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FOREWORD

I have great pleasure in introducing this first Volume of the series "Educational Studies and Investigations" which will be brought out under the auspices of the National Council of Educational Research and Training.

The main object of this series is to publicise the findings of educational research in India. Such publication in a central series, it is hoped, will assist in giving a wider recognition to the research in education that is being carried out and lead to a greater use of its findings in educational practice and ultimately to a raising of its standards.

The material for publication in the series will be drawn from a number of sources. The first of these is the research carried on in Indian universities for the degrees of M.Ed. or Ph.D. It is proposed to compile a complete list of all dissertations or theses accepted by Indian universities till June 1960 and also to publish brief abstracts of each of them. Thereafter, it is proposed to bring out a volume every year to keep the continuity of the series and to give a consolidated list of all dissertations and theses in education along with brief abstracts thereof. Three of the studies included in this volume, *viz.*, (1) A Survey of the Standard of Living of Primary Teachers of Sholapur City by Dr. V. P. Pethe, (2) Measurement of Social Intelligence by Dr. M. B. Buch, and (3) Group Tests of Intelligence by Dr. K. G. Desai fall in this group. The second source is provided by the research projects implemented hitherto by the Ministry of Education under a Scheme initiated in 1953-54, which will, in future, be administered by the National Council of Educational Research and Training. Under this scheme, grants-in-aid are given to educational institutions for carrying out research in selected educational problems. The findings of the more important of these investigations are proposed to be published in this series. Four studies included in this volume, *viz.*, (1) Teaching of General Science in the Secondary Schools of Orissa, (2) Wastage in Secondary Education in Bombay and the neighbouring districts of Thana, Kolaba and Ratnagiri, (3) Education and Democratic Attitudes, and (4) Student Indiscipline—the Case-study of Institution, fall in this category. The third source is the research in education carried out by various institutions. In recent years, a number of institutions are taking up problems in educational research and this trend is increasing. A good deal of this research is extremely valuable and it is proposed to include its findings also in this series. The study on 'Wastage and Stagnation in College Education' included here belongs to this category. The fourth source is provided by educational studies or investigations that may be carried out by individuals without any reference to a university degree and which may be of sufficient intrinsic merit to be included in this series. Three studies included here fall in this group, *viz.*, (1) The Role of the Government of India in Education, (2) The Intelligence Level of the Best Cadet, and (3) Intelligence Grades and Success at the National Defence Academy. It is also proposed

to include, in later volumes, comprehensive bibliographies or research papers or books published elsewhere. The series will thus serve as a comprehensive single publication which will indicate the entire field of educational research in India.

It is hoped that the educationists in the country will find this series of some value.

PREM KIRPAL,
Director,
National Council of Educational Research and Training.

NEW DELHI,
30*th August* 1961.

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THE ROLE OF THE GOVERNMENT OF INDIA IN EDUCATION *

By

J. P. NAIK

One of the major educational controversies today refers to the role of the Government of India in education. *Prima facie* education is a State subject. Entry 11 of the List II of the Seventh Schedule to the Constitution lays down that "education including universities, subject to the provisions of Entries 63, 64, 65 and 66 of List I and Entry 25 of List III" should be a State subject. But there are some other provisions in the Constitution itself which contradict the almost absolute delegation of authority suggested by this entry in the State list ; and what is even more significant, the Central Government has since shown an unprecedented activity and interest in the field of education ever since the attainment of independence. In 1947, it appointed a University Commission and has since been engaged in evolving common policies in Higher education such as the introduction of the three-year degree course. This was followed by a Secondary Education Commission which tried to introduce a number of uniform trends in a field where the Centre has had hardly any constitutional authority. No Commission was appointed in the field of Primary education. But the scheme of Basic education was declared to have gone beyond the stage of experimentation and was also adopted as the national pattern at the Elementary stage. The interest of the Central Government in Technical education and scientific research has been too obvious to need any illustration. Besides, an innumerable number of Committees and Reports have tried to iron out an all-India thought, policy and programme in almost every sector of education. Of still greater, importance is the revival of the Central grants for education which had been discontinued in 1918-1919. In the period of post-war reconstruction as well as in the first and second Plans, substantial grants were given to the States towards the implementation of a large variety of educational programmes. With the adoption of the technique of Five Year Plans and the creation of the Planning Commission, the real authority to determine policies, priorities and programmes has now passed on from the States to the Centre in most sectors of development ; and as a corollary to this major shift in all developmental activity, it is alleged that the educational progress in the States is now more dependent upon the financial allocations and priorities decided at the Centre by the Planning Commission and the Ministry of Education than upon any decision taken by the States at their own level. In short, the trend to centralisation in policy-making in all fields of education has been the most dominating note of this period and it has had hardly any parallel in our educational history except for the brief spell under Lord Curzon.

2. The reactions at the Centre and in the States to these developments have been extremely divergent. On the one hand, the State Governments have grown more and more critical and resentful of this policy. They claim that Education is essentially their preserve ; that they understand their educational needs much better than the Centre itself ; and that the attempt of the Centre to cut into their sphere has generally done more harm than good to the cause of education. They also plead that Central grants should be placed at the disposal of the States without any strings attached and they are extremely critical of the manner in which their proposals are scrutinised, modified or amended by the Centre while grants are being sanctioned. On the other hand, the Centre also

*The views expressed here are the personal views of the writer.—*Editor.*

is not happy about the situation. It has assumed the role of dominant partner without having any constitutional authority to compel the States to conform to its dictates and without even having a machinery to report on the implementation of its programmes through the State Governments. Its main complaint is that its genuine desire to help the States is misunderstood as interference ; that the reasonable minimum safeguards which are and should be adopted in all financial sanctions are misinterpreted as 'indirect pressures' or as 'leading strings' ; that the States do not appreciate the larger interests of education underlying the policies and programmes proposed by it ; that the States do not often implement the sanctioned schemes in the manner in which they ought to be implemented ; and that it often finds itself helpless to enforce the directives given by it. During the last ten years, therefore, education has developed practically into a 'joint responsibility' of the Central and State Governments. But unfortunately, neither partner is satisfied with the present position and each one of them has a number of charges to make against the other. It would be no exaggeration to say that it is this conflict and contradiction in the present position which is at the root of most of our administrative difficulties and it is for the solution of these troubles that the role of the Government of India in education has to be properly defined as early as possible.

3. In order to pose correctly the complex problems involved in this issue and to arrive at some tentative solutions, it is necessary to consider the problem from three different points of view. The *first* approach would be historical and it would show how the role of the Government of India in education has varied from time to time and why ; the *second* would start with the analysis of the relevant constitutional provisions and explain what the Constitution expects the Government of India to do in education ; and the *third* would compare and contrast the role of the Government of India in education with that of some other federal governments in the world. It is only in the light of the findings of these three specific studies that it may finally be possible to draw up some kind of a picture of the role of the Government in education as it ought to be.

II

Historical Survey

(1773-1950)

4. *From* 1773 *to* 1833.—The Government of India may be said to have been born with the Regulating Act of 1773 which designated the Governor in Council of Bengal as the Governor-General in Council of Bengal and gave him a limited authority over the Governors of Bombay and Madras. This authority was substantially increased by the Pitt's India Act of 1784. But prior to 1833, education in India had made but little progress (it has, in fact, been accepted as a State responsibility only as late as in 1813) and the Governor-General of Bengal did little to control or direct the educational policies of the other parts of India. At this time, therefore, 'education' may be said to have been a 'provincial' matter, subject only to the distant coordinating authority of the Court of Directors in England.

5. *From* 1833 *to* 1870.—The Charter Act of 1833 introduced a unitary system of Government. Under this arrangement, all revenues were raised in the name of the Central Government and all expenditure needed its approval. The Provincial Governments could not spend even one rupee or create a post, however small, without the approval of the Government of India which also was the only law-making body for the country as a whole. In other words, all executive, financial and legislative authority was exclusively vested in the Central Government and the Provinces merely acted as its agents.

6. As may easily be imagined, education thus became a purely 'Central' subject in 1833 and the entire authority in education and responsibility for it came to be vested in the Government of India. This excessively centralised system, which became more and more inconvenient as education began to expand and the territories of the Company began to grow, remained in force till 1870. As administrative difficulties began to grow, some small powers were delegated to Provincial Governments from time to time and their proposals, as those of the 'authority on the spot', carried great weight. But the character of the system remained unaltered throughout the period and education continued to be a Central subject in every sense of the term.

7. *From* 1870 *to* 1921.—In 1870, however, Lord Mayo introduced a system of administrative decentralization under which the Provincial Governments were made responsible for all expenditure on certain services—inclusive of education—and were given, for that purpose, a fixed grant-in-aid and certain sources of revenue. Education thus became a 'provincial subject' for purposes of day-to-day administration. But it has to be remembered that the Central Government still retained large powers of control over it. For instance, both the Central and Provincial Legislatures had concurrent powers to legislate on all educational matters. It was because of this concurrent legislative jurisdiction, that the Government of India could pass the Indian Universities Act in 1904 and could also legislate for the establishment of new universities. Of the new universities established during this period of British India, only one—Lucknow— was established by an Act of the U.P. Legislature. All others— Punjab (1882), Allahabad (1887), Banaras (1915), Patna (1917), Aligarh (1920) and Dacca (1920) were established by the Central Legislature. It was for the same reason that Gokhale could then introduce his Bill for compulsory Primary education in India in the Central legislature, although it failed to pass. In administrative matters, the sanction of the Government of India was needed to the creation of all new posts above a given salary and in 1897, the Indian Educational Service was created and placed in charge of all the important posts in the Provincial Education Departments. In financial matters, the powers reserved to the Central Government were very wide. Its approval was required to all expenditure above a given figure and to the over-all budget of the Provinces. These large powers of control and supervision were justified on the ground that the Provincial Governments were responsible to the British Parliament through the Government of India. But whatever the cause, the net result of these powers was to make education not so much a 'provincial subject' as a 'concurrent subject' with two reservations : (1) the authority delegated to the Provincial Governments was fairly large ; and (2) the interest shown by the Government of India in education was very uneven and depended mostly upon the personalities of the Governor-Generals—a Ripon or a Curzon could make education look almost like a 'Central subject' while, at other times, it became almost a 'provincial subject'.

8. It must also be noted that the interest and authority of the Government of India was not restricted to any particular field, although it naturally showed very great interest in University education. It appointed the Indian Universities Commission of 1917-19. As stated earlier it passed the Indian Universities Act in 1904 and also incorporated most of the new universities created in this field. It sanctioned large grants-in-aid for the improvement of Secondary and Primary education and for the introduction of science teaching. It also reviewed and laid down policies in such matters as the education of girls, or Anglo-Indians and the establishment of schools of art. The Indian Education Commission of 1882 and the Government Resolutions on Educational Policy issued in 1904 and 1913 covered almost every aspect of education. In short, the view taken in this period was that education is a subject of *national* importance and that the Government of India must hold itself responsible for the formulation of over-all educational

policy ; and this view was particularly strengthened in the period between 1900 and 1921 because educational developments were intimately connected with the growth of national consciousness and the struggle for Independence. The main function of a federal government in education—to decide national policies in education—was thus clearly understood and accepted during this period.

9. The need of expert technical advice in education at the Government of India level was also felt during this period and the post of a Director-General of Education—who was to be an educationist and not a civilian and whose duty it was to advise the Government of India on educational matters—was created by Lord Curzon and at the present time, when the very need of an advisory educational service at the Centre is being challenged in certain quarters, it may be well to recall Lord Curzon's defence of the creation of this post :

"My last topic is the desirability of creating a Director-General of Education in India. Upon this point I will give my opinions for what they may be worth. To understand the case we must first realise what the existing system and its consequences are. Education is at present a sub-heading of the work of the Home Department, already greatly overstrained. When questions of supreme educational interest are referred to us for decision, we have no expert to guide us, no staff trained to the business, nothing but the precedents recorded in our files to fall back upon. In every other department of scientific knowledge—sanitation, hygiene, forestry, minerology, horse-breeding, explosives—the Government possesses expert advisers. In education, the most complex and most momentous of all, we have none. We have to rely upon the opinions of officers who are constantly changing, and who may very likely never have had any experience of education in their lives. Let me point to another anamoly. Under the system of decentralisation that has necessarily and, on the whole, rightly been pursued, we have little idea of what is happening in the provinces, until, once every five years, a gentleman comes round, writes for the Government of India the Quinquennial Review, makes all sorts of discoveries of which we know nothing and discloses shortcomings which in hot haste we then proceed to redress. How and why this systemless system has been allowed to survive for all these years it passes my wit to determine. Now that we realise it, let us put an end to it for ever. I do not desire an Imperial Education Department, packed with pedagogues, and crusted with officialism. I do not advocate a Miniser or Member of Council for Education. I do not want anything that will turn the Universities into a Department of the State, or fetter the Colleges or Schools with bureaucratic handcuffs. But I do want some one at headquarters who will prevent the Government of India from going wrong, and who will help us to secure that community of principle and of aim without which we go drifting about like a deserted bulk on chopping seas. I go further, and say that the appointment of such an officer, provided, that he be himself an expert and an enthusiast, will check the perils of narrowness and pedantry, while his custody of the leading principles of Indian Education will prevent those vagaries of policy and sharp revulsions of action which distract our administration without reforming it. He would not issue orders to the local governments ; but he would be to advise the Government of India. Exactly the same want was felt in America, where decentralisation and devolution are even more keenly cherished, and had been carried to greater lengths, than here ; and it was met by the creation of a Central Bureau of Education in 1867, which has since then done invaluable work in coordinating the heterogeneous application of common principles. It is for consideration whether such an official in India as I have suggested should, from time to time, summon a representative Committee or Conference, so as to keep in touch with the local jurisdictions, and to harmonise our policy as a whole."*

10. The creation of this post, and the further creation of a separate Education Department in the Government of India in 1910 and the establishment of a Central Bureau of Education in 1915 made it possible to develop some other federal functions in education. For example, it is the duty of Government of India to collect educational data from the Provinces and to publish periodical reviews on the progress of education in the country—the *Clearing House function*. The Indian Education Commission (1882) recommended that the Central Government should bring out Quinquennial Reviews on the progress of education in India. Consequently, the first Quinquennial Review on the progress

Lord Curzon in India, Vol. II, pp. 54-6.

of education in India was published in 1886-87 and subsequent reviews were brought out in 1891-92, 1896-97, 1901-02, 1905-06, 1911-12, 1916-17 and 1921-22. Annual reviews of education were also published from 1913-14 onwards in all years in which the Quinquennial Reviews were not published.

11. Similarly, it is the duty of a Federal Government to carry out studies in educational problems (as part of its responsibility to provide leadership in educational thought) from time to time and to publish their findings. In particular, it is the responsibility of a Federal Government to study such educational developments in other countries as are likely to be of help in developing education at home. That both these responsibilities were understood, accepted and even fulfilled with a great competence in certain areas, can be seen from the publications issued by the Government of India during this period. Moreover, the Government of India also published reports on important events of the period. In short, the research and publications function of the Federal Government was fully accepted and established during the period under review.

12. *The coordinating function* of a Federal Government was also recognised during this period. A reference to that has already been made in the speech of Lord Curzon quoted above. It was he who convened the first Conference of the Directors of Public Instruction in India at Simla in 1901. Then started a regular practice of convening such Conferences for taking a periodical review of educational developments. An Educational Conference was held at Allahabad in 1911 and another Conference of the Directors of Public Instruction was held in 1917. With the passage of time, the need for such coordination was felt all the more keenly and a Central Advisory Board of Education was organized in 1920 with a view to assisting the Provincial Governments with expert advice.

13. Another function of a Federal Government to be recognised during this period was grant of financial assistance for educational development in the Provinces. Reference has already been made to the financial decentralisation introduced by Lord Mayo in 1870. That system continued to be in force up to 1876-77 when a system of 'shared revenues' was introduced. Under this system, certain revenues were exclusively designated as 'Central', certain others were designated as exclusively 'Provincial' ; and the remainder were designated as 'Divided' and their receipts were shared between the Central and Provincial Governments according to an agreed contract which remained in force for a period of five years at a time. Thus the quinquennial contracts were revised in 1882-83, 1886-87, 1891-92 and 1896-97. In 1904, they were declared to be *quasi-permanent, i.e.*, not liable to be changed except in a grave emergency, and in 1912, they were declared as *permanent*. It will thus be seen that, under these financial arrangements, the entire expenditure on education was to be borne by the Provincial Governments within the resources allocated to them.

14. As may be easily imagined, these arrangements made the Provincial revenue fairly inelastic and they were unable to keep pace with the rapidly growing commitments of an expanding educational system. The Government of India, therefore, started the practice of giving grants-in-aid to Provincial Governments for educational development over and above the agreed contract arrangements. Thus the fifth important function of the Federal Government, *viz.*, *financial assistance*, also came to be accepted during this period. Fortunately, the period between 1900 and 1921 was a period of boom in world finances and the Government of India had large surpluses in its budgets. It was, therefore, comparatively easy to allocate a share of these surpluses to the Provincial Governments for expenditure on education. The magnitude of these grants was fairly large and it may also be stated that most of them were *specific purpose grants, i.e.*, the

Government of India decided that developmental policies to be adopted and earmarked the grants given for the implementation of specified approved policies. Only a few of these were *general grants* which were at the disposal of the Provincial Governments for expenditure in any manner they liked.

15. *From* 1921 *to* 1947.—Between 1870 and 1921, therefore, the day-to-day administration of education was delegated to the Provincial Governments and the Government of India continued to function as a Federal Government with five distinct functions which came to be recognised, *viz.*, the functions of (1) policy-making, (2) clearing house of information, (3) research and publications, (4) coordination and (5) financial assistance.

16. With the coming into force of the Government of India Act, 1919, however, the position changed completely. The basic idea underlying this Act was that the Government of India should continue to be responsible to the Secretary of State for India and that the functions of the Provincial Governments should be divided into two parts—the reserved part being responsible to the Government of India and the transferred part being under the control of elected Ministers responsible to the Provincial Legislatures. As a corollary to this decision, it was also agreed that the Government of India should have very little or no control over the transferred departments because the Ministers could not be simultaneously responsible to the Government of India as well as to their elected legislatures. These were basic political decisions and it was rather unfortunate that the division of authority in education between the Government of India and the Provincial Governments had to be made on these political considerations and not on the fundamental educational issues involved. One would have preferred that problems such as the following should have been raised and discussed on this occasion:—

(1) To what extent is education a national problem ?

(2) What should be the role of a Federal Government in education ? and

(3) What should be the relationship between the Government of India and the Provincial Governments in educational matters ?

But, unfortunately, all such basic problems were ignored and the only questions discussed from a political angle were the following :—

(1) Should education be a transferred subject or not? and

(2) What should be the control which Government of India should have over education?

17. The Montagu-Chelmsford Report suggested that the 'guiding principle should be to include in the transferred list those departments which afford most opportunity for local knowledge and social service, those in which Indians have shown themselves to be keenly interested, those in which mistakes which may occur, though serious, would not be irremediable, and those which stand most in need of development.'* In pursuance of this principle, it was but natural to expect that education would be classed as a transferred subject, although one does not feel very happy to be told that mistakes in education are not really very important. It was, therefore, decided that, excepting for the

**Montagu-Chelmsford Report*, Para. 238.

following few reservations, education should be a Provincial subject and transferred to the control of the Indian Ministers :

(1) The Banaras Hindu University and such other new universities as may be declared to be all-India by the Governor-General-in-Council were excluded on the ground that these institutions were of an all-India character and had better be dealt with by the Government of India itself ;

(2) Colleges for Indian chiefs and educational institutions maintained by the Governor-General-in-Council for the benefit of members of His Majesty's Forces or other public servants, or their children were also excluded on the ground that these institutions ought to be under the direct control of the Government of India ; and

(3) The education of Anglo-Indians and Europeans was treated as a provincial but a *reserved* subject.

The authority to legislate on the following subjects was reserved for the Central legislature, mainly with a view to enabling the Government of India to take suitable action on the report of the Calcutta University Commission :—

(a) Questions regarding the establishment, constitution and functions of new universities;

(b) Questions affecting the jurisdiction of any university outside its province; and

(c) Questions regarding the Calcutta Universtiy and the reorganization of Secondary education in Bengal (for a period of five years only after the introduction of the Reforms).

As a corollary to this decision, it was also decided that the Government of India should have no control over education in the Provinces.

18. Thus came about what the Hartog Committee has rightly described as the 'divorce' of the Government of India from education. As could easily be imagined, the results were far from happy. The Central interest in education disappeared almost completely after 1921 ; and when the need for retrenchment arose in 1923, the first victims were (1) the Education Department of the Government of India which lost its independent existence and was amalgamated with other departments, (2) the Central Advisory Board of Education which was dissolved, and (3) the Central Bureau of Education which was closed down. The Central grants to the Provinces for educational development also disappeared, even the few powers of legislation reserved under the Act of 1919 were not exercised, and the Government of India did little beyond the clearing house function of publishing the annual and quinquennial reviews of the progress of education in India.

