRIMARY EDUCATIONAL QUESTIONNAIRE

INFORMATION TO BE OBTAINED FROM GENERAL REGISTER, CLASS ROLLS OTHER SCHOOL PAPERS

1. Village. 2. Taluka.	3. Name 4. Date of Birth. 5. Age in years (as completed on 31-12-1945)	6. Religion. 7. Caste.	8. Date of School leaving. 9. Standard in which left School. 10. Date of first Registration into School	

Soholestic Record for the 12 years from 1934-35 to 1945-46.	1934-1935	1935-1936	1936-1937	1937-1938	1938-1939	1939-1940	1940-1941	1941-1942	1942-1943	1943-1944	1944-1945	1945-1946
11. Was the student registered in school for the first time ? If so, date.												
12.In Which standard was he enrolled this year?												
13. Date of his entry into the above class.												
14. Number of working days during the year.												
15. Of which number of days the, student was present in the class.												
16. Did he appear for the annual exam, at the end of this year?												
17. If so, did he pass or fail?												
18. If not, reason for it.												
19. During this year, was he at any time withdrawn from the school, if so, date of withdrawal												
20. During the year did he re-enter the school, if so, date and class his re-entering.												

INFORMATION TO BE OBTAINED FROM THE PUPIL AND HIS GUARDIAN

Regarding the pupil

21. Does the pupil suffer from any permanent physical disability?

22. Is he mentally backward?

23. Why did he leave the school? What has the pupil to say?

24. What has the guardian to say about it?

25. Why did he leave the school? What is your own (teacher's) opinion?

26. After leaving school did he undergo any course of technical education?

27. Since leaving the school is he staying in the village or has he left the place?

28. IF HE IS IN THE VILLAGE HOW DOES HE SPEND TIME?

29. If he has left the village, where has he gone?

Possible answers-

(i) Does nothing.

(ii) Rears cattle or sheep or, goat.

(iii) Is employed on family farm.

(iv) Is employed in the family non-farm occupation.

(v) Is employed as casual labourer.

(vi) Any other-write in detail.

Note.- It is absolutely necessary to see personally the pupil and the guardian to answer the above questions. If you fail to see them, note the fact and reasons thereof.

Regarding the guardian

30. Relation of the guardian with the pupil.

31. Age of guardian.

32. Occupation of guardian.

33. Owned land to be taken from Area village form VIII-A Assessment.

34. Is the guardian a cultivator?

35. If the family has any non-farm occupation?

36. Livestock owned by guardian-

Bullocks.

Cows

Buffalos.

Sheep and goat

37. Estimate of total annual income (farms, no:- farm, remittances, etc.)

38. Members of the family:-

EARNERS

S.No.	Relation to guardian	Age	Education	S.No.	Relation to guardian	Age	Education
1.	guardian himself			1			
2				2			
3				3			
4				4			
5				5			
6				6			
7				7			

APPENDIX IV

Derivation of total wastage from annual wastage and passing percentages for a class.

Of the number on roll of a class at the beginning of a year, a certain proportion leaves the school during the year. Let this proportion by W. Of those who remain on roll to the end, a certain proportion passes and is promoted to the higher standard. Let this proportion be p, so that those who pass form a proportion (1-W) p of those on roll at the beginning of the year. This happens every year. Hence, of 100 boys who enter a class, the total number who leave the school without passing that standard is given by

$$\frac{W}{W+(1-W)p}\times 100$$

Thus for the first standard the total wastage percentage works out to be

$$\frac{.1562}{.1562+.8438\times .6909}\times 100 = 21.13$$

Similarly for other standards.

APPENDIX V

Derivation of expected distribution of students in different classes.

Of those on roll of a class at the beginning of a year, a certain proportion leaves the school during the year. Let this proportion be *W*. Of those who remain on roll to the end, a certain proportion passes and is promoted to the higher standard. Let this proportion be *p*. Let the numbers of fresh entrants every year in this class be *n*. If a class is supposed to be working under these conditions for a sufficiently long period, we are required to find the number that it will hold on its rolls at an year end. Let *N* be the required number.

Then a number *Np* pass every year and are promoted to the higher standard leaving behind *N* (*1-p*) to repeat in the same class. To this is added *n* fresh entrants next year, so that the number on roll at the beginning of the year is

$$N (1 - p) + n$$

Of these a proportion $_W$ leaves the school during the year, leaving behind a proportion (1-W) to remain on roll to the end of the year. Hence

$$(1 - W) [N (1 - p) + n]$$

is the number on roll at the end of an year. But this is what we have taken to be N. Hence we have that

$$(1 - W) [N (1 - p) + n] = N$$

Hence

$$N = \frac{(1 - W)n}{1 - (1 - W) (1 - p)}$$

Thus, for the infant class, if we take *n*, the number of fresh entrants to be 10,000, the number on roll or infant class at an year end will be given by

$$N = \frac{.895 \times 10,000}{1 - .895 \times .510} = 16,466$$

In order to work out a similar figure for the first-standard, we need know the number of fresh entrants every year in this standard. We saw above that if there are every year 10,000 fresh entrants in the infant class the class will hold 16,466 students on its roll at an year end. Of these, 49.0 per cent that is 8,068 pass and are promoted to the first standard. Therefore, W, the number of new entrants every year in the first, standard is 8,068. The number on its roll at an year end, will, therefore, be given by

$$N = \frac{.939 \times 8068}{1 - .939 \times .287} = 10,371$$

Similarly for other standards.

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