19. The Hartog Committee strongly criticised this unhappy position and said :

"We are of opinion that the divorce of the Government of India from education has been unfortunate ; and, holding as we do, that education is essentially a national service, we are of opinion that steps should be taken to consider anew the relation of the Central Government with this subject. We have suggested that the Government of India should serve as a centre of educational experience of the different provinces. But we regard the duties of the Central Government as going beyond that. We cannot accept the view that it should be entirely relieved of all responsibility for the attainment of universal primary education. It may be that some of the provinces, in spite of all efforts, will be unable to provide the funds necessary for that purpose, and the Government of India should, therefore, be constitutionally enabled to make good such financial deficiencies in the interests of India as a whole."*

**Report*, p. 346.

It is also interesting to know that, for some time after 1921, there was an outburst of strong provincial feelings and the divorce of the Government of India from education was even welcomed in some quarters. But it did not take the Provincial Governments long to realise that this was a mistake and that something had to be done to create a national agency and machinery for the development of education. It was, therefore, possible to revise the earlier decision and the Government of India revived the Central Advisory Board of Education in 1935 ; the Central Bureau of Education was also revived, on a recommendation made by the Central Advisory Board of Education, in 1937 ; and finally the old Education Department was also revived as a Ministry of Education in 1946. The decisions of 1921 were, therefore, very largely undone by 1947.

20. Between 1935 and 1947, therefore, the role of the Government of India in education was again broadened and the several functions which had fallen into disuse between 1923 to 1935 were again resumed. For example, the coordinating function was resumed with great vigour and the Central Advisory Board of Education addressed itself to the study and discussion of almost every field of educational activity and finally prepared, and presented to the nation, a plan for the educational development in India during the next 40 years (1944). The publication function was also resumed and the reconstituted Central Bureau brought out a large number of publications on different aspects of the educational problem in India. The clearing house function was continued and its extent and efficiency were improved. The only functions developed in the earlier period and not resumed now were two—research and financial assistance. In spite of these limitations, however, the larger and more significant role that was now being played by the Government of India was appreciated all over the country ; and the general feeling was that this role needed to be further strengthened and extended.

21. This brief historical survey of the role of the Government of India in education will show that it has passed through a number of stages. Prior to 1833, it had hardly any role to play ; between 1833 and 1870, education was virtually a Central subject ; between 1870 and 1921, the day-to-day administration was vested in Provincial Governments, but the Government of India discharged five distinct functions, *viz.*, the functions of policy-making, clearing house of information, research and publications, coordination and financial assistance ; between 1921 and 1935, the wheels of the clock were turned back and there was an almost total divorce between education and the Central Government ; but fortunately, more progressive policies were adopted after 1935 and the Government of India began to play, once again, a larger and a more fruitful role in education.

III

The Role of the Government of India under the Constitution and in Actual Practice (1950-60)

22. Soon after the attainment of Independence, the problem of the role of the Government of India in education came up for discussion again when the Constitution was being framed. The thinking of the framers of the Constitution on this subject seems to have been influenced by two main considerations : (1) The general model adopted in the U.S.A.; and (2) The recommendations of the Hartog Committee. As in the U.S.A., therefore, a fundamental decision was taken to treat education as a State subject and also to vest the residuary powers in education in the State Governments by making a specific enumeration of powers reserved to the Government of India in this field. Entry 11 of List II of the Seventh Schedule to the Constitution, therefore, lays down that

"education including universities, subject to the provisions of Entries 63, 64, 65 and 66 of List I and Entry 25 of List III" should be a State subject ; and the entries which give authority to the Government of India in education were worded as follows :—

List I—Union List

63. The institutions known at the commencement of this Constitution as the Banaras Hindu University, the Aligarh Muslim University and the Delhi University, and any other institution declared by Parliament by law to be an institution of national importance.

64. Institutions for scientific or technical education financed by the Government of India wholly or in part and declared by Parliament by law to be institutions of national importance.

65. Union agencies and institutions for—

(*a*) professional, vocational or technical training, including the training of police officers ; or

(*b*) the promotion of special studies or research ; or

(*c*) scientific or technical assistance in the investigation or detection of crime.

66. Co-ordination and determination of standards in institutions for Higher education or research and scientific and technical institutions.

List III—Concurrent List

25. Vocational and technical training of labour.

23. In respect of Primary education, however, the Constitution has made an excepiton on the lines recommended by the Hartog Committee. The intimate relationship between the provision of a minimum of free and compulsory education for all children and the successful working of a democracy which the Constitution decided to create, is obvious. The Constitution, therefore, makes the following provision as a directive principle of State policy under Part IV —

"45. The State shall endeavour to provide within a period of ten years from the commencement of this Constitution, for free and compulsory education for all children until they complete the age of 14 years."

The expression 'State' which occurs in this article is defined in Article 12 to include "the Government and Parliament of India and the Government and the Legislature of each of the States and all local or other authorities within the territory of India or under the control of the Government of India." The Federal Government is, therefore, under a constitutional obligation to participate in the programme of providing free and compulsory education for all children until they complete the age of 14 years.

24. Similarly, the Constitution also makes it an obligatory responsibility of the Government of India to promote the educational interest of the weaker sections of the people and makes the following provision:

"46. The State shall promote with special care the educational and economic interests of the weaker sections of the people, and, in particular, of the Scheduled Castes and the Scheduled Tribes, and shall protect them from social injustice and all forms of exploitation."

The expression "weaker sections of the people", as used in this article, is general and is *not* restricted to the Scheduled Castes and the Scheduled Tribes only. For example, it will obviously include women and consequently the development of the education of girls and women becomes a special responsibility of the Government of India. In

the same way, the expression also means people living in those areas where economic and cultural development lags behind. This article, therefore, makes it a responsibility of the Government of India to bring about an equalisation of educational opportunities in all parts of the country and, to that end, to give special assistance to the backward areas or States.

25. There is yet another provision in the Constitution which has an indirect but significant bearing upon the role of Government of India in education. Entry 20 of the List III is "Economic and Social Planning" and this implies that the Government of India has a consititutional responsibility for the economic and social development of the country as a whole. Now, it is a well-known sociological principle that economic and social development is intimately connected with education and it is in this sense that the White Paper on Education in the United Kingdom said : "Upon the education given to the children of this country, the future of this country depends." It is not a function of the schools to define the objectives of a national economic and social planning although they can, and should, to some extent, direct and influence their definition. But once the objectives of economic and social planning are decided upon by the powers that be, education has a very important role to play in assisting the nation to realise these objectives. For instance, the schools will never be able to decide whether democracy should or should not be a national way of life, whether socialism should or should not be accepted or whether rapid industrialisation should or should not be resorted to. But if the nation were to decide to accept these goals, education will help very greatly in creating and stabilising a social order based on hese values by developing the necessary aptitudes, skills and interests in the rising generation. As Brubacher has observed, "schools can complete and consolidate a change decided elsewhere—whether by bullets or by ballots." The implication is obvious : an authority like the Government of India, which is responsible for the economic and social planning of the country, cannot divest itself of a major responsibility in determining corresponding educational policies to realise its economic and social objectives. In spite of the limited direct authority which the Constitution gives to the Government of India, therefore, practices have actually grown up, as a part of the formulation and implementation of the Five Year Plans of the country, under which the major educational policies are being decided more at the Centre than in the States and the distribution of resources to education in general and to the different sectors of education in particular, is becoming more a matter for a decision at the Central level than at the State levels.

26. On a very close examination of all the provisions of the Constitution which have a bearing on education, one cannot help the feeling that there is an element of basic contradiction in the role which the Constitution attempts to assign to the Government of India in education. On the one hand, the Constitution takes the simple stand that education, with all residuary powers, is a state subject *except* for a few special aspects specified within the Constitution itself. But the real trouble starts when the enumeration of these 'exceptions' begins. For instance, free and compulsory education is made an obvious exception on account of its cost and significance and the Centre is given a specific responsibility for it (Art 45). Similarly, the responsibility of the Centre to equalise educational opportunities between different areas or different sections of society had also to be recognised and duly provided for (Art. 46). Then the responsibility of the Centre to safeguard the cultural interests of the minorities and to see that thay have adequate facilities to receive at least primary education through their own mother-tongue (Art. 350 A) as well as the special responsibility of the Centre to develop the national language (Art. 351) had also to be provided for. The need for a controlled development of Higher education made it necessary to authorize the Centre

to coordinate and determine standards in universities and scientific, technical, or research institutions (Entry 66 of List I) and, on account of such factors as high cost, difficulty of securing suitable personnel, the need to obtain foreign assistance, etc. Scientific research, technical education, and the higher types of professional and vocational education had also to be assigned to the Centre (Entires 64 and 65 of List I). Certain educational problems which have a large significance at present such as securing of foreign assistance (in men, materials or money) for education, training of Indians abroad, relationship with international organisations like UNESCO, participation in bilateral or multi-lateral programmes of educational assistance like the Commonwealth Cooperation Scheme or the T. C. M. had also to be left to the Centre under Entires 10 and 12 of List-I. Finally, a very powerful means of central control was created when 'Economic and Social Planning' was made a concurrent responsibility (Entry 20 of List III). These exceptions are so large that they circumscribe the State authority for education very materially and make education look more like a 'joint' responsibility than like a State preserve. But this is not all. It has to be remembered that the Consitution was out to create a 'strong' Centre. It has, therefore, rested most of the important resources in the Government of India and the result is that no State has adequate resources of its own to develop education—the costliest of welfare services. Consequently the Centre, which controls the purse-strings, necessarily has the most dominating voice in the overall determination of policies, priorities and programmes. From this point of view, therefore, education begins to look, not only as a joint responsibility, but almost like a 'partnership' in which the Government of India plays the role of the 'Big Brother'. This implied constitutional role of the Government of India in education, therefore, is directly opposed to the explicit role as stated in Entry 11 of List II ; and it is this basic contradiction inherent in the Constitutional provisions that leads to most of the controversies on the subject.

27. The situation is further complicated by another consideration. The role of a federal government in education is determined, not so much by the provisions of the Constitition as by conventions and practices evolved through historical developments. Perhaps the finest example of this is the Constitution of the U. S. A. itself. As is well-known, the tradition of local control in education is extremely strong in the U. S. A. and both in history and in law, education is specifically a State subject. The country has consequently developed a highly decentralized system of educational administration and it is worthy of note that the federal constitution does not even contain a reference to 'schools' or 'education'. All these factors should tend to make the role of the U. S. federal govenment in education extremely weak. But the facts are that federal aid to education is older than the federal constitution ; and the present functions and responsibilities of the U. S. federal government in education are far heavier and more important than in several other countries where even the Constitution makes the federal government responsible for education in some way or the other. Today, the U. S. Federal Government conducts a U. S. Office of Education which serves as a clearing house of ideas and information. It is also directly responsible for a number of educational programmes such as education for national defence (inclusive of the programme of the schooling of the veterans of the second World War), cooperation with other nations in a world-wide educational endeavour, in education in union territories and the education of the children of federal employees residing in government reservations, in dependencies and at foreign stations. Almost "every branch of the federal government conducts several educational activities ..... Congress has its Committees on education in both the Houses and the Senate. The Supreme Court renders its interpretations in the form of decisions, as in the Dartmouth College Case, the MacCollum and Zorach decisions on public schools and religious instruction,

3—6 M. of Edu./60

the opinions on segregations in schools and colleges, and the interpretations on loyalty legislation affecting educators. Independent federal establishments that furnish educational service include the library of the Congress and its Copyright Office, the Government Printing Office, the Pan-American Union, the Smithsonian Institution, the National Museum, the National Gallery of Art, the National Academy of Sciences, the Commission of Fine Arts, the Atomic Energy Commission and the National Science Foundation. Much educational research is conducted in the Nation's Capital and sponsored by the Congress of the United States†." In times of national crises, such as the depression of the 1930's, the federal government assisted a number of emergency programmes such as the Civilian Conservation Corps (CCC), National Youth Administration (NYA), Works Progress Administration (WPA), and other agencies. It has also assumed certain responsibilities for the education of backward groups like the Red Indians or Negroes. But above all, it has made large funds available for educational development without any idea of imposing federal control in education. As stated above, this tradition of 'federal financial assistance' without 'federal control' is very old and goes back to 1785 while the Constitution itself was ratified in 1788. The first grants to education were in terms of land, but very soon money grants were also introduced. The purposes for which federal grants were or are being given include : (1) Agricultural education through the development of land-grant colleges with experimental farms and extension services attached; (2) Vocational education in Secondary schools ; (3) vocational training in distributive occupations ; (4) vocational rehabilitation of the handicapped ; (5) vocational guidance and placement ; etc. All this, it must be said, is being done when the Constitution does not refer to education at all and the legal basis of all this huge and significant activity is the 'general welfare' clause in the Constitution*. Hardly any other proof is needed to show that it is the historical background, and not the explicit provisions of the Constitution, that ordinarily determine the actual role of a federal government in education.**

28. Assuming this thesis for the sake of argument, the relevant question is : what have been the developments in Indian education since the adoption of the constitution and how have they affected the constitutional roles of the Government of India and the State Governments in defining and implementing educational policies? In this context, attention may be specially invited to three significant developments. The first is the growing desire to evolve a national system of education for the country as a whole. This desire found an expression as early as 1906 when the Surat Congress passed a resolution on national education. It was given a great fillip by Mahatma Gandhi in his Non-Cooperation Movement of 1921. But at this time, the idea was mainly restricted to a few non-official agencies. When the popular Ministries came to power in 1937, the movement also assumed an official form and an attempt was now made to reorientate all educational institutions to the concept of national education. This desire naturally became even stronger when popular Governments came to power both in the Centre and the States. Such a desire obviously implies the assumption of a leading role in the formulation and implementation of educational programmes by the Government of India. The same implication has been further strengthened by the growing realisation

† *De Young* : Introduction to American Public Education, pp. 32-33.

*We the people of the United States, in order to form a more perfect Union, establish justice, insure domestic tranquility, provide for the common defence, *promote general welfare*, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this Constitution for the United States of America.

**In the Australian Constitution also, Education is left to the States, there being no express power of the Commonwealth in this respect, in the Constitution. The Commonwealth has, however, assumed control over education under its powers of grant-in-aid, and under its powers over Defence, Trade and Commerce—*Nicholas*, Australian Constitution, p. 49.

of the fact that education has a *national* significance, that it would be almost be fatal to the future of the nation to treat it as purely local, that a group of States each of whom is sovereign to decide its own educational policies may even do more harm than good to national solidarity, and that a Central agency to coordinate and develop a national system of education is inevitable in the present conditions when education is generally backward in all parts of the country and very unevenly developed in its different parts. It is this realisation of the national significance of education and the growing desire to create a national system of education that have led to the unprecedented actitivity of the Government of India in education during the last ten years and, to that extent, diminished the constitutional responsibility of the States for education.

29. A second development of the period which has also helped to give the Government of India a dominant voice in the formulation of educational policies is the revival of central grants for education to which a reference has already been made. This revival was of course inevitable in the financial and administrative set-up created by the constitution which vests all the best resources in the Centre and makes the States responsible for all the expensive social services. If the surplus resources at the Centre could have been passed to the needy States with little or no controls, the responsibility of the States for the development of education would have been strengthened. But this did not happen. The attempts of the Centre in policy-making often got mixed up with its attempts at financial assistance and thus arose the charge that Central grants are being used as levers to secure acceptance of Central educational policies. That this charge is largely unfounded will be shown later; but one result of the large Central grants for education has to be admitted: they created a situation in which a very large part of the funds needed for educational development came from the Centre through grant-in-aid. Consequently, the States have tended to lose their spirit of self-reliance and self-confidence and are developing a habit of looking up to Delhi for almost everything.

30. The third development of this period which undermined the responsibility of the States for education and this was a development which has done the greatest damage in this sector—came from outside the educational field, *viz.*, the adoption of centralized planning and the creation of the Planning Commission. In the new technique of planning that has now been adopted, more and more decisions tend to be taken at the Centre than in the States. The decision on national targets, the fixation of priorities, the allocation of resources to different sectors of development or even to different programmes within the same sector of development, the allocation of resources to different States, the fixation of the Central assistance to each State—these and such other problems are mainly decided by the Planning Commission and all these affect educational policies so largely that a State Government is very often required, not to prepare an educational plan, but to fill in the blanks or details of a structure whose broad irrevocable outline has already been decided elsewhere. Even the Ministry of Education finds itself in the same weak predicament as the States *vis-a-vis* the Planning Commission. It is these developments that have contributed most to the trend to centralization in education during the last ten years and it is because of them that the responsibility of States for education has been most weakened.

31. It will thus be seen that the inherent contradiction in the constitutional position has been still further accentuated by the developments of the last ten years and the role of the Centre has now become far more important in actual practice than in the cold print of the Constitution. It must also be remembered that these developments are not necessarily deplored. They are, in fact, welcomed in several quarters and today, a strong section of opinion in the country favours a proposal to amend the Constitution

and to make education a concurrent subject. The lack of adequate leadership which is sometimes conspicuous at the State level and the frequently noticed distortion of State educational policies under immediately political or parochial pressures also tend to emphasize and strengthen this view-point. This equivocal position has given rise to a bitter controversy regarding the correct role of the federal government in education; and as suggested in the opening paragraphs, this problem will have to be satisfactorily solved at an ealy date.

IV

The Role of the Federal Government in Education—A Comparative Study (Australia, Canada the U. S. A. and the U. S. S. R.)

32. The main object of this paper is to discuss the role of the Government of India in education *as it ought to be.* But before taking up this issue, it would be of advantage to make a brief comparative study of the role of the federal government in education in four selected countries—Australia, Canada, the U.S.A. and the U.S.S.R.

33. *Australia.*—Of all the countries mentioned above, Australia is an example of the weakest role that a federal govenment can ever play in education. The reasons for this peculiar situation are purely historical. The States of Australia were founded and grew as independent colonies and it was only as late as in 1901 that the federal government was created. By this time, every State had developed its own educational system and such a strong local sentiment and tradition for education had been created that the people did not think it necessary to invest the federal government with any authority in education. Nay, there was even a feeling that federal control and intervention in education would do great harm ; and this explains why the Australian Constitution makes no reference to education and why the federal government took no steps for educational development for several years after its formation. The Australian Council for Educational Research began as a voluntary enterprise with a grant from the Carnegie Foundation ; and the first attempts to form a federal agency in education were restricted to periodical meetings of the Directors and Ministers of Education of all the States for the discussion of common problems. In 1943, a Universities Commission was established and its functions were defined as follows : (a) to arrange for the training of ex-soldiers in universities or similar institutions; (b) to assist students studying in universities or similar institutions ; (c) to advise the Minister with respect to such matters relating to university training and associated matters as are referred to it by the Minister for advice ; and (d) to assist other persons, in prescribed cases or classes of cases, to obtain training in universities or similar institutions. It is easy to see that this Universities Commission is quite different form the Indian University Grants Commission. In 1945, the Commonwealth Office of Education was established and its functions were listed as follows: (a) to advise the Minister on matters relating to education ; (b) to establish and maintain liaison on matters relating to education, with other countries and with the States ; (c) to arrange consultation between Commonwealth authorities concerned with matters relating to education ; (d) to undertake research relating to education ; (e) to provide statistics and information relating to education required by any Commonwealth authority; (f) to advise the Minister concerning the grant of financial assistance to the States and the other authorities for educational purposes ; and (g) such other functions in relation to education as are assigned to it by the Minister.

In spite of the general attitude to keep the federal government out of education as far as possible, certain educational functions had to be taken up. For instance, responsibilities for scientific and industrial research had to be assumed by the federal

government and the *Commonwealth Scientific and Industrial Research Organisation* was set up with the object of placing "at the service of producers throughout Australia, both in primary and secondary industries, the highest ability and the most advanced knowledge in order to reduce the cost and increase the volume of production." As a further development of the same trend, the National Australian University was established at Canberra in 1948. It has been empowered to establish research schools, including a School of Medical Research, a Research School of Physical Science, a Research School of Social Science, and a Research School of Pacific Studies. The University is exclusively engaged in research and the benefit of its work extends to the whole of Australia and all the countries and Island of the Pacific. Similarly, the federal government has had to assume responsibility for the education of the Maoris. It has also established one model pre-school centre in each State capital and has taken upon itself the responsibility to organise a National Fitness programme.

Some explanation is needed about the power of the federal government to give financial assistance. In the first place, the federal government in Australia has the sole power to levy major taxes and the proceeds are distributed to the States on some general principles which have no relationship with the scale of State expenditures. These financial allocations cannot, therefore, be described as 'grants' or 'assistance' in the proper sense of the term. But off and on, the federal government does give grants for some educational purposes from its own resources. For example, grants were given for the establishment of a School for Aeronautical Engineering in the University of Melbourne and a School of Public Health and Tropical Medicine in the University of Sydney. As an aid to the National Fitness programme, the State Grants (Milk for School Children) Act was passed in 1950 and provision was made for supply of milk to children under 13. The scheme is to be administered by the States and the expenditure is to be reimbursed by the federal government.

34. *Canada.*—The role of the Canadian Federal Government in education is similar to that in Australia with two major differences : (1) the problem of linguistic and religious minorities is acute in Canada and needs special safeguards, and (2) it is more influenced by the developments in the U.S.A.

As is well-known, the present Dominion of Canada arose out of a fusion of British and French colonies. The French-speaking people who are mostly Roman Catholics are a minority in the Dominion as a whole but a majority in certain parts such as Quebec and the position of the English-speaking people, who are mostly Protestants, is just the opposite of this. Special safeguards for the interests of minorities had, therefore, to be provided in the federal constitution—the British North America Act of 1867—which lays down that the educational rights enjoyed by the religious minorities prior to their entry into the Dominion shall not be abrogated and, in cases of dispute, provides appeals to the Governor-General-in-Council and to the Privy Council in London. Safeguarding the educational rights of minorities is thus an essential federal responsibility in Canada.

The federal government in Canada is also constitutionally responsible for the education in the territories, for the education of Red Indians and Eskimos, and for training for national defence. As in Australia, scientific and other research has become a federal responsibility and the "National Research Council, in conjunction with the national research laboratories in Ottawa, maintains laboratories, offers scholarships to research students, and pays grants-in-aid for investigations conducted at the University level by Provincial Departments of Education."* As in the U.S.A., Canada also has made large

*Cramer and Browne : Contemporary Education p. 145.

land and money grants for education and assists programmes of vocational and technical education in schools. There is, however, no Federal Ministry or Department of Education, not even an Office of Education as in the U.S.A. or Australia. There is a Dominion Bureau of Statistics which publishes, as one of its multifarious duties, an Annual Survey of Education in Canada. There is also a Canadian Education Association which collects and publishes research studies and generally functions as a clearing house for information and ideas. Recently, the federal government has given financial assistance for increasing staff salaries in universities and it also bears the expenditure on school broadcasts. All things considered, therefore, the general opinion is "that the part played in education by the Dominion Government in Canada is important, but neither extensive nor expending."**

35. *The U.S.A.*—A reference has already been made in paragraph 25 to the different activities of the US Federal Government in education and it is, therefore, only necessary to refer briefly here to the modern trends in the US education which will ultimately result in a substantial increase in the federal participation in educational development.

One of the most important modern trends of thinking in the USA is that education is also a national responsibility and that, whatever justification there may have been for leaving it exclusively to the States in 1788 when the Constitution was framed, the entire position has to be examined afresh in the light of present day requirements. In fact, it is readily pointed out that the position of exclusively State responsibility for education adopted in 1788 has already become obsolete and that the federal government has, during the last hundred and seventy years, developed a number of very significant and large-scale educational functions to meet the demands of changing times. The most pointed example of this is the recent federal effort to scout for talent in scientific studies and to improve science education when it was realised that the USSR was probably outstripping the USA in the development of science; and all that is now urged is that the federal role in education will have to be expanded still further if the USA has to hold her own in the modern world.

Assuming that the federal government shall expand its educational activities, the direction in which this expansion should take place is the next important issue to be discussed in this field. One important area suggested is federal grants for 'general education'—which corresponds to the free and compulsory education visualised in Article 45 of the Indian Constitution—with a view to 'equalising educational opportunities'. In no country of the world has so much research and study been carried out on this problem as in the USA. The work really started with a study of educational facilities provided by the local communities on whom, not very long ago, the entire responsibility for general education was made to rest. It was discovered that the 'educational load' of communities, as shown by the number of children to be educated, varied largely from place to place—rural and agricultural districts generally had more children per 1000 of population than urban and industrialised districts. Secondly, the 'ability' of the communities to support education, as measured by their taxable capacity also showed large variations and very often, a community with a poor 'ability' to support education was required to carry larger 'educational load.' Thirdly, the 'effort' of the community for education, as measured by the percentage of its taxable capacity raised and devoted to education, also showed large variations ; and finally, the educational 'achievements' of the different communities showed extreme variations—some communities providing a very high standard of education to all the children, while others could neither enrol

****Ibid.*, p. 146.

all children nor maintain adequate standards in schools. What is worse, it was found that several communities made the greatest 'effort' to provide education and yet, either because of poor 'capacity' or heavy 'educational loads' or both, they could only show a poor standard of 'achievement.' Such disparities are increased rather than decreased by the system of 'matching grants' which give more to the rich than to the poor. To remove all these shortcomings and to provide equality of educational opportunity for all children, which is a fundamental need of democracy, the State Governments have given up the idea of grants-in-aid on the basis of matching funds alone and have supplemented it by a new system of grant-in-aid on the basis of equalization. The process is complicated but it works out somewhat on the following lines : In the first instance, the State prescribes what is called a 'foundation programme' that is to say, a minimum programme below which no community can be allowed to fall. The programme includes targets for enrolments, teachers' salaries, school buildings, provision of health services (inclusive of school meals) and other contingent expenditures so that it is both a qualitative and a quantitative programme. The second step in the process is to work out the total cost of this programme for each community ; and the third step is to determine the 'reasonable' effort which the local community is expected to make. The difference between the total cost of the foundation programme and the reasonable effort expected of the community.

These ideas which have now come to stay at the community level are being naturally extended to the State level and studies made so far have shown that the States themselves exhibit wide variation in 'educational loads', in 'abilities', in 'efforts' to support education and in 'achievements'. Consequently, a demand is now being put foward to the effect that 'equalization of educational opportunity' must be accepted as a Federal responsibility. The federal government, it is said, must lay down a minimum foundation programme for all States and must give equalisation grants where necessary on principles similar to those mentioned above. It is also evident that the support for this concept of federal aid to education is rapidly gaining ground and that it is only a matter of time when federal grants for equalisation of educational opportunities would be generally available.

The main argument against this wholesome and urgent reform is the fear that federal aid to education will necessarily be followed by federal control. There are several thinkers who would rather refuse federal aid than have federal control. But an equally strong argument is now being put forward that federal aid can and should be given without federal control. "According to many fiscal experts," writes De Young, "no sound programme of local or state taxation can be devised and established which will support in every community a school system that meets minimum acceptable standards. Time can never efface the inequalities in natural resources that exist between states. Therefore, unless the federal government participates in the financial support of the schools and the related services the less able areas, several million children in the United States and the outlying territories and possessions will continue to be denied the educational opportunities that should be regarded as their birthright. Most recommendations and recent proposals for federal aid stipulate positively that such grants shall not entail federal control over education. They also specify that the money shall be apportioned to the states, except that for cooperative educational research, which shall be administered by the United States Office of Education. Several decades ago Rutherford B. Hayes, then President of the United States, sent to Congress a message in which he said : "No more fundamental responsibility rests upon Congress than that of devising appropriate measures of financial aid to education, supplemental to local action in the states

and territories and in the District of Columbia. This challenge has not yet been adequately met. Federal aid to public education is one of the moral 'musts' of America."*

Apart from this major 'equalisation' aid for gereal education, the following programmes have also been suggested for federal assistance:

(1) Scholarships and Fellowships in Higher education to be made available to undergraduate, graduate and professional students (scheme to be administered by the States);

(2) Scholarships for talented youth in Secondary Schools ;

(3) Improvement of teacher education ; and

(4) Educational experimentation and pilot projects.

36. *The U.S.S.R.*—The three examples given so far are those of countries which have accepted democracy as a way of life and which also have a federal form of government. The U.S.S.R., on the other hand, is a totalitarian state with a federal form of government and it would be interesting to compare the role of the federal government in education under such a system.

There is no federal Ministry of Education in the U.S.S.R. and this may lead one to suppose that the Soviet Union has a decentralized system of education. Nothing can be farther from the truth ; and in no country of the world is education so rigidly controlled by a central authority as in the U.S.S.R. This paradox, therefore, needs some explanation and it can be understood only in terms of Soviet philosophy and administrative techniques.

Under communist philosophy, the most important objective in education is to create the "new Soviet Man" which means a person who is fully imbued with the philosophy of communism and who becomes an efficient and loyal worker of the State in the field to which he may be ultimately assigned. In the Soviet system, therefore, the highest significance is attached to the control of the contents of education and of all the media which influence the thinking of men such as films, radio, television, concert-hall, the theatre, press, books, lecture platform, etc. The determination of the contents of education and the control of all media of communication in such a manner as to produce the one effect desired on the minds of all men becomes, therefore, a responsibility of the highest Soviet authority. It is the authorities at the federal level, therefore, that determine the curricula and methods of instruction to ensure that education is in line with Party and State Policy. Once decided, these curricula and methods are adopted in *every* school in order that a uniform education could be planned and implemented for the nation as a whole. All the different agencies that administer education at lower levels—from the State to the local Soviet—have no control over these fundamental issues and their main responsibility is to provide the necessary facilities to give effect to these Central decisions.

Secondly, the communist philosophy attaches the highest significance to the provision of free and compulsory education for every child and for the provision of Higher education to every gifted child according to his capacity because it is only under such a system that the new Soviet Man can be created. In the planned and centralized economy of the U.S.S.R., therefore, all the necessary funds required for the educational programme

*De Young : Introduction to American Public Education, p. 519.

are provided from the common financial pool and then allocated to the different subordinate units. In other words, the federal financial resources of the U.S.S.R. are fully pledged for the support of education and for ensuring equality of educational opportunity for all.

It has also to be remembered that the U.S.S.R. is an example of educational control by a single party. Speaking from a purely technical point of view, it is possible to describe the different levels in Soviet educational administration to which specific functions have been allocated by law. But as the Communist Party alone controls every administrative unit from the lowest to the highest, the entire control of education is centralized in the Communist Party and delegations of administrative authority to lower levels makes no difference in this respect.

Subject to these three general observations in which the situation in the U.S.S.R. is not strictly comparable to other countries, the role of the U.S.S.R. federal government in education may be stated as follows :—

(a) There is a Union-Republic Ministry of Higher Education in Moscow (known briefly as the RSFSR Ministry of Higher Education). It exercises supervisory control, including control of general academic standards over *all* Soviet Higher educational institutions and semi-professional schools. It controls teaching staff, curricula, textbooks, enrolment quotas and the assignment of graduates. The Soviet Universities have no autonomy as we understand it—they are merely departments of the State.

(b) The RSFSR Ministry of Higher Education is also charged with the task of anticipating and meeting *all* needs for man-power in the USSR. In the planned economy that the USSR is trying to build up, it is of the highest importance to train the man-power and to discover the new techniques required for the expanding economy and it is, therefore, an important objective of Soviet Higher education to prepare qualified specialists for all branches of national economy and culture. A very elaborate procedure has also been evolved to discharge this responsibility. Each Ministry works out its requirements of personnel in precise detail and these form an integral part of its development plan. When the national plan is finalised, therefore, it also includes the total requirements of man-power of all categories and it becomes the main object of the educational plan to train and supply this personnel. This most significant task, as stated above, is mainly entrusted to the RSFSR Ministry of Higher Education.

(c) The RSFSR Ministry of Higher Education also conducts an Academy of Pedagogical Sciences and through it, takes a lead in formulating standard study programmes, working out new procedures, setting up criteria for academic attainment, conducting educational experiments or broadcasting their results, etc.

(d) At the federal level, there is also a RSFSR Ministry of Culture which deals mainly with cultural-educational establishments for adults including those concerned with music, art, drama, movies, ballet, public libraries and lectures, houses of culture, museums, rural clubs, etc. In the democratic countries, recreation is a purely private enterprise. In the USSR, it becomes, in keeping with the communist philosophy, a controlled and significant activity of the State and both its content and method, like those of education, are severely controlled from the federal level.

(e) The USSR federal government also performs the usual non-controversial functions assigned to this level, such as (1) collection of statistics and data and (2) arranging for consultations between State Ministries of Education and co-ordinating their activities.

But as may easily be imagined, these consultations do not have much significance. The most effective discussions in policy-making take place at Communist Party Congresses and "resolutions having significance for the general educational development of the whole country are promulgated by the Supreme Soviet of the USSR and the USSR Council of Ministers. Such decrees specify, *inter alia*, the types of schools to be established, basic organisation, academic programmes to be followed and general provisions regarding compulsory education."*

37. There are, it is true, a number of other federations in the world. But a detailed examination of education in all or even some of them is not very essential to this study. The four States examined here illustrate all the important issues involved and the study of other federations would only repeat them in various combinations.

38. The foregoing studies show, apart from the general characteristics of federal functions in education and the manner of implementing them, a few other interesting principles useful to an examination of the problem under review. To begin with it may be said that Australia stands at one end of the ladder as having the weakest role in education while the USSR stands at the other as having the strongest one while intermediate positions are occupied, in order of an increasingly important role, by Canada and the USA. India, it may be noticed, stands somewhere between the USA and the USSR. Having accepted democracy as a way of life, it would not centralise education under the federal government as has been done in the USSR. The Constitution, therefore, had to adopt a model more in keeping with democratic traditions and it is not surprising that the model of the USA where education is a State subject was selected for the purpose. But no country can solve its problems by mere imitation and the general model of the USA had to be modified on account of three reasons: (1) The American Constitution provides for strong State Governments with residuary powers vested in the States while the Indian Constitution wanted to create a strong Centre with residuary powers vested in the Centre; (2) Education in the USA is fully developed and the States are doing so much for it and so well that the need of federal action does not arise in most matters, while in India education has yet to be developed and the States would not be able to do so unless the Centre played a more prominent role of leadership and assistance; and (3) allowance had to be made for the conditions peculiar to India and for the fact that the role of the federal government in the USA itself was expanding in certain directions which it would be very advantageous for India to copy. These basic considerations, which appear to have led the framers of the Constitution to deviate from the USA model and to endow the Indian federation with more powers and responsibilities in education, are still applicable and it is quite clear that, in the ultimate solution of the problem, India will be found to be holding a position intermediate between the USA and the USSR.

V

The Role of the Government of India in Education—as it is and as it ought to be

39. In view of the studies made in the preceding sections—the historical study in Part II and the comparative study in Part IV—it is now possible to take up the thread of the argument where it was left in Part III—the analysis of the contraditions and conflicts in the existing educational role of the Government of India—and to discuss how this role could be reorganised in the near future.

*U S. *Office of Education* : Education in the U.S.S.R., p. 21.

The Role of Government of India in Education

40. When one examines the role which the Constitution assigns to the federal government in education (or the role which it has now come to play in actual practice) and compares it with the role which other federal governments play in education, or even with the role which the Government of India itself played in the earlier years of our history, one can easily conclude that the following activities may be undoubtedly regarded as "federal functions in education" :

(1) Educational and cultural relations with other countries ;

(2) The clearing house function of collecting and broadcasting ideas and information;

(3) The coordinating function of harmonizing the educational activities of the Centre and the States ;

(4) Education in the Union Territories ;

(5) Scientific research ;

(6) Technical education ;

(7) Propagation, development and enrichment of Hindi ;

(8) Preservation and promotion of national culture inclusive of patronage to national art;

(9) Patronage to the study of ancient Indian culture in general and the study of Sanskrit in particular ;

(10) Education of the handicapped ;

(11) Promotion and coordination of educational research ;

(12) Special responsibility for the cultural interests of the minorities ;

(13) Responsibility for the weaker sections of the people *i.e.* the Scheduled Castes and Scheduled Tribes ;

(14) Responsibility for strengthening national unity through suitable programmes and particularly through those of emotional integration;

(15) Grant of scholarships in an attempt to scout for talent, especially at the University stage ;

(16) Advanced professional and vocational training ; and

(17) Maintenance of Central Institutions or agencies for education ; and

(18) Provision of free and compulsory education up to the age of 14 years.

41. These eighteen functions may be broadly divided into two groups—the exclusive and the concurrent. The first four functions obviously fall in the 'exclusive' group since no State Government can perform them. The remaining fourteen functions fall into the 'concurrent' group in the sense that every State Government will have to participate in these programmes both on its own initiative and as an agent of the Government of India ; but the over-all responsibility for these matters whose national significance is universally recognised would be on the Government of India.

42. A few explanatory remarks are perhaps necessary in support of the federal character of these eleven functions. In so far as *scientific research* and *technical education* (the fifth and sixth functions), are concerned, it may be stated that they have been accepted

as federal functions everywhere. In India, the Federal responsibility for them is far more significant at the present moment, partly because scientific and Technical education is not adequately developed in the States and partly because a good deal of finance and technical help is being made available by a number of advanced countries to assist educational progress in India. The seventh function, *viz., the development of Hindi*, the national language, is naturally a peculiar and special responsibility of the Government of India. It has hardly any parallels in the western world; but a similar problem has to be faced in Asiatic countries with a multi-lingual population such as Malaya or Philippines. The eighth function, *viz., the preservation and promotion of national culture*, inclusive of patronage to national art, is an important federal function in almost all the countries. In India also, this function was assumed fairly early and its significance has increased very largely in the post-Independence period owing to the disappearance of the Indian Princely order which was well known for its patronage to art. The ninth function, *viz., the study of ancient Indian culture in general and that of Sanskrit in particular*, also becomes a federal responsibility in India. These studies, which have no immediate utilitarian value, are likely to be pushed to the background in the stress of present day demands and it is, therefore, a duty of the federal government to conserve this heritage of centuries and to pass it on to the successive generations as a source of inspiration.

43. The Government of India has also had to assume some responsibilities for *the education of handicapped children*, the tenth function. This is both a philosophic and a practical need. The handicapped children are 'a weaker section of the people' and their education and economic improvement thus becomes a responsibility of the federal government also under Article 46 of the Constitution; and even from the strictly practical point of view, it would not be feasible and financially worthwhile for every State Government to provide the necessary trained personnel and costly equipment required for the purpose. The decision of the Government of India to enter this field to do some pioneer work and to assist the State Governments and the voluntary organisations working for this cause has, therefore, been generally welcomed. In fact the demand is for a much larger expansion of the federal activities in this sector than what is visualised at present.

44. The eleventh function, *viz., the promotion and coordination of educational research* is a federal function in Australia and the U.S.S.R. but not in the U.S.A. or Canada where well-organised non-official agencies attend to it. But in the peculiar conditions of India at present, this has to be a federal function. Hardly any effort has been made so far to set up Research Bureaux in the State Education Departments or to develop strong centres for research in the training colleges or University Departments of Education. Very little has been done to collect data on the research that is going on and still less of it is being published. There is not a single journal in the country devoted to educational research and hardly any measures are being taken to count for research talent and to develop research techniques in education. Since the formulation of correct and progressive policies depends very largely on the development of research, it goes without saying that this function would have to receive much more attention in the near future than it has ever had in the past and that early measures will have to be taken to remedy all the deficiencies pointed out above. It is only a vigorous central action in this sector that can achieve these objectives.

45. With regard to the twelfth function, *viz., the special responsibility for the cultural interests of the minorities*, reference has already been made to the Canadian Constitution where the federal government is specially charged with the responsibility of protecting the educational and cultural interests of the minorities. In India, the position is even more difficult than in Canada which has to deal with only two sub-sects of a religion and

only two languages. The protection of the cultural and educational interests of the minorities is, therefore, a very important responsibility of the Government of India and the success of our democracy will very largely depend upon the extent and the manner in which this function is discharged and confidence is created in the minds of the minorities concerned.

46. The Constitution already provides certain safeguards for the cultural and educational interests of minorities. For instance, Article 29(1) guarantees that any section of the citizens having a distinct language, script or culture of its own shall have the right to conserve the same. Article 30(1) gives the minorities, whether based on religion or language, the right to establish and administer educational institutions of their choice, and clause (2) of the same Article further provides that such institutions shall not be discriminated against in respect of grant-in-aid on the only ground that they are under the management of a minority. Article 29(2) provides that no citizen shall be denied admission into any educational institution maintained by the State or receiving aid out of State funds on grounds only of religion, race, caste, language or any of them. Article 350A directs that it shall be the endeavour of every State and every local authority to provide adequate facilities for instruction in the mother-tongue at the Primary stage of education to children belonging to linguistic minority groups; and Article 350B provides for the appointment of a Special Officer for linguistic minorities with the specific object of investigating into all matters relating to safeguards provided for linguistic minorities under the Constitution.

47. While these provisions are generally welcomed, a common criticism is that they are not adequate and that some additional measures are necessary. For instance, it has been suggested that the educational institutions conducted by linguistic minorities at the Primary stage of education should have a right to receive grant-in-aid from State funds, at least to the extent of the expenditure per pupil incurred by the State Government concerned for its own primary schools. It has also been claimed that the eductional interests of the linguistic minorities at other stages of education need some special consideration which is not given at present. It has further been suggested that it is the responsibility of the Government of India to maintain, in all parts of the country, a sufficient number of institutions of Higher education teaching through the medium of Hindi or English in order to provide for the educational interests of the children of its own employees who are liable to be transferred to any part of the Union and also for the legitimate protection of the educational interests of small and scattered linguistic minorities. The whole problem is delicate and difficult and it is not possible to suggest any simple and clear-cut solution to it, but the need for the exercise of vigilance by the federal government in this regard is obvious.

48. The thirteenth function refers to the federal responsibility for the *education of Scheduled Castes and Scheduled Tribes.* Under Article 46 of the Constitution, the Government of India is responsible for the economic and educational development of the Scheduled Castes and Scheduled Tribes and, as has been pointed out earlier, similar responsibilities have been adopted by other federal governments also--the Federal Government in the U.S.A. having special responsibility for Red Indians and Negroes, in Australia for Maoris and in Canada for Red Indians and Eskimos. Under the present set-up, this responsibility has been vested in the Ministry of Home Affairs which is assisted, in its turn, by all the Ministries of the Government of India, wherever necessary. The Ministry of Education has thus to look after the problems of education of these weaker sections of the community; and the Ministry of Home Affairs has made it clear, time and again, that

it looks forward to the Ministry of Education for guidance in all technical aspects of education and every now and then, references regarding special intricate problems in this sector are made to the Ministry.

49. The fourteenth function refers to the *federal responsibility for strengthening national unity*. One of the most important problems which faces the country at present is to strengthen the ties of national unity through programmes of emotional integration and to negative the fissiparous tendencies which have become so prominent, especially after the reorganization of States on a linguistic basis. This responsibility is so fundamental to the very existence of democracy and the defence of our freedom that it is hardly necessary to emphasise it. But unfortunately, very little is being done at present in this sector. The basic responsibilities in this programme will have to be that of the Government of India and the State Governments will have to cooperate whole-heartedly in their implementation. This is, therefore, an area where a good deal of fundamental thinking and intensive effort is immediately called for.

50. The fifteenth function is the provision of *scholarships*. One of the principal purposes underlying educational development is social justice and the provision of equality of educational opportunity for all. A liberal scheme of scholarships to help the talented and poor children thus becomes a very significant programme in educational reconstruction. Obviously, such a programme will have to be implemented jointly by the Government of India and the State Governments. The Federal Government admittedly has a special responsibility for the institution of scholarships at the University stage ; but it is also argued that, unless an adequate provision for scholarships is made at the Secondary stage, poor and deserving children would never be able to qualify themselves for University admission. Both in the first and in the second Plans, very little has been done in this sector. It is, however, obvious that, for several years to come, this would be an important programme of educational reconstruction. The Government of India would have to play a leading part in its implementation by helping in the determination of right policies and by providing necessary financial assistance to State Governments.

51. The sixteenth function refers to *advanced professional and vocational training*. Under Entry 65(a) of the Seventh Schedule of the Constitution, the Federal Government is authorised to set up agencies and institutions for professional, vocational or technical training. Obviously, the State Governments are also competent to set up such institutions under Entry 11 of List II of the same schedule. It is, therefore, necessary to draw a dividing line between the Federal and State functions in this respect. If Entry 65(a) of List I is literally interpreted, it may be made to cover any course of professional, vocational or technical training from a tailoring class at one end to a post-graduate course for Plant Pathologists at the other. But obviously, this is not the intention of the Constitution. It should be assumed that the State Governments would make all the necessary provision for professional and vocational education; but there are advanced courses of professional and vocational education which are very costly and which could not possibly be maintained by every State. It is in this sector that the Government of India has a special role to play by providing such *advanced* courses as would be needed by the country in general or by more than one State in particular. Another objective for the organization of such courses would be to develop the highest type of professional and vocational education within the country itself and, to that extent, to reduce the necessity of sending students abroad for Higher education. For instance, it is not the responsibility of the Government of India to conduct an institution for pre-service training of teachers at the B.T. or B.Ed. level. It should rather concentrate itself on providing post-graduate courses of in-service training for higher grades of educational administrators and teacher educators.

52. The seventeenth function refers to *the establishment of Union institutions and agencies for education.* The federal government is required to establish and maintain educational institutions for a number of reasons. For instance, educational institutions have to be maintained for employees of the Central Government. They have also to be maintained in important commercial undertakings of the Government of India in order to meet the requirements of the population of the new towns which have been established for such undertakings. Military cantonments which are under the control of the Government of India are also required to maintain educational institutions, not only for defence personnel, but also for the general population living in cantonment areas. Apart from such special purposes, it is also the responsibility of the Centre to conduct educational institutions with two definite objectives : (1) to serve as experimental institutions in comparatively neglected or more significant fields ; and (2) to cater to the needs of more than one State or for the country as a whole.

53. The eighteenth function refers to the *provision of free and compulsory education to all chidren up to the age of* 14 *years* as directed in Article 45 of the Constitution. If this Article is read with Article 12 of the Constitution, it will be evident that the provision of universal, free and compulsory Primary education is a joint responsibility of the Government of India, the State Governments and the local authorities. The role of the Government of India would obviously be restricted to the formulation of national targets to be reached, to the grant of financial assistance to State Governments for implementing this programme and to the maintenance of an equal standard of attainment, both in quantity and quality, in all parts of the country. The role of the State Governments would mainly be restricted to the provision of teachers, their training, and supervision. The local authorities will have to take responsibility for all the expenditure on the remaining items and will have to implement the programme satisfactorily with the help of grants-in-aid from the State Governments. Just as the grants-in-aid given by the Centre to the State Governments will have to be based on the principle of equalisation, the grants-in-aid given by the State Governments to the local authorities also will have to be passed on the same principle. In other words, the grants-in-aid to richer local authorities would be proportionately less and those to the poorer local authorities would be proportionately greater.

54. The eighteen functions of the federal government in education discussed so far may be regarded as fairly non-controversial. The first four functions, as stated earlier, belong exclusively to the federal government and there can be no controversy about them. The remaining thirteen functions fall into the concurrent group. But it is universally agreed that the federal government has some responsibility with regard to each one of them, although there might be some slight difference of opinion regarding the extent and nature of such role.

Over and above these seventeen functions, however, there are three other functions which are very important and which, at present, have become highly controversial, *viz.* (i) the education of women, (ii) policy-making and (iii) financial assistance. It is therefore, necessary to discuss them in some detail.

55. *Education of Women.*—The National Committee on Women's Education, it may be recalled, has recommended that the Government of India should assume a *transitional* special responsibility for this subject until the existing wide gap between the education of boys and girls is materially bridged. In the opinion of the Committee, women come under the expression "weaker section of the people" used in Article 46 of the Constitution. The Backward Classes Commission set up by the Government of India also recommended

that women should be regarded as 'backward classes' and this strengthens the claim of treating their education as a responsibility of the Government of India under Article 46. The Committee has also put forward another strong argument in favour of its proposal. The Government of India admittedly has a special responsibility for providing free and compulsory education up to the age of 14. This responsibility is not being implemented at present mainly because the education of girls has lagged behind that of boys ; and the Committee, therefore, claims that the responsibility of the Government of India under Article 45 cannot be fulfilled unless it also assumes some special responsibilities for the education of girls.

56. Those who do not accept this view argue that, under the proposal made by the Committee, education becomes almost a central subject. Since women form about half of the total population, the State Governments would be deprived of 50% of their responsibility if the education of girls becomes a special responsibility of the Centre ; and if the other sectors for which the Government of India is also responsible are taken into consideration, the responsibilities of the Government of India would be far larger than those of the State Governments themselves. Secondly, it is also argued that it will not be possible for the Government of India to discharge this responsibility to any extent unless the willing and enthusiastic cooperation of the State Governments is obtained by making them constitutionally responsible for the programmes and providing them with the necessary financial assistance.

57. The only logical conclusion under these circumstances seems to be that the responsibility of the Government of India for the education of girls should cover, not the *entire* programme for the education of girls, but only the small quantum of a *special* programme which is needed to give it a fillip. Even the special programmes should not be directly implemented by the Centre. They should rather be included in the "Centrally sponsored" sector under which the programmes are planned by the State Governments on the lines of some general principles laid down by the Centre and also implemented by them through their own agencies. The provision for their expenditure, however, is made in the Central sector and the funds are made available to State Governments on a 100% basis, outside their plans and ceilings. If such a clear-cut policy is defined and adopted, even the States would welcome it ; and it would obviously go a very long way in expediting the programmes of Women's education, particularly in the backward States.

58. *Policy-making function.*—The policy-making function of the Federal Government in education has now become one of the most controversial issues in education. Under entry 66 of List I the Government of India is required to coordinate and maintain standards in University education. Obviously therefore, it does get a right to make policy decisions in University education and these will be binding upon State Governments under Article 257(i) of the Constitution which lays down that the executive power of the State Government shall be so exercised as not to impede or prejudice the exercise of the executive power of the Union. Should any State Government not accept these decisions, it would be open to the Government of India to take action under the same Article which also authorises the Union to give such directions to a State Government as may appear to be necessary for this purpose. But what about policy-making in Secondary or Primary education, or in fields which are not specifically covered by Entries in List I of the Seventh Schedule ? From the strictly legal point of view, it can be argued that the Government of India has no authority to make any policy decisions in these sectors and that even if it did make any policy decisions, they cannot be enforced against the State Governments under Article 257(i) of the Constitution. Of course, it is possible

to argue that the standards of University education are dependent on those in Secondary education and that the standards in Secondary education are, in their turn, dependent on those in Primary education and to deduce therefrom that the Government of India can also take policy decisions in the fields of Primary and Secondary education. Such an interpretation appears to be plausible ; but one cannot say how the Courts would react to it if it is challenged. At best, it appears to be a slippery position on which it would be dangerous to take a firm stand.

59. It is true that the Government of India has been taking decisions in all fields of education in the post-independence period and these decisions are mostly being accepted by State Governments. This result, however, is accidental and is due to two extraneous circumstances— (1) the political fact that the same party is in power at the Centre and the States and (2) the financial fact that most of these decisions have been sugar-coated with liberal financial assistance. But it would be wrong to assume that this political situtation will always continue and it would be equally difficult to justify the use of financial pressures for inducing States to accept policies to which they would not otherwise have agreed to. The present constitutional position, therefore, presents an impasse. On the one hand, education must be treated as a whole and it is neither possible nor desirable to break it up into two compartments—University education and other sectors. On the other hand, Government has only a limited authority for making policy decisions in the sector of University education while it is not at all empowered to take any policy decisions in other fields ; and even if it were to take any such decision, it does not have the legal authority to enforce it against the State Governments.

60. What is the way out of this impasse? Three suggestions are being put forward and discussed in this context. The first and the most radical suggestion is to amend the Constitution and to make education a 'concurrent' subject. In support of this view, a number of weighty arguments are put forward and although some of these have been briefly referred to in the earlier discussion, it may still be desirable to sum up the whole case here. It is argued, for example, that the 'economic and social planning' for which the Union is primarily responsible cannot be attempted successfully unless the Centre is also empowered to plan education. Secondly, it is claimed that educational policy is a *national* rather than a State or local concern and that, although the administration of education may be left to the States and local authorities, the major decisions of State policy must be taken by the Centre. Thirdly, it is pointed out that the Directive contained in Article 45 of the Constitution implies that the provision of free and compulsory education is a joint responsibility and that the Centre will not be in a position to play its role in this sector unless it has also the authority to take policy decisions in Primary education and to compel the State Governments, if necessary, to adopt them. Fourthly, it is pointed out that it is a fundamental responsibility of the Centre to maintain an equal standard of social services in all parts of the country and as education is the most significant of all social services, the Centre will have to provide an equality of educational opportunity for *all* children in the country. This can only be done if education is amenable to Central planning and control. Fifthly, it is pointed out that the educational leadership available in the States is often below par and, as no chain can be stronger than its weakest link, the Centre must often provide effective leadership from above—a function which can hardly be discharged satisfactorily unless it is empowered adequately to deal with recalcitrant cases ; and finally, it is pointed out that the Centre is responsible to Parliament for all the funds it gives to State Governments for educational development and that it cannot really be answerable to Parliament in this behalf unless it also has the authority to take firm policy decisions and to implement them. The burden of the song is, therefore, clear; amend the Constitution and make education

a concurrent subject. It must also be stated that there is a fairly large support for this view and in almost every Parliament session, the notice of a resolution to this effect is given by some member or the other.

61. As against this extreme view in one direction, there is a second group of thinkers who would prefer to go to an extreme in the other direction. They suggest that education is and should be a State subject and that the modern trend towards centralization must be resisted as forcefully as possible in the larger interests of the country. They demand decentralization in general—even in planning—on grounds of democracy and warn that centralization, which brings some immediate gains, is extremely harmful in the long run because it saps the self-confidence, initiative, responsibility and even the competence of State Governments. In their view, a still greater need for decentralization in education is the possibility it affords to every linguistic minority to preserve its own culture and to progress in its own way. It is also argued that the varied mosaic pattern which Indian culture has evolved through centuries past can be preserved only if State Governments have real authority over education and that it can be destroyed in no time under a centralized control of education which would always tend to introduce dead uniformity. It is further urged that centralization of education would make it increasingly bureaucratic and thus deprive it of the healthy direct contact with the public. This group of thinkers, therefore, would not only preserve the sovereign authority which State Governments have over education at present, but they would even go a step further and cut at the very root of all trends of centralization by abolishing the Ministry of Education itself or by constituting a single small ministry for all social welfare services.

62. Between these two extreme views—one of which is close to Australia and the other to the U. S. S. R.—there is a third view which represents the latest thought on this subject in the U. S. A. and which may also be regarded as the 'golden mean' proposal of reform. According to this view, centralization of educational authority—and this is exactly what all the talk of making education a concurrent subject really means—is definitely harmful while a weak or inactive Centre is hardly better than cultural anarchy. What this group of thinkers recommends, therefore, is that the federal grovernment should provide strong and competent leadership of a 'stimulating but non-coercive character.*

63. This leadership is to be provided in three ways—in ideas, in personnel, and in programmes.

(a) The leadership in ideas is provided in two ways—through the development of reasearch and through the coordinating and clearing house functions which crossfertilise educational thinking by making known the good work done in one area of the country to the remaining areas.

(b) The leadership in personnel is generally provided in three ways—the maintenance of an advisory service, the training of educational administrators, and experimental work in the training of teachers. It is a fundamental responsibility of the Centre to scout for talent and to maintain an advisory service of the best people available in the country and to make them available to State Governments for advice and assistance in all matters. Secondly, it is also a responsibility of the Centre to arrange for advanced professional training in educational

**Federal State Relations in Education, N.E.A.* (1945), *p.* 7.

administration and to provide for the in-service training of educational administrators through such programmes as seminars and workshops, special training or refresher courses, deputations for studies in the country or abroad, and production of necessary literature. Thirdly, the federal government has also a responsibility in the attempt to provide better teachers by advising and assisting the State Governments to adopt such measures as improving the remuneration and service conditions of teachers, conduct of experiments in teacher education, etc.

(c) Finally, the leadership in programmes can be provided through the conduct of pilot or experimental projects.

It is claimed that if the Central Government can thus provide a competent professional leadership through ideas, men and programmes, the willing consent of the State Governments would be secured to whatever common policy the Federal Government desires to adopt and that such persuasion of the States is infinitely better than coercion under a constitutional authority. It is obvious that a conscious adoption of this policy is probably the best course to be followed in India.

64. *Financial Assistance.*—Then comes another of the most significant federal functions in education, *viz.*, the provision of financial assistance for programmes of expansion and improvement of education. That the federal government must give such assistance is universally admitted ; and the task is of special significance in India where the most elastic and productive sources of revenue are vested in the Centre. The main controversies, therefore, relate to two issues---the objectives of assistance and the form and conditions of grants-in-aid.

65. With regard to the first of these issues, it is generally suggested that there should be three types of grants. The first is a transfer of additional revenues in order to enable the State Governments to plan their programmes in all welfare services with greater confidence and self-reliance; the second is the institution of a general grant for educational purposes but not earmarked for any specific programme; and the third is a specific purpose grant which is intended for a programme organised and implemented with the approval of the Centre. It is obvious that if the autonomy and independence of the States is to be respected in the educational field, greater reliance will have to be placed on the first two of these grants. The mistake of the first Five-Year Plan was that innumerable specific purpose grants were created and they naturally led to a tremendous increase in administrative work and red tape. The mischief has been considerably undone in the second Five-Year Plan by introducing four main groups of grant-in-aid, by authorizing the States to reappropriate within the same group, and by introducing the system of ways and means advances. But even now, a good deal remains to be done and it would be worthwhile to simplify the system and to reduce the specific purpose grants still further during the Third Plan.

66. Another point of extreme importance is that of special financial assistance to backward States or what is called 'an equalization grant' in American parlance. As pointed out earlier, it is a basic responsibility of the federal government to maintain a uniform standard of social services in general and to equalise educational opportunities in particular. In this respect, our States show immense differences. They differ in the level of development reached at present due mainly to historical accidents ; their 'educational loads' *i.e.* the number of children still outside the school also vary greatly ; and even the social and economic conditions show equally wide variations so that the States are far from comparable in terms of 'ability' to support education and the

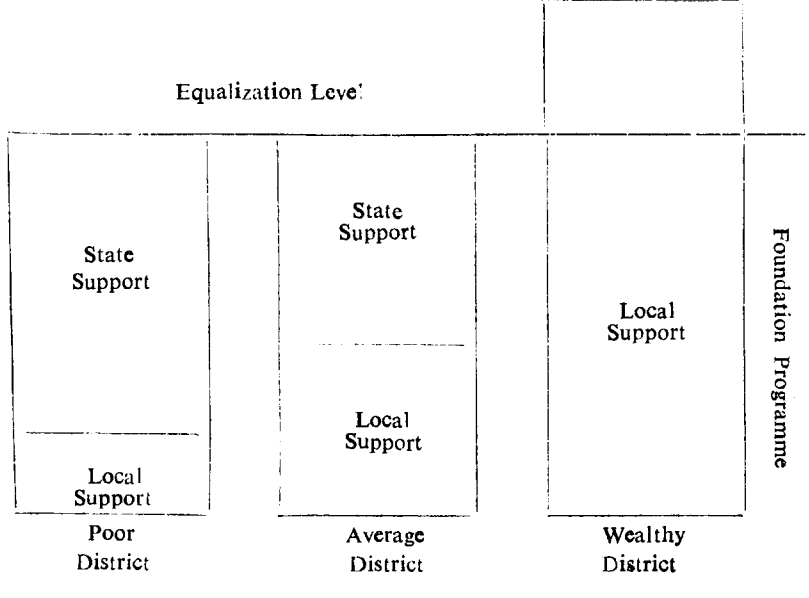
difficulty of the task to be performed. The advanced States have a bigger and a more difficult task to perform with more limited resources. Today, the conditions are so diverse that the expenditure on Primary education in the single city of Bombay is greater than that in the entire State of Orissa. It is for the Government of India to adopt an equalization grant and level up such differences to the extent possible.

67. It should also be stated that it is not the object of the equalization programme to bring all developments to a dead level of uniformity. This need not and cannot be done. What is suggested is a three-fold programme : (1) the federal government should prescribe, from time to time, minimum or foundation programmes below which no area should be allowed to fall ; (2) the freedom of individual States to go ahead should be retained ; and (3) the gap between the advanced and the backward States should be continually narrowed down.

68. It is obvious that this principle of grant-in-aid is diametrically opposed to that of matching grants which gives more to him that hath. Under this concept, some States may get no grant, others may get a medium one and still others may get a large one. Its operation can probably be best described in the following passage from De Young :

"The Tenth Amendment to the Constitution of the United States made education the primary responsibility of the individual states. Hence the support of public education became mainly a matter of state concern. Today every state makes some contribution from its revenues for the support of public schools through many types of funds, some of which are described later. An inconsistency exists, however, between the legal intention to provide state support and the many cases of neglect and inadequacy. For the nation as a whole, state governments supply only about 40 per cent of the cost of schools. Furthermore, the method of distributing such aid is an important factor. Despite favourable arguments for federal support of public education, the fact remains that the individual states will have to give more assistance to schools, particularly through the application of the next principle.

Strayer and Haig in 1923 were the first to give a clear-cut picture of the equalization principle. Their analysis interpreted this principle as the complete equalization of the burden of a satisfactory minimum educational programme below which no locality could be allowed to go, but above which any locality would be allowed to rise by means of local support. In contradistinction to the payment-for-effort or matching principle, the operation of the equalization plan tends to shift to more able communities some of the undue burden carried by the less wealthy localities (*see* Fig. below). Most states today have a state-local "partnership foundation programme" in which the commonwealth bestows more on these schools which have less in fiscal resources.



How state equalization works in three types of districts. In the poor district, local effort to support schools produces only a small fraction of the cost of a state-guaranteed minimum or foundation programme. In the district of average wealth, the same effort produces about half the needed fiscal support. The wealthy district receives no state equalization aid because the local wealth back of each child is great enough to more than finance the minimum programme. The district serves as a lighthouse to indicate better practices.

In brief, the equalization principle means that governmental agencies collect educational funds where the money is and spend the money where the pupils are. Every man's property and income must be taxed to educate every man's child. Even though a man chooses to send his own children to a parochial or private school he is not exempt from contributing his support to the education of all children. The golden rule in educational finance is : "Thou shalt educate thy neighbour's children as thine own."

At first this idea of equalization was applied to small areas, as the county and state. Now the old slogan "the wealth of the state must educate the children of the state" is being supplemented with the clause "and the wealth of the United States must be used to equalize the education of all the children in the nation." Furthermore, the phrase "all the children in the nation" implies that more adequate educational opportunities and greater financial support be provided for exceptional or a typical children, since their learning opportunities, as in the case of the blind, are below par, and the costs of their instruction are above average. American public education will not be genuinely democratic until there is nation-wide application of the principle that opportunity and burden shall be equalized for all learners."*

69. The second issue refers to the conditions of grant-in-aid. Here strict adherence to certain general principles is necessary. To begin with, the tendency to use grants-in-aid as indirect pressure levers for policy decisions should be discouraged as far as possible. Secondly, the quantum of specific purpose grants should be restricted to the very minimum and confined to basic programmes of national significance only or schemes in the nature of experimental or pilot projects. Thirdly, the procedure for sanctioning these grants will have to be simplified to the utmost. And lastly, a suitable machinery will have to be devised to obtain, from the State Governments, a report on the utilization of grants and the results obtained thereof. This can probably be effectively done by appointing high level advisers who should pay visits to States and submit reports after a special study on the spot.

70. Another useful suggestion to be made in this context is that the specific purpose grants should be included in the Centrally-sponsored sector. In a Centrally-sponsored scheme, 'planning' should be a joint responsibility in which the fundamental principles are laid down by the Centre, but a large initiative and freedom is left to State Governments to make the Plan suit its local needs and conditions ; 'implementation' would be through the State Government ; and 'finance' would come from the Centre on a hundred per cent basis and outside the State Plan and ceiling. This will ensure that the programme is most effectively implemented and also that such implementation does not interfere with any other schemes.

VI

Summary and Conclusions

71. In the present study, an attempt has been made to examine the various issues concerning the role of the Government of India in Education. The problem was approached from three angles, historically, constitutionally and comparatively from the point of the role which the federal governments of some of the foreign countries are playing in education.

*De Young : Introduction to American Public Education, pp. 502-504.

72. In the historical survey which covered the period 1773—1950, it was shown that prior to 1833 the Centre had hardly any role to play ; between 1833 and 1870 education was virtually a Central subject ; between 1870 and 1921, while the day-to-day administration was vested in the provincial governments, the Government of India discharged five distinct functions, *viz.*, (1) policy-making, (2) serving as a clearing house for information, (3) promotion of research and publication of suitable literature, (4) coordination and (5) financial assistance; the years 1921—35 saw a virtual divorce between education and Central Government with disastrous consequences; but more progressive policies were evolved and the Government of India again began to play a more leading role

73. In the next section, the Constitutional provisions relating to education were subjected to a close examination and it was shown that the present position is somewhat anomalous. On the one hand, the Constitution takes the simple stand that education, with all residuary powers, is a State subject ; while in a number of important fields (such as the provision of educational facilities for children up to the age of 14, the promotion and safeguarding of the cultural interests of the minorities, the need for controlled development of Higher education etc., etc.), education appears to be more of a joint responsibility than an exclusive preserve of the States.

74. The study of the role of the federal government in education in certain other countries showed that the interest and activities of a federal government are not always guided by the provisions of the Constitution and that, in many instances, the federal government is taking a very definite and positive interest in the formulation and implementation of educational programmes even in the absence of any constitutional obligation for that purpose.

75. In the concluding section of the study, it was suggested that, without trespassing on the autonomy of the States, the Centre had a useful role to play in evolving suitable educational policies for the country and that in view of the greater elasticity of the Central tax structure it had a very definite responsibility for rendering financial assistance to the States towards the expansion and improvement of educational facilities.

76. Finally, I would humbly like to state that I am fully aware of the complexity of the issues raised in this paper that I have had no illusions about the finality of the suggestions made herein. My main object in writing and publishing this paper has been to arouse interest in the discussion of the basic questions relating to the role of the Government of India in education. If this fond hope were to materialise, my labours would be more than adequately rewarded.

WASTAGE AND STAGNATION IN COLLEGE EDUCATION*

By

A. G. DESHMUKH AND A. R. KAMAT

This study, divided into three parts, deals with the problem of estimating the wastage and stagnation in college education. Part I describes the results of investigations undertaken for this purpose based on a three-year entry of students to a Poona College, and it builds up estimate of the wastage among Arts students. The wastage figure for the college is found to be approximately 45 *per cent and that for the Poona University is estimated to be* 51 *per cent approximately. The results are then further analysed by several relevant factors,* e.g., *the S.S.C. examination marks, age at entry, sex, caste and others.*

Part II deals with wastage among Science students, basing the enquiry on the same investigations carried out for Arts students. It is estimated that the wastage figure for the college is 38 *per cent and that for the Poona University is* 48 *per cent approximately. Analysis is also done by several relevant factors such as the S.S.C. examination marks, age at entry, sex, caste etc. These results are compared with those obtained for Arts students.*

Part III deals with stagnation (or the delay in progress) in College education among Arts and Science students on the basis of the same enquiry. It gives figures for the extent of stagnation among Arts and Science students at the different stages. An attempt is made to relate the delay in progress to various relevant factors like the S.S.C. examination marks, age at entry, sex and schools, local or non-local. In the end the authors discuss the planning and requirements of a good enquiry into the twin problems of wastage and stagnation.

E DITOR

I

Arts Students

Introduction

Much has been said during the last few years in the press and from the platform about wastage and stagnation in education. The comments have generally been provoked by the large number of failures in the school leaving examination and in many examinations at the University stage. In order to get some idea about the magnitude of the problem investigations were planned on a modest scale based on students of Fergusson College, Poona. In this article the method of investigation followed by us is described and the broad results about wastage among Arts students are summarised.

A three-year entry of freshers to Fergusson College was considered for this purpose and the careers of all the students who joined the college in the first year class, in Arts or Science, in 1949, 1950 and 1951 were followed until they passed out after taking the B.A. or B.Sc. degree, or left Fergusson College to join some other college

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course or university or simply dropped out. A period of eight years was considered adequate for this purpose as students who did not succeed in getting the first degree within eight years of their joining the first year class had a very remote chance of doing so after that period.

Information was collected from the college records, the main sources being the admission forms which are filled in by all students every year, the results of the Poona University examinations and the register of leaving certificates of the college. The students who left Fergusson College to join another local college were followed up with the help of the records of the local colleges, and the results of the examinations held by the Poona University. In the case of those who joined colleges outside Poona but affiliated to the Poona University, attempts were made to trace them in the examination results of the University. However, we did not try to follow up students who joined other universities as that would have extended the scope of the enquiry beyond the modest scale on which it was planned. It should be emphasized that no questionnaire was issued and no interviews were taken. The relevant information available in the sources mentioned above alone was collected and it was recorded on cards prepared for this purpose. It was then put on punched cards for analysis.

Some Explanations

It is perhaps necessary to explain why the period 1949-51 was selected. It may be recalled that the new Secondary School Certificate (S.S.C.) examination of the Bombay State replaced the old Matriculation Examination of the Bombay University in the year 1949. The Poona University was established in 1948-49, and consequently students who joined the college in or after 1949 could ordinarily be followed in the records of the college and the University locally. We stopped with the 1951 entrants as this just gave us the period of eight years (mentioned above) up to 1959, when the enquiry was completed.

Before presenting our results it may be desirable to describe briefly some features of Fergusson College relevant to these investigations. This College is one of the oldest colleges in Poona and it prepares students for a degree in Arts or Science. For the last many years its total strength has been between 1,800 and 1,950, of which a little less than three-fourths study Science. The performance at the university examinations is usually higher than the average performance in the university as a whole. The examination at the end of the first year which was till recently conducted by the colleges concerned was said to have been stiffer in this College than in most other colleges. Selection is exercised at the time of admitting students to the first year class, especially to the science class, with the result that students joining Fergusson College have, on an average, a better performance at the S.S.C. examination than those joining most other Arts or Science colleges in the Poona University. (This is reflected by the figures quoted in Table 3.)

We are therefore dealing with a sub-group which is not entirely representative of the main group of college students in the Poona University. Even so it is felt that the results of these investigations deserve a careful scrutiny and should throw much light on the wastage in College education in this part of the country.

It should be helpful for understanding if we briefly describe the structure of the degree course in Arts or Science in the Poona University during the period 1949-50. A student was eligible for admission to a college affiliated to the Poona University provided he had passed the S.S.C. examination (for which the passing percentage was 35)

with English as one of the subjects, or any other equivalent qualifying examination. The degree course was of four years which divided itself into two natural stages of two years each. The examination at the end of the first year was conducted by the college and at the end of the second year the first university examination, the Intermediate Examination in Arts or Science was held. This examination was a qualifying examination for those who wished to take Law, Engineering, Medicine or Ayurved. After passing the Intermediate examination, students who wanted to continue the Arts or Science Course were given instruction for two more years at the end of which period they appeared for the degree examination (B.A. or B.Sc.).

Table 1 gives the number of fresh entrants to the first year class during the three-year period 1949-51. As it is not our objective to study the trend, and for which in any case a three-year period would be too short, the data is pooled before analysing it. This will also smooth out any special conditions which may have been operating in any single year.

How the Students Fared

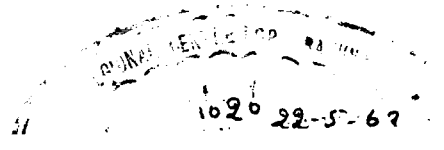
Table 2 which is the main table of the enquiry shows how the students fared, and how they left the college. The vertical classification shows how and/or when the student left the college. Categories (1), (2) and (3) are self-explanatory. Category (4) consists of students who left for taking degree courses in Law, Commerce, Ayurveda or Agriculture in the colleges of the Poona University. In category (6) are included those who left and joined another university either to continue arts or science courses, or to takea professional course such as Engineering, Medicine or Law. The students who left the college without taking a degree to join non-degree courses such as the diploma in engineering, etc., or to take up another career such as defence services, etc. are included in category (7). Categories (8), (9), (11) and (12) consist of students who left Fergusson College at various stages in their college career and who did not join, at least immediately, another university. Their results could not be traced in the records of examination results of the Poona University beyond the stages mentioned. Category (14) will therefore form the main bulk of wastage.

Table 3 records the distribution of students by sex, by the percentage of marks secured at the S.S.C. examination.The blanks account for (1) those who were 'exempted' in certain subjects at the time of their previous failure at the S.S.C. examination and, as a result, whose total marks were not recorded in the results; and (2) those who had passed other qualifying examinations such as the Cambridge School Certificate. Women students form more than 40% of students joining the arts class and their number is also greater than the number of women students joining science. The table also brings out that students joining Fergusson College, especially in the Science class, have a high average of marks at the S.S.C. examination and that women students have higher average marks than men students both in arts and science classes.

Definition of Wastage

It is also necessary at this stage to define the term 'wastage' as applied to college education. By wastage we shall mean all those students who joined College in the first year class but for some reason or the other could not or did not pursue College education to obtain the first degree in arts, science, or any professional course. While sounding the customary warning against identifying wastage in college education with failure in life, we shall clarify certain points about wastage by examples. X who leaves college without taking a degree to join defence services is considered a case of wastage. Y, a

6—6M of Edu./60



woman student, who joins college at the desire of her parents to pursue liberal cultural education before they find a suitable match for her, contributes to wastage if she leaves college before completing a degree course on account of marriage although her few years in college may have helped her parents to secure a good young man for her. The case of Z who could not get admission to the diploma course in engineering after S.S.C. examination but could do so after making a good grade at the Intermediate Science examination, or simply by marking time in college is perhaps debatable. But as it is not necessary for him to join a college to get admission to the diploma course, he amounts to wastage according to the definition given above.

Preliminary Comments on Table 2

It may perhaps be helpful to make preliminary comments on those categories in Table 2 which contribute to wastage, confining our observations to entry in Arts. Category (4) in the case of Arts students consists of those who joined law after passing the Intermediate Arts examination. The criterion of getting the first degree will be applied to them. The cases under category (6), students who joined some other university were difficult to decide. The methods followed in estimating wastage amongst them will be described below. Students falling under the consolidated item (14) are of two kinds, (a) those who left Fergusson College without taking a leaving certificate; and (b) those who left taking a leaving certificate. As it is not possible for a student to join a college in this or any other university without producing a leaving certificate of the college previously attended, students coming under (14a) have been wholly considered as contributing to wastage. Students under (14b) have not joined another university, at least in the first instance. Some of them may have joined another college in the Poona University and a few of them may have then gone over to other universities but the number of such cases would be very low.

Estimation of Wastage

We shall now try to build up an estimate of wastage. The second column of Table 2 summarises how 446 students who joined the first year in Arts during 1949-51 fared. Before considering the cases of wastage, let us consider those who left the college to take up another course or who joined other universities.

Out of 12 students who joined law, 11 completed the course and one failed to do so. The cards of the 38 students [category (6) of Table 2] who joined other universities were carefully scrutinised. Taking all the available information about each one of the cases into consideration it was thought that not more than 27 of them would be able to complete a similar arts course in their new university. From amongst 193 students [*see* category (14) Table 2] who left the college at various stages 43 had taken their leaving certificates. They certainly did not immediately join another university as there was no record to that effect in the register of leving certificates. Some of them joined other arts colleges in the Poona University but they did not clear the B.A. examination according to the records of examination results of the Poona University. As mentioned above, it is possible that a small fraction may have migrated to other universities from their new colleges. Every card was therefore carefully gone through and it was thought that not more than five from these 43 may have joined another university and successfully completed a similar arts course. Hence a reasonable upper estimate of those who should have obtained the first degree can be put down as $203+11+27+5=246$. The amount of wastage therefore would not be less than 200 which works out as $200/446=44{\cdot}8$ per cent or 45 per cent approximately. It is necessary to allow for the factor of mortality,

It is clear that the few students whose careers were snapped short on account of premature death come under the cases of students who left the college without completing the degree course, there being no evidence in the college record about their deaths. Since the college students are a selected population, the normal mortality rates would not be applicable. After consulting the usual life-tables and also the special life-tables used by the Insurance Companies (which are perhaps more relevant in this case) it was thought that not more than 2 per cent could be accounted for by this factor. So the estimate of wastage among arts students may be taken as 42·8 per cent or as $42 \cdot 8/98 = 43 \cdot 7$, or approximately 44 per cent of those who survived.

An alternative method adopted to estimate the wastage amongst the 38 students who joined other universities proceeds on the assumption that they form a representative group from amongst the total batch of 446. They are classified according to the stages at which they left the college to join other universities as follows :

Joined other universities (total)	38
During the 1st year	1
After the first year, but before the Intermediate	20
After the Intermediate	17

The remaining 408 students fared through the corresponding stages in colleges as follows :—

Joined first year	408
Joined Intermediate	323
Joined B.A. or Law	244
Passed B.A. or Law	214

Hence another estimate of those among 38 (joining other universities) who would succeed in completing the college course would be :

$$1 \times \frac{214}{408} + 20 \times \frac{214}{323} + 17 \times \frac{214}{244} = 29$$

approximately. This figure is not very different from the one arrived at above by actual scrutiny of the cards.

Analysis of Wastage

Table 4 analyses wastage as it occurred at various stages. For this purpose, for simplicity, all 193 cases in category (14) have been included under wastage; all 12 students who joined Law have been assumed to have completed their course; and the 38 cases under category (6) have been excluded altogether from all further analysis. 15·9 per cent students were not able to proceed beyond the first year in the college and a further 17·2 per cent who proceeded further gave up the course without passing the Intermediate examination. In all, 135 students out of 408 *i.e.*, 33·1 per cent students were not able to complete the first stage of two years. From the remaining 273 who completed the first stage, 59 could not complete the second stage. The wastage in the second stage is

therefore 14·5 per cent of the original entry, and it is 21·6 per cent of the students who could complete the first stage. If we confine ourselves to 244 students who joined the junior B.A. class (or law), the wastage at the second stage works out as 12·3 per cent.

We now proceed to classify the cases of wastage according to following factors :

(1) Marks at the S.S.C. Examination, (2) Age, (3) Sex, (4) Caste, (5) Schools (local or otherwise), (6) Guardian's address, and (7) Guardian's income.

S.S.C. Examination Marks

The most important factor is the marks obtained by the student at the S.S.C. examination. Table 5 classifies these 408 students by their percentage marks at the S.S.C. examination, the cases of wastage being sub-divided under : (1) those who dropped before passing the first year examination; (2) those who dropped after passing this examination but before passing the Intermediate Arts examination; and (3) those who dropped after passing the latter examination. It may be observed that a big drop has taken place during the first stage and that almost 70 per cent of the wastage cases gave up before passing the Intermediate examination. Their proportion to the total wastage is nearly the same in all groups except in the groups below 40 per cent, and above 65 per cent marks at the S.S.C. examination.

Viewed as a whole the cases of wastage outnumber those who completed the degree course among students scoring less than 50 per cent marks at the S.S.C. examination after which the situation is reversed and there is considerable improvement after 55 per cent marks. This can be briefly stated as follows :—

	Wastage (per cent)
Below 50 per cent marks at the S.S.C.E.	66
Below 50 per cent and 55 per cent at the S.S.C.E.	42
Above 55 per cent at the S.S.C.E.	28

It may be noted that even among 19 students who had secured more than 70 per cent marks at the S.S.C. examination there were a few students who could not (or did not) complete College education.

It may be pertinent to pose the question whether a certain minimum percentage other than the passing percentage of 35, at the S.S.C. examination, could be considered necessary for admission to colleges. Table 5 shows that the chances of a student completing the college course definitely increase with the increase in the marks obtained at the S.S.C. examination. But there does not appear to be a well-defined barrier below which he cannot succeed at all. It is clear, however, that in the case of students who have less than 45 per cent marks at the S.S.C. examination the chances of completing the college course are as low as one in five.

Age at Entry

Table 6 classifies the students by age at entry. This shows that wastage increases with the advance in age at entry. When the age at entry is 19 or above, wastage is as high as 70 per cent. This is, to a certain extent, accounted for by the lower marks at the

S.S.C. examination among students belonging to higher age-groups, as shown by the following figures :

Age at entry . . .	15	16	17	18	19	20 and above
Average marks at the S. S. C. E. (per cent) . . .	59·3	55·8	52·4	51·6	49·2	47·5

But even for the same marks at the S.S.C. examination the wastage is much higher for students belonging to higher age-groups. Omitting cases of incomplete information (about age or marks, or both), we give below a short table which brings out this fact. (The figure in each cell indicates the number of students who joined college and the next figure in bracket gives the cases of wastage amongst them.)

Age at entry	Marks at the S.S.C. Examination			
	35-50	50-60	60 and above	Total
15 to 17	56(31)	70(14)	49(8)	175(53)
18 and above	105(75)	71(39)	26(18)	202(132)
TOTAL .	161(106)	141(53)	75(26)	377(185)

Students with higher age at entry are generally those who are also retarded in school. Many of them have a rural background, and belong to backward communities and poorer social strata. These factors and the fact that those who enter college at a late age get fewer years to complete their College education, would be the underlying cause of this tendency. The last factor would also account for another tendency observed in Table 6, that the wastage among higher age-groups occurs at earlier stages.

Sex

Table 7 classifies wastage by sex. This shows that the wastage among men students is remarkably higher than among women students, the wastage percentage being 51 for men and 42 for women. The performance of women at the S.S.C. examination was somewhat better than that of men the average marks being 53.4 and 51.1 respectively. But this does not wholly account for the difference in wastage as shown by the following short table where students have been classified by sex and marks at the S.S.C. examination. (The figure in each cell gives the number of students who joined college and the next figure in the bracket gives the cases of wastage amongst them. Blanks are excluded.)

	Marks at the S.S.C. Examiation			
	335-50	50-60	60 and above	Total
Men	108(71)	78(34)	31(10)	217(115)
Women	55(97)	64(20)	33(7)	152(64)
TOTAL	163(108)	142(54)	64(17)	369(79)

It seems therefore that women have done better than men among the higher marks groups.

Women students on an average were also younger than men students. Their average below ages at entry were 17·2 and 18·5 years respectively (*See* tabulation below).

To those two factors the following may be added :

(1) The proportion of local students is very high—72 per cent among women students as against 53 percent among men students. (2) Women students mostly belong to advanced communities. It seems these factors have off-set the usually known adverse factor of early marriage so far as the over-all wastage among women students is concerned. It may be that the last factor is now not so operatively effective to the extent it used to be a few decades back.

There is a comparable adverse factor for men. Many of them are subject to the pressure that they must start earning as soon as possible and those who do not show promise in college are urged to go in for some vocation or job. Women students who are not subject to such pressure can persist even after repeated failures. While the pressure of seeking employment on men would begin to operate from the early stages of education, the 'marriage' effect on women should appear more clearly in later stages (or higher ages). The classification of wastage (Table 7) by the stages at which students gave up College education appears to confirm this. In the case of men students of higher proportion of wastage occurs during earlier stages. Whereas the pattern of wastage among women is different and seems to be influenced by the 'marriage' effect which is submerged under other factors when total wastage is considered. The same effects can also be observed in the following table where wastage is analysed by sex, and age at entry. (The figure in each cell gives the number of students and the next figure in bracket gives the cases of wastage. Blanks are excluded.)

	Age in years					
	15	16	17	18	19 and above	Total
Men	10(3)	27(7)	41(15)	54(23)	107(72)	239(120)
Women	20(1)	31(8)	49(22)	32(18)	26(20)	165(69)
TOTAL	34(4)	65(15)	90(37)	16(41)	133(82)	404(189)

Wastage is comparable for men and women for age groups 15 and 16, it is higher among women for age groups 17 and onwards.

Caste

The analysis by caste, given in table 8, shows two clear groupings ; the advanced communities of Brahmins and the C.K.P. where the wastage is about 42 per cent. and all other communities where it is 50 per cent. or more. Even if we exlude the backward classes where it is the highest (where the figures are small), it is as high as 56 per cent. among the Marathas. The analysis by the S.S.C. examination marks had shown that although the average marks for the backward classes were the lowest there was not much difference in the average marks at the S.S.C. Examination for the other communities. But the average age at entry was definitely lower for advanced communities.

Schools

Table 9 gives analysis of wastage by the schools from which the students came—Poona schools or from schools in the mofussil. Wastage seems to be higher for students coming from mofussil schools. We have noticed that they have higher average marks at the S.S.C. examination. Further analysis shows two other features. From the break-up by schools (local or non-local) and by the marks at the S.S.C. examination, it was observed that it is in the higher marks groups that the wastage among local students is lower as compared with non-local students. Secondly, as stated above the proportion of women students among local students is much higher and it is the better performance of local women students which substantially contributed to the higher proportion of successful local students. This can be seen from the figures given below. (The figure in each cell denotes the number of students and the next figure in the bracket gives the wastage amongst them. Blanks are excluded.)

	Local	Non-Local	Total
Men	125(66)	112(54)	237(120)
Women	118(47)	45(45)	163(69)
TOTAL .	243(113)	157(76)	400(189)

Other Factors

The analysis by guardian's address given in Table 10 seems to confirm the remarks made above. But it also shows that the pattern for the mofussil districts is not uniform and that, in fact, students from some districts do much better than the local students.

In table 11 is given the analysis by guardian's income. Although the income figures given by students in their admission forms in the college are not always reliable, it may be permissible to draw the conclusion that the higher the income of the guardian the better is the chance for his ward to complete the College education.

It would have been certainly very helpful to analyse the wastage figures by the guardian's occupation. But during the years 1949 and 1950 no record was kept of this important item in the college admission form and its absence has given rise to a disproportionate number of blanks in the wastage cases.

Estimating Wastage in Arts for the Poona University

We will now make an attempt to estimate the wastage amongst arts students in the Poona University as a whole, with the help of the percentage of failures at the Intermediate and B.A. examinations in the relevant period, and with the help of the proportion of students who dropped out at each stage, as observed in Fergusson College (*See* tables 4 and 12).

Let us start with 1000 students joining the first year class in Arts colleges. Then 86 (—1000 35/408) students leave college education without appearing for the college examination at the end of the first year. As the results of this examination were very liberal in most colleges, it is not unreasonable to suppose that 90 per cent of the remaining, *i.e.*, 914 × ·90 =823 pass and join the Intermediate Arts class. From these 69 (=823 × 29/343) would give up without appearing for the Intermediate examination. We are thus left with 754 students who make one or more attempts to pass the Intermediate examination. The percentage of passes at the successive Intermediate examinations will be assumed to be uniformly 50, that being approximately the University average for the four years 1952-55. But a number of students give up after one or more attempts, and they may be estimated with the help of Table 12-A constructed from the corresponding figures for the Fergusson College. The percentage of passes among the repeaters shows considerable fluctuations. It may be reasonable to suppose that it decreases with an increase in the number of attempts. However, because the numbers are small, it will be difficult to construct estimates for our purpose from these figures and we shall assume that the percentage of passes remains the same as before, *i.e.*, 50. Table 13-A shows the estimates of passes, failures and drops at successive attempts, the last figure being estimated from the last two columns of Table 12-A. Thus we arrive at the estimated figures of 126 who leave the course without passing the Intermediate examination. So, out of 1000 students entering the Arts course, 628 complete the first stage of two years.

Out of these 628, 94(=628 × 41/273) give up College education without appearing for the B.A. Examination leaving 534 to make one or more attempts at passing the B.A. examination. As in the case of the Intermediate Examination, it may be assumed that the results of the B.A. examination over the four years 1954-57 were uniform, *i.e.*, equal to the four-year average of 68 per cent. Table 12-B gives the figures of passes, failures, and drops, amongst the students of Fergusson College, at the B.A. examination in one or more attempts. Using its last two columns we construct, as before, table 13-B. This gives us an estimate of 42 who drop out without obtaining a degree. Thus 492 students from the initial entry of 1000 succeed in completing their College education and 508 are not able to do so. The wastage is almost 51 per cent. (The effect of mortality can be considered in this case as well. It should be borne in mind however that several assumptions have been made in arriving at this figure because of the lack of relevant information. Table 14 summarizes the figures obtained in the last two paragraphs.

TABLE 1

Number of Entrants to the First Year Class of the College during 1949-51

Class/Year	1949	1950	1951	Total
Arts	141	156	149	446
Science	529	549	556	1,634
TOTAL	670	705	705	2,080

TABLE 2

Performance of Entrants

	Arts		Science	
	Number	per cent	Number	per cent
1. Completed B.A. or B.Sc. course in Poona University (PU)	203	45·5	393	24·0
2. Joined Engineering course in PU	..	..	209	12·8
3. Joined Medical course in PU	..	..	98	6·0
4. Joined other degree courses in PU	12	2·7	67	4·1
5. (1)+(2)+(3)+(4)	215	48·2	767	46·9
6. Joined other universities	38	8·5	211	12·9
7. Joined other non-degree courses	..	..	43	2·6
8. Left without passing first year examination	65	14·6	235	14·4
9. Passed the first year examination but left without passing Intermediate Examination	70	15·7	169	10·3
10. Left without passing Intermediate =(8)+(9)	135	30·3	404	24·7
11. Passed Intermediate but left without joining the degree class	29	6·5	152	9·3
12. Joined the degree class but left without passing	29	6·5	57	3·5
13. (11)+(12)	58	13·0	209	12·8
14. (10)+(13)	193	43·3	613	37·5
TOTAL (5)+(6)+(7)+(10)+(13)	446	100·0	1,634	100·0

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TABLE 3

Marks at the S.S.C. Examination : (Percentage)

	Marks (Per cent.)										
	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	blank
Arts—											
Men . . .	9	36	69	53	29	13	8	9	2	..	27
Women . . .	1	21	39	44	27	21	10	6	2	..	20
TOTAL .	10	57	108	97	56	34	18	15	4	..	47
Science—											
Men . . .	3	42	226	307	277	235	179	110	37	5	60
Women . . .	..	3	13	40	26	27	17	10	3	1	13
TOTAL .	3	45	239	347	303	262	196	120	40	6	73

	Total	Average
Arts—		
Men	255	51·06
Women	191	53·43
TOTAL .	446	52·08
Science—		
Men	1,481	57·70
Women	153	58·18
TOTAL .	1,634	57·74

TABLE 4

Wastage Figures by Different Stages : (Arts Students)

Stage	Number of drops	Cumulative drops	Left over
1. Joined F. Y. Arts class	..	..	408
2. Left during the year	35	35	373
3. Left after failure at F.Y. Arts Examination	30	65	343
4. Passed F. Y. Arts Examination but left without appearing for Intermediate Arts examination	29	94	314
5. Left after failure at Intermediate Arts examination	41	135	273
6. Passed Intermediate Arts examination but left without appearing for the degree examination	41	176	232
7. Left after failure at the degree examination	18	194	214
8. Passed the degree examination	..	..	214

TABLE 5

Wastage by the S.S.C. Examination Marks : (Arts Students)

	Marks (Per cent.)										
	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	Blank	Total
1. Completed the course	2	11	42	53	35	19	12	13	3	25	215
2. Left before passing F.Y. examination	5	14	24	10	2	6	..	..	..	4	65
3. Passed F. Y. but left without passing Intermediate	3	12	23	17	5	1	1	..	1	7	70
4. Left after Intermediate	..	15	12	12	8	3	3	2	..	3	58
5. Wastage (2)+(3)+(4)	8	41	59	39	15	10	4	2	1	14	193
TOTAL	10	52	101	92	50	29	16	15	4	39	408

TABLE 6

Wastage by Age at Entry : (Arts Students)

	Age								
	15	16	17	18	19	20	21 and above	Blank	Total
1. Completed the course . .	26	50	53	45	14	11	16	..	215
2. Left before passing F.Y. examination . . .	3	11	13	10	11	15	2		65
3. Passed F. Y. examination but left without passing Intermediate ..	5	13	18	13	11	9	1		70
4. Left after Intermediate examination .	4	7	13	10	11	9	3	1	58
5. Wastage (2)+(3)+(4) . . .	4	15	37	41	34	31	27	4	193
TOTAL .	30	65	90	86	48	42	43	4	408

TABLE 7

Wastage by Sex : (Arts Students)

	Men	Women	Total
1. Completed the course . . .	119	96	215
2. Left before passing F. Y. examination	50	15	65
3. Passed F.Y. examination but left without passing Inermediate	41	29	70
4. Left after Intermediate . .	33	25	58
5. Wastage (2) + (3) + (4) . .	124	69	193
TOTAL .	243	165	408

TABLE 8

Wastage by Caste : (Arts Students)

Caste	Completed the course	Wastage			Total
		Before Inter	After Inter	Total	
1. Brahmin	141	66	36	102	243
2. Maratha	25	23	9	32	57
3. C. K. Prabhu	15	8	3	11	26
4. Jain, Marwadi, Gujarati . . .	10	8	4	12	22
5. Lingayat, Lewa Patil, Sonar, etc. . .	12	12	..	12	24
6. Mali, Sutar, etc.	5	5	1	6	11
7. Backward Classes	2	4	1	5	7
8. Others	5	9	4	13	18
TOTAL .	215	135	58	193	408

TABLE 9

Wastage by Schools : (Arts Students)

	Schools			Total
	Local	Outside	Other	
1. Completed the course	130	81	4	215
2. Left before passing F.Y. examination . . .	40	25	..	65
3. Passed F. Y. examination but left without passing Intermediate	40	30	..	70
4. Left after Intermediate	35	23	..	58
5. Wastage (2)+(3)+(4)	115	78	..	193
TOTAL .	245	159	4	408

TABLE 10

Wastage by Guardian's Address : (Arts Students)

Guardian's Address	Completed the course	Wastage			Total
		Before Inter	After Inter	Total	
1. Local	134	84	37	121	255
2. Poona District	7	7	3	10	17
3. Satara	14	15	6	21	35
4. Nagar, Nasik, Sholapur	21	14	3	17	38
5. Kolhapur, Ratnagiri, Goa	4	2	1	3	7
6. Khandesh	15	6	2	8	23
7. Bombay, Kolaba, Thana	6	2	3	5	11
8. Other places	14	5	3	8	22
TOTAL	215	135	58	193	408

TABLE 11

Wastage by Guardian's Income : (Arts Students)

Income (Rs.)	Completed the course	Wastage			Total
		Before Inter	After Inter	Total	
1. Less than 1,000	22	23	7	30	52
2. 1,000 to 3,000	84	53	23	76	160
3. 3,000 to 10,000	82	35	20	55	137
4. Above 10,000	19	8	3	11	30
5. Blank	8	16	5	21	29
TOTAL	215	135	58	193	408

TABLE 12

Analysis of Students Appearing at University Examinations in Arts

	Attempt	Appeared	Passed	Percentage of passes	Failures	Left
(A) Inter Arts	1	314	176	56·05	138	16
	2	122	73	59·84	49	12
	3	37	16	43·24	21	7
	4 or more	14	8	57·14	6	6
			273			41
(B) B.A.	1	220	163	74·09	57	6
	2	51	33	64·70	18	6
	3	12	3	25·00	9	4
	4 or more	5	4	80·00	1	1
			203			17

TABLE 13

Estimated Figures for Students Appearing at University Examinations in Arts in the Poona University

	Attempt	Appeared	Passed	Percentage of passes	Failures	Left
(A) Inter Arts	1	754	378	50·00	376	44
	2	332	166	50·00	166	41
	3	125	63	50·00	62	21
	4	41	21	50·00	20	20
			628			126
(B) B.A.	1	534	361	68·00	173	18
	2	155	105	68·00	50	17
	3	33	22	68·00	11	5
	4	6	4	68·00	2	2
			492			42

TABLE 14

Estimated Wastage at Successive Stages in Arts in the Poona University

	Drops	Total drops	Remaining
1. Entry into F. Y. Class	..	..	1,000
2. During first year	86	86	914
3. Failed in F. Y. examination	91	177	823
4. During the Inter year	69	246	754
5. Failed in Inter examination	126	372	628
6. During the B.A. Class	94	466	534
7. Failed in B. A. examination	42	508	492

II

Science Students

Now we deal with wastage among Science students basing it on the same investigations as those couducted for Arts students. We start with tables 1 and 2 which give respectively, how the entrants fared and the distribution of the entrants by their marks at the S.S.C. examination.

Comments on Table 1

Out of 1,634 students who joined the first year Science class, 393 students given under category (1) completed their education by obtaining the B.Sc. (or the B.A.) degree. (Ninety-three students from the total of 1,634 subsequently changed their course from Science to Arts and 53 of them succeeded in taking the B.A. or the LL.B. degree. We do not consider them separately but include them among the larger group to avoid more complicated analysis.) Categories (2) and (3) do not need explanation. Category (4) consists of students who left the Fergusson College to join the degree courses in Law, Commerce, Ayurveda, or Agriculture in the colleges of the Poona University. In category (6) are included students who left to join other universities to pursue arts, science, or professional courses. Those who left the college without taking a degree to join non-degree courses or other careers such as defence services are included under category (7). Categories (8), (9), (11) and (12) consist of students who left the college at various stages, and who did not join, at least immediately, another university. Their careers could not be traced in the examination results of the Poona University beyond the stages mentioned.

The criterion of obtaining the first degree will be applied to students coming under categories (2), (3) and (4) to determine the wastage. Category (7) wholly contributes to wastage according to our definition of wastage given in the previous article. Cases of wastage have to be estimated for categories (6) and (14). This is done in the next paragraph.

Estimation of Wastage

From 209 students who joined the engineering course under the Poona University, 195 have completed the course. The remaining 14 cases were carefully gone through and it was estimated that there would be 7 cases of wastage, and the other 7 are expected to have completed the engineering or some other college course in another university.

TABLE 1

How They Fared

	Type			
	A		B	
	Number	Per cent	Number	Per cent
1. Completed B. A. or B. Sc. course in Poona University (PU)	203	45·5	393	24·0
2. Joined Engineering course in PU	..	..	209	12·8
3. Joined Medical course in PU	..	..	98	6·0
4. Joined other degree courses in PU	12	2·7	67	4·1
5. (1) + (2) + (3) + (4)	215	48·2	767	46·9
6. Joined other universities	38	8·5	211	12·9
7. Joined other non-degree courses	..	..	43	2·6
8. Left without passing first year examination	65	14·6	235	14·4
9. Passed the first year examination but left without passing Intermediate examination	70	15·7	169	10·3
10. Left without passing Intermediate=(8) + (9)	135	30·3	404	24·7
11. Passed Intermediate but left without joining the degree class	29	6·5	152	9·3
12. Joined the degree class but left without passing	29	6·5	57	3·5
13. (11) + (12)	58	13·0	209	12·8
14. (10) + (13)	193	43·3	613	37·5
TOTAL (5) + (6) + (7) + (10) + (13)	446	100·0	1,634	100·0

Out of 98 students who joined the medical college in the Poona University, 75 have so far completed the medical course and 21, who are in the final year, are expected to complete it. There are, therefore, two cases of wastage. Out of 67 students who joined other degree courses in the Poona University, 10 have given up their education before taking the first degree. This brings the total of wastage cases to 10 under categories (2), (3), and (4) of table 1, the number of those who have completed or would be completing their courses being 355.

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On examining the cards of the 211 students who joined other universities, we found that some had joined either an engineering or a medical course. And from the available information about these and other cases we estimated that 179 of them would be able to obtain a degree in science, engineering or medicine. Out of 613 students under category (14), who left the college at various stages, 411 had not taken their leaving certificates with them, and could be therefore considered as clear cases of wastage. The fate of the remaining 202 who had taken leaving certificates was more difficult to decide. They did not join another university at least immediately. Some of them joined other colleges in the Poona University, but they have not passed a degree examination of the Poona University according to its records. Every card was therefore carefully gone through and it was thought that not more than 81 of them might have joined another university and completed a degree course. (This estimated number is rather large as compared with the number arrived at for arts students in the previous article, because it is not usually possible for science students who have a failure at the first year or the Intermediate examination at the Fergusson College to continue in the same college next year because of the limited seats in science classes. Many of them joined other local colleges and did well at the Intermediate examination. Some of them might have then migrated to some other university and succeeded in obtaining a degree in science, or professional courses.)

A reasonable estimate, therefore, of those who must have obtained a degree can be put down as $393+355+179+81=1,008$, the remaining 626 being the cases of wastage. The wastage works out to be $626/1,634=38\cdot3$ per cent., or 38 per cent. approximately. If we allow for the factor of mortality, as we have done in the case of arts students, the wastage among the survivors would be 36 per cent approximately. However, these figures are much smaller than the corresponding figures of 45 and 43 for arts students, obtained in the previous section of this article, the main reason being the difference in the quality of entrants as shown by the S.S.C. examination marks of arts and science students given in table 2.

An alternative estimate of wastage can be formed for the 211 students who left to join other universities by assuming that they form a representative group from amongst the total of 1,634 students. They are classified below according to the stages at which they left :

Joined other universities (total)	211
During the first year	16
After the first year, but before the Intermediate	32
After the Intermediate	163

The remaining 1,423 students fared as follows :

Joined the first year	1,423
Joined the Intermediate	1,149
Joined the degree class (in science, arts or other courses) . . .	898
Passed the degree examination	829

TABLE 2

Marks at the S.S.C. Examination (Percentage)

	Marks										
	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	Blank
Arts—											
Men . . .	9	36	69	53	29	13	8	9	2	..	27
Women . . .	1	21	39	44	27	21	10	6	2	..	20
TOTAL .	10	57	108	97	56	34	18	15	4	..	47
Science—											
Men . . .	3	42	226	307	277	235	179	110	37	5	60
Women . . .	..	3	13	40	26	27	17	10	3	1	13
TOTAL .	3	45	239	347	303	262	196	120	40	6	73

	Total	Average
Arts—		
Men	255	51·06
Women	191	53·43
TOTAL .	446	52·08
Science—		
Men	1,481	57·70
Women	153	58·18
TOTAL .	1,634	57·74

Hence an estimate of those (among 211) completing the College education would be :

$$16 \times \frac{829}{1423} + 32 \times \frac{829}{1149} + 163 \times \frac{829}{898} = 183$$

approximately. This is colse to the estimate made above from the scrutiny of individual cards.

Analysis of Wastage

For a further study of the wastage figures we have excluded the 211 students who joined other universities. But we have included the students from category (14) from which an estimated number of 81 students has completed the course. (This procedure is different from the one followed for arts students as their number was negligible and was ignored. However, the analysis is comparable with the analysis of arts students because, after excluding those who left to join other universities, the batches of the remaining students are comparable.)

Table 3, re-constituted from table 1, after including the 81 students mentioned above among those who completed their courses, gives the wastage according to the stages at which it occurred in the case of these 1,423 students. The table shows that 235 (or 16·5 per cent) of them could not complete the first year course, and 175 more (or 12·3 per cent) gave up before passing the Intermediate Examination.

TABLE 3

Wastage Figures by Different Stages (Science Students)

Stage	No. of drops	Cumulative drops	Left-over
1. Joined F. Y. Science class	..	..	1,423
2. Left during the first year	71	71	1,352
3. Left after failure at F. Y. Examination	164	235	1,188
4. Passed F. Y. examination, but left without appearing for Intermediate examination.	53	288	1,135
5. Left after failure at Intermediate examination	122	410	1,013
6. Left without joining any degree course	115	525	898
7. Joined the degree course but left without passing	69	594	829
8. Passed the degree examination	..	..	829

This means that 410 students out of 1,423 (or 28·8 per cent of them) did not complete the first stage of two years in college. Out of the remaining 1,013 who passed the Intermediate examination, 184 were not able to complete the second stage. The wastage at the second stage is 12·9 per cent of the total entry of 1423 and is 18·2 per cent. of those

who completed the first stage. It may be observed that these percentages are smaller than the corresponding figures for arts students except the figure for wastage before the completion of the first year in college, which is slightly higher. Again, as among the arts students, the big drop occurs during the first stage of two years ; almost 69 per cent of the wastage cases occur during this stage.

We now analyse the cases of wastage according to the different factors. For this purpose we classify the wastage cases as follows : (1) those who dropped before passing the first year examination; (2) those who dropped after passing this examination but before passing the Intermediate examination; and (3) those who dropped after this examination.

S.S.C. Examination Marks

Table 4 classifies wastage by the dominant factor, *viz.*,the marks obtained by students in the S.S.C. examination. The figures show that in the lower mark groups more wastage occurs during the first stage of two years. Secondly, the wastage cases are more than the number of those who completed the degree course among the students securing 55 per cent. marks or less at the S.S.C. examination.

TABLE 4

Wastage by S.S.C. Examination Marks Percentage (Science Students)

	Marks											
	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	Blank	Total
1. Completed the course. . .	..	11	78	135	157	160	136	91	38	6	17	829
2. Left before passing F.Y. examination . .	..	19	71	64	28	16	10	2	..	..	25	235
3. Passed F. Y. but left without passing Intermediate . .	1	8	37	68	25	19	8	3	..	..	6	175
4. Left after Intermediate . .	1	3	36	45	40	28	16	9	1	..	5	184
5. Wastage (2)+(3)+(4) .	2	30	144	177	93	63	34	14	1	..	36	594
TOTAL (1) + (5) .	2	41	222	312	250	223	170	105	39	6	53	1,423

After this stage the situation improves and after 75 per cent marks there is a solitary case of wastage of a student who joined the medical course and could not cope with it. The following gives a brief picture :

	Wastage (Per cent)
Below 55 per cent marks at the SSCE.	61
Between 55 and 65 per cent marks at the SSCE	33
Between 65 and 75 per cent marks at the SSCE	18
Above 75 per cent marks at the SSCE	2

It may be observed that even among 150 students getting 70 per cent marks or above, there is wastage of the order of one in every ten. At the lower end it is seen that for students obtaining less than 45 per cent marks the chances of completing the college education are as low as one in four. The comparison of wastage figures among science students and arts students as grouped according to the marks at the S.S.C. examination shows that for the same S.S.C. marks the wastage is higher for science students. This suggests that the science course is perhaps more exacting than the arts course.

Age at Entry

Table 5 analyses wastage by age at entry.

TABLE 5

Wastage by Age at Entry (Science Students)

	Age							
	15	16	17	18	19	20 and above	Blank	Total
1. Completed the course .	144	271	239	107	46	21	1	829
2. Left before passing F. Y. examination . .	14	39	59	54	54	31	4	235
3. Passed F. Y. examination but left without passing Intermediate examination . .	10	33	61	30	25	15	1	175
4. Left after Intermediate . .	17	38	57	37	16	19	..	184
5. Wastage (2)+(3)+(4) . .	41	110	177	121	75	65	5	594
TOTAL (1)+(5) . .	185	381	416	228	121	86	6	1,423

The wastage steadily increases with age at entry, and it is found to be more than 75 per cent among students whose age at entry is 20 or above.

This is mainly explained by the fact that students with a lower age at entry are also, on an average, of better quality, as evidenced by their performance at the S.S.C. examination given below:

Age of entry	15	16	17	18	19	20 & above.
Average marks at the SSCE (Per cent)	60·5	59·9	57·2	56·4	54·6	52·8

If the effect of the S.S.C. marks is separated by considering students in different mark-groups it is found that an increase in age at entry has an adverse effect on their performance. This is shown by the figures given below. (The figure in each cell indicates the number of students who joined college, and the next figure in the bracket gives the wastage among them. Blanks are omitted).

Age at entry	Marks at the S.S.C. examination (Per cent)			
	35·50	50·65	65	Total
15 to 17	152(89)	535(189)	267(34)	954(312)
18 and above	110(84)	248(143)	53(15)	411(242)
TOTAL	262(173)	783(332)	320(49)	1365(554)

It may also be observed from table 5 that the older students tend to drop out at earlier stages in their career. These results are similar to those obtained for arts students, and the probable underlying factors have been suggested in part I of the study. Again, if we compare the wastage in arts and science among students belonging to the same age-groups and mark-groups it is found that the wastage in science is higher except for mark-groups above 65 per cent. This again suggests that the science course is perhaps stiffer than the arts course.

Sex : The analysis of wastage by sex is given in table 6 which shows that the wastage among women students (32 per cent) is much lower than that among men students (43 per cent). It will be recalled that in the case of arts students a similar difference in wastage between men and women students was partly due to the better quality of women students as evidenced by their higher average marks at the S.S.C. examination. In the case of science students the difference in wastage between the two sex-groups is even higher than that between the two sex-groups of arts students, although there is not much difference

in their average marks at the S.S.C. examination which were 57.7 per cent and 58.2 per cent for men and women respectively.

TABLE 6

Wastage by Sex (Science Students)

	Men	Women	Total
1. Completed the course	743	86	829
2. Left before passing F. Y. Examination	221	14	235
3. Passed F. Y. examination, but left without passing Intermediate	160	15	175
4. Left after Intermediate	172	12	184
5. Wastage (2)+(3)+(4)	553	41	594

The wastage cases are further analysed by the S.S.C. examination marks and sex as shown below. (The figure in each cell gives the number of students who joined college, and the next figure in the bracket gives the cases of wastage amongst them. Blanks are excluded.)

It is clear that the wastage among women students is much lower than that among men students except in the group of 65 per cent marks and above. Again women students have a lower average age (16·5 years) than men students (17·0 years). This difference of about half a year is again much less than that of 1·3 years' difference for arts students.

	Marks at the S.S.C. Examination (per cent)			
	35-50	50-65	65—	Total
Men	250(170)	710(309)	292(44)	1253(523)
Women	15(6)	75(24)	28(5)	117(35)
TOTAL	265(176)	785(333)	320(49)	1370(558)

The analysis by age and sex gives the following figures. (The figure in each cell gives the number of students who joined college, and the next figure in the bracket gives the cases of wastage amongst them. Blanks are excluded).

	Age in years			
	15-16	17-18	19 & above	Total
Men	498(137)	595(278)	198(133)	1291(548)
Women	68(14)	49(20)	9(7)	126(41)
TOTAL	566(151)	644(298)	207(140)	1417(589)

In each of the lower age-groups women have done better than men and the slightly higher wastage in the age-group 18 and above is of no particular significance because of the small number of women students in that group. As both the S.S.C. marks and age do not completely explain the much lower wastage among women, the explanation may have to be sought in other factors (*e.g.* advanced communities to which women students belong and better background of culture at home) which were suggested when similar analysis was attempted for arts students.

Caste

Table 7 analyses wastage by caste. As in the case of arts students, here also two clear groups are observed : (1) the Brahmin and C.K.P. communities where the wastage is less than 35 per cent ; and (2) all other communities where it is as high as 50 per cent. To a certain extent the difference may also be due to the fact that the students from the advanced communities are younger than the students from other communities.

TABLE 7

Wastage by Caste (Science Students)

Caste	Completed the course	Wastage				Total
		Before F.Y.	After F. Y. before Inter	After Inter	Total	
1. Brahmin . . .	526	106	94	81	281	807
2. Maratha . . .	59	22	16	24	62	121
3. C. K. Prabhu . .	35	11	3	2	16	51
4. Jain, Marwadi, Gujarathi	84	31	25	29	85	169
5. Lingayat, Lewa Patil, Sonar etc. . . .	56	20	18	27	65	121
6. Mali, Sutar etc. . .	11	10	7	4	21	32
7. Backward classes . .	17	7	6	6	19	36
8. Others	41	28	6	11	45	86
TOTAL .	829	235	175	184	594	1,423

Schools

The next factor by which the wastage is analysed is the school from which the students came--Poona schools, or schools outside Poona. Table 8 shows that there is not much difference between the wastage percentage for local schools and non-local schools, the figures for them being 41 and 42 per cent respectively. It had been obverved that the averages of marks at the S.S.C. examination were comparable for students from local and

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non-local schools, and further analysis by the S.S.C. examination marks showed that the wastage figures are comparable in the corresponding mark-groups.

TABLE 8

Wastage by Schools (Science Students)

	Schools			
	Local	Outside	Others	Total
1. Completed the course	459	360	10	829
2. Left before passing F. Y. examination . .	123	109	3	235
3. Passed F. Y. examination but left without passing Intermediate	106	68	1	175
4. Left after Intermediate	94	86	4	184
5. Wastage (2)+(3)+(4)	323	263	8	594
TOTAL (1)+(5) .	782	623	18	1,423

TABLE 9

Wastage by Guardian's Address (Science Students)

Guardian's address	Completed the course	Wastage				Total
		Before F. Y.	After F. Y. before Inter	After Inter	Total	
1. Local	445	124	103	91	318	763
2. Poona District . .	26	13	12	15	40	66
3. Satara	74	20	13	21	54	128
4. Nagar, Nasik, Sholapur .	105	36	16	16	68	173
5. Kolhapur, Ratnagri, Goa	29	2	3	1	6	35
6. Khandesh . . .	65	9	14	20	43	108
7. Bombay, Kolaba, Thana	27	8	4	10	22	49
8. Other places . .	58	23	10	10	43	101
TOTAL .	829	235	175	184	594	1,423

Guardian's Address, Income and Occupation

Analysis by guardian's address given in table 9 does not show any definite pattern except to confirm broadly the conclusion drawn above from the analysis by schools.

TABLE 10

Wastage by Guardian's Income (Science Students)

Guardian's Income	Completed the course	Wastage				Total
		Before F. Y.	After F. Y. before Inter	After Inter	Total	
1. Less than Rs. 2,000 .	262	82	82	77	241	503
2. Rs. 2,000 to Rs. 3,000 .	188	48	35	33	116	304
3. Rs. 3,000 to Rs. 5,000 .	173	40	22	25	87	260
4. Rs. 5,000 to Rs. 10,000 .	127	25	20	31	76	203
5. Above Rs. 10,000 . .	61	16	9	14	39	100
6. Blank	18	24	7	4	35	53
TOTAL .	829	235	175	184	594	1,423

Table 10, which classifies students by guardian's annual income suggests that the wastage is the highest (48 per cent) for the income-groups below Rs. 2,000 and is lowest (33 per cent) for the income-groups between Rs. 3,000 to Rs. 5,000. It should be stated here, however, that the income figures are not reliable.

For the reason mentioned in the previous section of this article there are a large number of blanks in the classification by occupation and the corresponding table is not given here. But the available figures suggest that the wastage may be lowest for those students whose guardians belong to the professional classes—doctors, engineers, pleaders etc.

Type of Lodging in Poona

Table 11 analyses wastage by the type of lodging in which the student lived in Poona when he was at college. (This factor was not considered for arts students because the numbers were very small.) Lodgings have been classified as under : (1) home; (2) college hostel; (3) other hostels; and (4) others. The last group covers all those for whom no definite information was available. It is believed that most of those belonging to the last group were living in rented rooms.

TABLE 11

Wastage by the Type of Lodging in Poona (Science Students)

	Type of Lodging				
	Home	College hostel	Other hostels	Others	Total
1. Completed the course . . .	486	188	36	119	829
2. Left before passing F.Y. examination	132	19	7	77	235
3. Passed F. Y. examination but left without passing Intermediate .	114	13	3	45	175
4. Left after Intermediate . . .	102	27	16	39	184
5. Wastage (2)+(3)+(4) . . .	348	59	26	161	594
TOTAL (1)+(5) .	834	247	62	280	1,423

It is seen from the table that the wastage is the least (24 per cent) among students who lived in the college hostel, and it is the highest (57 per cent) for students in the fourth category. As the admissions to the college hostel mainly depend on the marks at the S. S. C. examination, a further analysis by marks, as shown below has been attempted. (The figure in each cell gives the number of students, and the next figure in the bracket gives the wastage amongst them. Blanks are excluded.) This shows that even among students belonging to the same mark-groups the wastage is the lowest among students living in college hostels. The younger age of the hostel students may also be another contributing factor.

Type of Lodging	Marks at the S.S.C. Examination (per cent)			
	35-50	50-65	65	Total
Home	166(110)	463(191)	175(26)	804(327)
College hostel	12(6)	113(32)	106(12)	231(50)
Other hostel	10(7)	40(14)	10(4)	60(25)
Others	77(53)	169(96)	29(7)	275(158)
TOTAL .	265(176)	785(333)	320(49)	1,370(560)

Comparison with Arts Students

In the course of the above discussion comparisons have also been made with results which were obtained for arts students. There are three main points of difference. The batch of arts students differs from that of science students in many repsects, *e.g.*, the sex composition, the relative proportion of local and non-local students, and the better quality of science students as shown by their S. S. C. examination marks. We have seen that some of these factors tend to increase wastage, while others tend to decrease it. But the dominant factor, *viz.*, the S. S. C. examination marks, is in favour of the science students as it is more difficult to get admission to science courses where seats are limited. Secondly, after the Intermediate examination there is a great flow of the better qualified science students to the professional courses of engineering and medicine with the result that the remnant science batch becomes considerably depleted in quality while the corresponding arts batch remains comparatively unaffected. Finally, comparison between the performances of the arts and the science students in the two two-year stages as well as the complete four-year degree stage suggests a hypothesis that the science course in each of the two stages is stiffer than the arts course; this hypothesis can be put forward also otherwise on considerations of the curricula of the two courses.

It is perhaps useful to describe the important features of the exodus of students after the Intermediate Science examination referred to above (as observed in the Fergusson College) to see how greatly it affects the batch of science students as it goes from the first stage to the second stage. From the 1,277 students who reached the Intermediate examination 1,148 passed. From them, as per available information, 209 joined engineering, 98 joined medicine, and 43 joined other courses ; and it is expected that 129 more left to join professional courses (52 engineering and 77 medicine). It is also known that 397 continued in the college to study the B.Sc. course. To compare the quality of these students we give below the average S. S. C. examination marks, the average Intermediate marks, and the number of first classes, the number of first and second classes, and the number of students obtaining more than 50 per cent marks at the Intermediate Science examination. This applies to those who are known to have joined (1) engineering; (2) medicine; (3) other courses; (4) categories (1), (2), (3) put together; and (5) those who joined the B.Sc. course. No comments are necessary to see that the flow of science students after the Intermediate stage means a great qualitative change for the batch of students who continue to remain in the science college for the B.Sc. course.

	Total number who joined	S.S.C. average marks	I.Sc. average marks	Number of I class	Number of I & II class	Above 50 per cent marks at I.Sc.
1. Engineering	209	66·05	57·97	81	202	179
2. Medicine	98	65·23	56·48	23	97	93
3. Other courses . . .	43	55·49	44·38	..	20	5
4. (1)+(2)+(3) . . .	350	64·50	55·90	104	319	277
5. B.Sc.	397	57·74	47·30	11	253	108

Estimating Wastage in Science for the Poona University

As in the case of arts students, we now try to estimate the wastage among science students for the Poona University with the help of the percentages of failures in the Intermediate Science and B.Sc. examinations of the University during the relevant periods and with the help of the proportion of students who dropped out at various stages as observed in the Fergusson College. For the sake of simplicity we have ignored the fact that some of the students who joined the first year science class later on changed to arts. Table 12 re-constitutes table 1 by distributing over the relevant categories the estimated number of 81 students who are expected to have completed Engineering, Medicine, or other courses including the B.Sc. course.

Starting with a batch of 1,000 students who join the first year science class we see from table 12 that 50 ($=1000 \times 71/1423$) students leave college before appearing for the college examination at the end of the first year. Assuming, as in arts, that the percentage of passes at the examination is 90, we find that $950 \times 90 = 855$ students pass this examination and join the Intermediate Science class. From these 38 ($=855 \times 53/1188$) leave the course before appearing for the Intermediate examination. The remaining 817 make one or more attempts at the Intermediate examination.

TABLE 12

Progress of Students Through Different Stages (Science Students)

Stage	Number of drops	Cumulative drops	Left-over
1. Joined F. Y. Science class	..	..	1,423
2. Left during the year	71	71	1,352
3. Left after failure at F. Y. examination	164	235	1,188
4. Passed F. Y. examination but left without appearing for the Intermediate examination	53	288	1,135
5. Left after failure at Intermediate examination	122	410	1,013
6. Joined Engineering, or Medical course	327	737	686
7. Joined other degree courses	43	780	643
8. Left without joining any degree course	115	895	528
9. Joined the degree course in science or arts, but left without appearing for examination	20	915	508
10. Left after failure at degree examination in science or arts	37	952	471
11. Passed the degree examination in science or arts	..	..	471

NOTE 1.—Category (7) consists of students who joined Law or Ayurveda.

2.—Students who joined Commerce or Agriculture are combined with those who joined B.Sc. (or B.A.) in the various stages.

As before we assume that the percentage of passes at the Intermediate Science examination to be uniformly 57, that being the Poona University's average for the period 1952-54. The estimates of students who give up after one or more attempts are formed from Table 13 which gives the figures for the Fergusson College.

TABLE 13

Analysis of Students Appearing at University Examinations in Science

Attempt	Appeared	Passed	Percentage of passes	Failures	Left
(A) Intermediate—					
1	1,277	887	69·46	390	72
2	318	205	64·46	113	34
3	79	48	60·76	31	17
4 or more	14	8	57·14	6	6
		1,148			129
(B) Degree—					
1	431	278	64·50	153	12
2	141	88	62·41	53	15
3	38	20	52·63	18	5
4 or more	13	7	53·85	6	6
		393			38

Table 14 gives the estimated number of passes, failures, and drops at successive attempts for these 817 students. We thus arrive at the figures of 129 students who give up without passing the Intermediate examination, and 688 who complete the first stage of two years.

TABLE 14

Estimated Figures for Students Appearing at University Examinations in Science in the Poona University

Attempt	Appeared	Passed	Percentage of passes	Failures	Left
1	2	3	4	5	6
(A) Inter Science—					
1	817	466	57·00	351	65
2	286	163	57·00	123	37
3	86	49	57·00	37	20
4 or more	17	10	57·00	7	7
		688			129
(B) B.Sc.—					
1	398	251	63·00	147	12
2	135	85	63·00	50	14
3	36	23	63·00	13	4
4 or more	9	6	63·00	3	3
		365			33

In contrast to the batch of arts students a big exodus of students leaving the science college to join Engineering, Medicine, or other professional courses takes place at this stage. It is not easy to estimate the number. We followed two procedures for estimating the number joining Engineering or Medicine, which gave us widely differing estimates and we have then taken a figure between them as a reasonably good estimate. The first procedure was to note the proportion of students securing first class or second class in the Intermediate examination at the first attempt, and from this to note the proportion of those who join the Engineering, or the Medical course, as observed in the Fergusson College. This figure (which is expected to be an over estimate) comes out to be 176 for our batch of 688 who pass the Intermediate examination. The second procedure was to assume that students obtaining 50 per cent marks or above would be eligible for joining Engineering or Medicine. The number of students scoring 50 per cent marks or more was obtained on the hypothesis that the distribution of marks is approximately normal. To this number we applied the proportion of students leaving for these courses from the Fergusson College. This gives us the figure 133 which is expected to be a lower estimate. The actual figure would lie between these two figures and with no other information available we have taken 150 as the estimated number of students who join the Engineering or Medical courses. From the remaining 538 (=688—150) students, another 34 (=538×43/686) join other professional degree courses such as Law, Ayurveda, etc. and a further 90 (=538 × 115/686) leave college without joining any degree course (B.Sc. or professional).

Thus we are left with 414 students who join the second stage of the degree course in science (or arts), out of whom 16 (=414 × 20/528) give up before appearing for the degree examination. The remaining 498 students make one or more attempts to pass the degree examination. Assuming that the percentage of passes at the B.Sc. examination was uniformly 63, that being the Poona University average for 1954-56, we calculated the number of passes, failures, and drops at one or more attempts by using the figures in table 13 for the Fergusson College. They are shown in table 14, yielding the figures of students completing the course in a science college to 365.

Assuming further that 85 per cent of those who join Engineering, Medicine or other professional courses obtain a degree, we estimate that 156 from 184 (=150 + 34) will do so. Therefore out of the initial batch of 1,000 joining the science course 365+156=521 complete their College education, and 479 form the wastage. The estimated wastage for science students for the Poona University is, therefore, 48 per cent approximately. (The corresponding figure for arts students is 51 per cent.) Table 15 summarizes the figures obtained in this section.

Comparison with Other Countries

It is useful to compare the wastage figures estimated for the Fergusson College and the Poona University with similar figures for other countries. It is known that the wastage for all university students (who join some degree course in a university) is 42 per cent in Australia, and 17 per cent in the U.K. (See : *Gani & Blakers* 1959.) For the American universities the figures very commonly quoted are of the order of 40 per cent.

TABLE 15

Estimated Wastage at Successive Stages in Science in the Poona University

	Drops	Total drops	Remaining
1. Entry into F. Y. class	..	..	1,000
2. During first year	50	50	950
3. Failed in F. Y. examination	95	145	855
4. During the Inter year	38	183	817
5. Failed in Inter examination	129	312	688
6. Joined Engineering or Medical course	150	462	538
7. Joined other degree courses	34	496	504
8. Left without joining any degree course	90	586	414
9. During the B.Sc. class	16	602	398
10. Failed in B.Sc. examination	33	635	365

There are several comprehensive enquiries on these questions conducted in the U.K. a few of which are mentioned as references below in the footnote*. It is interesting to note that in some of these enquiries it is found that the wastage among women students is slightly less than that among men. There are also interesting similarities in the analysis of wastage by age and type of lodgings. An important contrast is that there is higher wastage among science students than among arts students. Again, the wastage among students of Engineering and other technical or professional courses in the U.K. is much higher than that among arts and science courses—a conclusion contradictory to the figures in our enquiry. It should be mentioned in this connection, however, that unlike the Indian students, the British students start on their professional courses almost from the beginning of their University career.

We have no figures with us about the wastage in other Indian universities. It is likely that such results are available, but we have not come across published accounts of such investigations. We shall be grateful to our readers if they inform us about them.

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3. Malleson N., 'Student Performance at University College, London, 1948—51', Universities Quarterly, Vol. 12, No. 3, 1958, pp. 288—319.

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III

Stagnation

Finally we deal with stagnation in College education among arts and science students on the basis of the same enquiry. By stagnation we cover the cases of those students who complete the prescribed course only after a delayed progress ; they take a longer time to complete the course than the prescribed minimum period.

Description of the Problem

It is convenient for this purpose to divide the four-year degree course in arts or science into its two natural stages : (1) the first stage of two years, from the time of entry to the first year class in college to the time of passing the Intermediate examination; and (2) the second stage of two years, from the time of joining the Junior B.A. (or B.Sc.) class to the completion of the degree course in arts or science. This division is necessary because the Intermediate examination is a qualifying examination for students taking the degree courses in Law, Ayurveda, Engineering or Medicine. If we do not consider the two stages separately and consider only the four-year degree course in arts or science as a whole it would make a qualitative difference, especially for the analysis of science students, as more than one-third of those who passed the Intermediate Science examination from Fergusson College left it to join Engineering, or Medicine where admission is competitive and this took away the greater portion of the top layer of the science students. After analysing stagnation in these two stages separately, we also analyse it for the four-year degree course as a whole for those students who have ultimately obtained the B.A. or B.Sc. degree. It should be mentioned, therefore, even at the risk of repetition, that in the analysis of stagnation for the second stage as well as for the four-year course as a whole in arts or science we have omitted students who joined professional courses after passing the Intermediate examination. The discussion of wastage and stagnation of these latter students is no doubt both interesting and important but that forms a separate issue and is not attempted here.

Some Observations

It is also pertinent to make a few other observations in connection with the B.A. or B.Sc. courses as they were during the relevant period, in the Poona University. In the first stage of two years there used to be at the end of the first year in arts or science a qualifying examination which was conducted by the college ; the first university examination, *i.e.* the Intermediate examination was held at the end of the second year. In the first year examination the percentage of passes in Fergusson College was about 80 per cent. For the purposes of our analysis we have ignored this examination. During the second stage there was no rigorous qualifying test during the two years ; the university examination, *i.e.* the degree examination, was held at the end of the two-year period. Thirdly it should be mentioned here that students who fail in a university examination can appear again, without joining college, on the strength of the terms they have kept before. Lastly there is a provision in the Poona University regulations to appear for its examinations, without joining a college for a part or whole of the course, as external students. In our enquiry it was found that a few students who had joined Fergusson College for a part of their career had later on passed university examinations as external students. We had included these cases in considering wastage but will exclude them while considering stagnation as they are not comparable with other cases in the minimum periods prescribed for these courses.

Analysis of Stagnation : Arts Students

From the three-year entry of 446 students to the first year's Arts class in Fergusson College, 290 passed the Intermediate Arts examination of the Poona University. If we exclude three students who passed the examination as external students, and four more who had a gap of several years between their passing the old Matriculation Examination and their joining the college, we are left with 283, who took from two years to seven years to clear the first stage. (*See* Table 3, Column 5.) Out of these 283 students, 168 (or 59 per cent) completed this stage in the prescribed minimum period of two years, and the remaining 115 showed a delayed progress, taking an average period of 3.63 years to complete the stage. For the total 283 students the average period works out to 2.66 years.

Out of the 283 who completed the first stage, 203 cleared the second stage and thus completed the four-year degree course in Arts. Here also we exclude 16 external students and two more who showed big unaccounted for gaps in their career. This leaves us 185 students who cleared the second stage in a period of two years to five years. 161 (or 87 per cent) from them completed the stage in the minimum period of two years and the remaining 24 with a delayed progress required an average period of 3.46 years to do so. The average period for the second stage for the full batch of 185 is 2.19 years

Considering the two stages together for these 185 students, it is found that 117 (or 63 per cent) could obtain the degree in the minimum period of four years, and the remaining 68 took from five years to nine years to do so. The average period for the delayed students is 5.81 years while that for the whole batch works to 4.66 years.

Stagnation by Factors : Arts Students

We now classify the delayed cases by (1) marks at the S.S.C. examination, (2) age (3) sex, and (4) schools (local or mofussil). Other factors considered while discussing wastage do not show any definite patterns for stagnation.

Table 1 classifies delay in progress by the S.S.C. examination marks. It shows that in all stages (pre-Intermediate, post-Intermediate, and the four-year degree course) the average period for completing the course for delayed and undelayed cases together decreases with increase in the S.S.C. examination marks. The pattern is not so consistent if one considers only the delayed cases. The two students who had less than 40 per cent marks at the S.S.C. examination, and who continued after the first year, took more than four years to complete the first stage, and seven years to complete the four-year B.A. course. From amongst the students who had obtained less than 45 per cent marks at the S.S.C. examination, only 28 completed the first stage, only five could do so in the prescribed minimum period of two years; others delayed in their progress. And from the 10 who succeeded in getting the B.A. degree, only one could get it in four years. Moving up the S.S.C. examination marks one finds that there is no 'safe' S.S.C. examination percentage against delay in progress until the 70 per cent stage is crossed.

The analysis of stagnation in the second stage by the marks obtained at the Intermediate Arts examination is given in Table 7. The association is evident and is in fact closer here than in the case of the marks at the S.S.C. examination.

Analysing the delay in progress by age at entry (Table 2), it is found that (although the pattern is not uniform) the average period is generally longer for higher age-groups. This is to be expected since we have seen previously thatudents belonging to higher age-groups had on an average less marks at the S.S.C. examination and that they found it more difficult to complete the course as shown by higher wastage figures among them

What is striking is that the lowest age-group (15 years and below), which had the highest average in the S.S.C. examination, has taken a longer average period than the next two age-groups. Perhaps this reflects the immaturity of the very young students which is a handicap to them in the initial period of adjustment in the college.

Table 3 shows the classification of delay in progress by sex. Sixty-nine per cent of women students completed the first stage in the prescribed minimum of two years as against only 51 per cent of men. For the complete four-year course also this percentage is higher for women (65 per cent) than for men (62 per cent), although the difference is smaller. But for the second stage the pattern is reversed; only 82 per cent of women completed the second stage in the minimum period of two years as against 91 per cent of men. This is probably due to the 'marriage' effect referred to in part I. In the delayed cases the average period is always longer for women than for men. This confirms the tendency amongst women who are mostly local and from advanced communities to persist after failure referred to earlier. The table also shows that if we take delayed and undelayed cases together, the average periods for the second stage as well as for the complete course, is longer for women than for men, although for the first stage it is shorter mainly due to the higher proportion amongst women of those who pass in the minimum period.

Finally table 3 also classifies them by school, local or mofussil. Here it is found that there are more delayed cases among local students than among those coming from mofussil schools, at every stage, and the average period for completing a stage is longer for the local students. Apart from the fact that local students are somewhat inferior in quality as indicated by their lower S.S.C. examination marks, perhaps another important factor may be that being local students they can persist in their attempts with less difficulty than the non-local students, especially in an Arts course.

Analysis of Stagnation : Science Students

From the three-year entry of 1,634 students to the first year science class in Fergusson College, 1,148 students passed the Intermediate examination of the Poona University. (While 1,077 passed the Intermediate Science examination, 71 passed the Intermediate Arts examination having changed the course to Arts. Since the two courses are comparable in their lengths all these students are considered together). Out of these 1,148 students, 783 (or 68 per cent) completed this first stage in two years, and the remaining 365 delayed in their progress, taking an average period of 3.43 years to complete the stage. For the whole batch of 1,148 the average period is 2.45 years. (*See* Table 6, col. 5.)

Out of the 1,148 students who completed the first stage, a very large number (351) joined professional courses in the Poona University such as Engineering, Medicine, etc. and 163 others migrated to other universities, many of them to join similar professional courses there. About 200 students left the college to take up either non-degree courses or simply dropped out. From those 451 who continued in the college to join the degree course, 393 passed the B.Sc. (or B.A.) degree examination. (344 B.Sc. and 49 B.A.) (*See* the above paragraph.) Seventy-one per cent of them (278) completed this second stage in the minimum period of two years and the remaining 115 took from three to six years to complete it. The average period taken by the latter to complete the course is 3·30 years while it is 23·8 years for the whole batch of 393.

Considering the four-year degree course as a whole, out of the 393 students who completed it, 152 (or 39 per cent) did so in the prescribed period and the remaining 241 took from five to eight years to do so. While the average period for the delayed students is 5·54 years that for the whole batch works out to 4·94 years.

If the figures for stagnation for the Science students are compared with those for the arts students two things are clearly seen: (1) the extent of stagnation is less for science students than for arts students during the first stage ; (2) but it is appreciably greater for the second stage and more so for the four-year course as a whole. The main reasons are perhaps the following : While the batch of science students when it entered college was of much better quality than the batch of arts students, after the Intermediate examination the cream of the science students went in for Engineering or Medicine. Thus at the beginning of the second stage the difference in quality of students who joined the B.A. and B.Sc. courses became less pronounced. Again the B.Sc. course is perhaps much more exacting than the B.A. course.

Stagnation of Factors : Science Students

We now proceed to analyse the case of delayed students by the same factors as in the case of arts students.

Table 4 analyses stagnation by the S. S. C. examination marks. It is clear that in general the average period for completing a stage decreases with increase in the S. S. C. examination marks. Of the 16 students with less than 45 per cent marks at the S. S. C. examination, and who cleared the first stage, only four could do so in two years ; and of the 56 with less than 50 per cent marks at the S. S. C. examination who ultimately obtained a degree, only seven could do so in the minimum period of four years and more than half (29) took six years or more. Again as in the case of arts students there is no 'safe' S. S. C. examination percentage against delay in progress until one crosses the 75 per cent stage.

The figures in Table 4 also confirm in a detailed manner the remarks offered at the end of the last section about the comparative quality of students in arts and science as they join the first and the second stages. If we compare the pattern of stagnation for the arts and science students in the same S. S. C. marks groups for the second stage and for the four-year course it appears that those science students who succeed in getting a degree take on an average a longer period to do so than the corresponding arts students. This suggests that the degree course is perhaps stiffer in science than in arts. However, we shall not discuss this hypothesis further here as it must be examined more closely before doing so.

Table 7 which classifies the stagnation at the second stage by the marks at the Intermediate examination confirms what has been observed above : (1) the close association of stagnation period with marks (which is even closer in this case than in the case of S. S. C. examination marks) ; (2) the relatively worse stagnation of the science students as compared with arts students.

The second factor by which we classify the delayed cases is age at entry (Table 5). It is clear that the average period for completing a stage becomes longer with increase in age at entry. The observations made in the case of arts students are generally applicable to science students also, although the remark about the possible immaturity of very young students (of age 15 at entry) does not find as strong evidence here as in the case of arts students.

The classification of delay in progress by sex is given in Table 6. This table shows that women students are less delayed in progress than men students in all stages, both because more of them (women students) have been able to complete the stages in this minimum prescribed period and because the average period taken by them is shorter. Thus 71 per cent of women students cleared the first stage in two years as against 68 per cent men and the average periods for women and men students are 3·33 and 3·44 years respectively. In the second stage the percentages of those who clear it in the minimum period are 92 and 68 for women and men and the average periods are 3·00 and 3·31 years. For the complete four-year stage the figures are 60 per cent and 34 per cent, and 5·14 years and 5·58 years respectively. This difference between men and women and in favour of women is not so appreciable in the first stage but it is quite considerable in the second stage and still more so for the complete four-year course. This pattern is quite different from the one observed for arts students. The following may be the reasons for this difference : (1) the number of women students joining science is much smaller as compared with men students and they form a select group ; (2) their performance at the S. S. C. examination was better ; (3) as the science course is supposed to be more strenuous than the arts course, women students who decide to join it consist mostly of the more determined type of students with scholastic ambition ; (4) because of (1) and (3) above the 'marriage' effect is much less operative in the case of women students joining science than in the case of those joining arts.

Finally, we take up the analysis of stagnation by schools from which the student came, (local or non-local), given in Table 6. It is observed that there is less stagnation among students from non-local schools than among those from local schools in the first stage. This is comparable to what was observed for arts students and is probably explained by a similar reason, *viz.* students from non-local schools had better performance at the S. S. C. examination. But the situation is reversed for the second stage and for the complete four-year course where stagnation is worse among non-local students than among local students. It was observesd that even after the great exodus after the Intermediate examination the batch of non-local students who join the B.Sc. course is comparable in quality (in fact is slightly superior) to the batch of local students. The factor suggested in the case of arts students that local students find it easier to persist in their attempt to complete a course is not applicable to science students who have to join college for laboratory practice if they want to repeat an examination. This perhaps accounts for a part of the difference in the stagnation patterns of local and non-local students in arts and science.

Planning of a Good Inquiry on the Problems of Wastage and Stagnation

It may be desirable to state here explicitly the limitations and the shortcomings of the present investigations and to outline the requirements of a good inquiry on the two problems of wastage and stagnation.

The present inquiry is confined to only one college, with its many distinctive features which do not make it fully representative of the Poona University. It is necessary to plan an enquiry which will cover at least one whole university. It is possible of course to build a rough estimate of wastage for a university, in each of the distinct stages of a degree course, by collecting the figures for initial enrolment in all affiliated colleges, the number of students who appear at the university examination marking the end of the stage and the number of passes and failures amongst them, the number of repeaters in the following year and the passes and failures amongst them, and so on. Although such an investigation will cover the whole university it will suffer from the lack of information on all other factors except the examination results.

A more efficient inquiry (than the present one) which will cover the whole university can be planned on the basis of a representative sample drawn from the entry of freshers to the colleges of the university over a number of years and to follow the sampled students until they take a degree (or complete a stage) or leave the College education. Along with items of information collected in the present inquiry it is necessary to introduce some vitally important new items such as the ultimate placement in life and the causes of failure and delayed progress. It is also necessary to devise methods to collect more accurate information on such items like income, guardian's occupation, guardian's education and the type of living accommodation, on which the information available in the present inquiry was far from satisfactory. It may be considered desirable also to follow the students who migrate to other universities and to study the causes of migration. This will inevitably involve field-work in addition to the collection of the data available in the records.

It may be worthwhile for a university to sponsor an inquiry on a long-term basis, to draw for this purpose a random sample of students joining the first year class from each college affiliated to the university at the beginning of the academic year. The college will then be required to keep a detailed card of information (specially prepared for this purpose by the university) for the students in the sample. When a student migrates to another college in the same university the card should be sent to the new college to keep it up-to-date, until the student completes the degree course or gives it up for good or leaves the unversity in some other manner. Such a procedure should collect a lot of useful data for the university about a representative cross-section of its alumni. A more ambitious university may collect data for all its students.*

NOTES ON TABLES

Each table is divided into three parts.

Part I gives the number of years taken after the S. S. C. examination to pass the Intermediate examination.

Part II gives the number of years taken after the Intermediate examination to pass the B.A. or B.Sc. examination.

Part III gives the number of years taken after the S. S. C. examination to pass the B.A. or B.Sc. examination.

Average A gives the average duration for all the students in that group.

Average B gives the average duration for those students in that group who required more than the prescribed minimum period to pass the examination.

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* The authors are thankful to the authorities of the Fergusson College, other local colleges, and the Poona University for making their records available, and the head of the Department of Statistics of the Poona University for allowing the use of the punched-card equipment.

TABLE 1

Stagnation by the S.S.C. Examination Marks (Arts Students)

	Years	S. S. C. Examination Marks										
		35-39	40-44	45-49	50-54	55-59	60-64	64-69	70-74	75-79	Blank	Total
I	2	..	5	31	38	30	17	12	14	3	18	168
	3	..	12	17	16	11	4	4	1	..	9	74
	4	1	3	5	4	3	2	..	..	..	1	19
	5	1	6	3	3	1	..	..	..	..	..	14
	6	..	..	3	..	1	1	..	..	..	1	6
	7	..	..	..	2	..	..	..	..	..	..	9
TOTAL .		2	26	59	63	46	24	16	15	3	29	290
AVERAGE A .		..	3·38	2·81	2·68	2·52	2·50	2·25	2·06	2·00	2·52	2·66
AVERAGE B .		4·50	3·71	3·71	3·72	3·50	3·71	3·00	3·00	..	3·36	3·63
II -	2	1	7	33	37	24	17	9	13	3	17	161
	3	1	2	4	5	3	..	1	..	..	1	17
	4	..	..	1	..	..	..	..	..	..	2	3
	5	..	1	1	2	..	..	..	..	..	..	..
TOTAL .		2	10	39	44	27	17	10	13	3	20	185
AVERAGE A .		2·50	2·50	2·23	2·25	2·11	2·00	2·10	2·00	2·00	2·25	2·19
AVERAGE B .		3·00	3·67	3·50	3·57	3·00	..	3·00	..	..	3·57	3·46
III	4	..	1	20	28	18	15	7	13	3	12	117
	5	..	4	9	7	7	1	2	..	..	4	34
	6	..	1	6	4	2	1	1	..	..	3	18
	7	2	2	4	3	..	..	..	..	..	1	12
	8	..	2	..	1	..	..	..	..	..	..	3
	9	..	..	..	1	..	..	..	..	..	..	1
TOTAL .		2	10	39	44	27	17	10	13	3	20	185
AVERAGE A .		..	6·00	4·84	4·75	4·41	4·17	4·40	4·00	4·00	4·65	4·66
AVERAGE B .		7·00	6·22	5·73	60·6	5·22	5·50	5·33	..	..	5·62	5·81

TABLE 2

Stagnation by Age at Entry (Arts Students)

		Age								
	Years	15	16	17	18	19	20	21 and above	Blank	Total
I	2	18	48	49	31	12	6	4	..	168
	3	10	8	10	22	10	8	4	2	74
	4	3	4	5	2	3	2	..	..	19
	5	1	..	5	..	3	1	4	..	14
	6	..	..	..	1	..	3	2	..	6
	7	..	..	..	1	..	..	1	..	2
	TOTAL .	32	60	69	57	28	20	15	2	283
	AVERAGE A .	2·59	2·26	2·51	2·61	2·89	3·35	3·93	..	2·66
	AVERAGE B .	3·35	3·33	3·75	3·35	3·56	3·93	4·63	3·00	3·63
II	2	23	42	46	27	11	6	6	..	161
	3	3	4	2	5	..	2	1	..	17
	4	..	..	..	2	..	..	1	..	3
	5	..	1	1	2	..	..	..	..	4
	TOTAL .	26	47	49	36	11	8	8	..	185
	AVERAGE A .	2·11	2·15	2·10	2·42	2·00	2·25	2·37	..	2·19
	AVERAGE B .	3·00	3·40	3·67	3·66	..	3·00	3·50	..	3·46
III	4	14	35	36	19	6	4	3	..	117
	5	8	6	6	10	2	1	1	..	34
	6	2	4	2	4	2	3	1	..	18
	7	2	2	5	1	1	..	1	..	12
	8	..	..	..	2	..	..	1	..	3
	9	..	..	..	..	..	..	1	..	1
	TOTAL .	26	47	49	36	11	8	8	..	185
	AVERAGE A .	4·49	4·42	4·51	4·80	4·82	4·87	5·87	..	4·66
	AVERAGE B .	5·50	5·67	5·92	5·70	5·80	5·75	7·00	..	5·81

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TABLE 3

Stagnation by Sex and Schools (Arts Students)

	Years	Sex				Schools		
		Men	Women	Total	Per cent	Local	Non Local	Others
I	2	81	87	168	59·4	93	72	3
	3	51	23	74	26·1	47	26	1
	4	10	9	19	6·7	15	4	..
	5	11	3	14	4·9	10	4	..
	6	3	3	6	2·1	2	4	..
	7	1	1	2	0·7	2	..	..
TOTAL .		157	126	283	100·0	169	110	4
AVERAGE A .		2·77	2·53	2·66	..	2·74	2·56	2·25
AVERAGE B .		3·59	3·72	3·63	..	3·64	3·63	3·00
II	2	86	75	161	87·0	97	62	2
	3	6	11	17	9·2	11	6	..
	4	1	2	3	1·6	2	1	..
	5	1	3	4	2·2	4	..	..
TOTAL .		94	91	185	100	114	69	2
AVERAGE A .		2·12	2·26	2·19	..	2·24	2·11	2·00
AVERAGE B .		3·37	3·50	3·46	..	3·59	3·14	..
III	4	58	59	117	63·2	69	46	2
	5	19	15	34	18·4	22	12	..
	6	11	7	18	9·7	9	9	..
	7	5	7	12	6·5	11	1	..
	8	1	2	3	1·6	2	1	..
	9	..	1	1	0·5	1	..	..
TOTAL .		94	91	185	100	114	69	2
AVERAGE A .		4·64	4·69	4·66	..	4·75	4·54	4·00
AVERAGE B .		5·67	5·97	5·81	..	5·91	5·61	..

TABLE 4

Stagnation by the S.S.C. Examination Marks (Science Students)

	Years	S.S.C. Examination Marks											
		35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	Blank	Total
I	2	..	4	40	88	159	174	150	101	37	6	24	783
	3	..	6	49	67	60	30	24	7	2	..	6	251
	4	1	5	21	27	15	7	1	..	..	..	5	82
	5	..	..	8	12	4	..	1	..	..	..	..	25
	6	..	..	3	1	..	..	..	..	..	..	1	5
	7	..	..	..	..	1	..	..	..	..	..	..	1
	8	..	..	..	..	..	..	..	..	..	..	..	..
	9	..	..	1	..	..	..	..	..	..	..	..	1
TOTAL .		1	15	122	195	239	211	176	108	39	6	36	1148
AVERAGE A .		4·00	3·07	3·10	2·83	2·45	2·21	2·16	2·06	2·05	2·00	2·55	2·45
AVERAGE B .		4·00	3·45	3·63	3·50	3·34	3·19	3·11	3·00	3·00	..	3·67	3·43
II	2	..	5	29	60	69	58	30	16	5	1	5	278
	3	..	1	15	13	26	19	8	4	1	..	1	88
	4	..	..	5	4	3	1	5	2	..	..	..	20
	5	..	..	1	3	..	2	..	..	..	..	..	6
	6	..	..	..	..	1	..	1	..	..	..	..	1
TOTAL .		..	6	50	80	99	80	44	22	6	1	6	393
AVERAGE A .			2·17	2·56	2·37	2·33	2·38	2·42	2·36	2·17	2·00	2·17	2·38
AVERAGE B .			3·00	3·33	3·50	3·10	3·35	3·38	3·33	3·00	..	3·00	3·30
III	4	..	..	7	25	35	42	21	13	4	1	4	152
	5	..	3	17	30	41	29	17	4	2	..	1	144
	6	..	3	17	17	17	5	3	5	..	..	..	67
	7	..	..	8	7	5	4	2	..	..	..	1	27
	8	..	..	1	1	..	1	..	..	..	..	..	3
TOTAL .			6	50	80	98	81	43	22	6	1	6	393
AVERAGE A .	..	..	5·50	5·58	5·11	4·92	4·68	4·67	4·64	4·33	4·00	4·66	4·94
AVERAGE B .	..	..	5·50	5·84	5·62	5·43	5·41	5·32	5·55	5·00	..	6·00	5·54

TABLE 5

Stagnation by Age at Entry (Science Students)

	Years	Age							Total
		15	16	17	18	19	20 and above	Blank	
	2	139	266	221	98	39	20	..	783
	3	27	71	78	40	20	14	1	251
	4	11	14	19	23	6	9	..	82
	5	4	3	8	4	3	3	..	25
	6	..	1	2	1	..	1	..	5
	7	..	..	..	..	..	1	..	1
	8	..	..	..	..	..	..	..	..
	9	..	1	..	..	..	..	..	1
	TOTAL	181	356	328	166	68	48	1	1,148
	AVERAGE A	2·34	2·33	2·45	2·61	2·60	3·04	3·00	2·45
	AVERAGE B	3·45	3·32	3·38	3·50	3·41	3·78	3·00	3·43
II	2	52	102	71	35	9	8	1	278
	3	9	26	33	16	2	2	..	88
	4	2	9	4	1	3	1	..	20
	5	..	3	2	..	1	..	..	6
	6	..	1	..	..	..	..	..	1
	TOTAL	63	141	110	52	15	11	1	393
	AVERAGE A	2·21	2·40	2·43	2·35	2·73	2·36	2·00	2·38
	AVERAGE B	3·18	3·46	3·21	3·06	3·83	3·33	..	3·30
III	4	35	61	33	19	2	2	..	152
	5	19	48	51	17	5	3	1	144
	6	6	22	16	12	6	5	..	67
	7	3	8	9	4	2	1	..	27
	8	..	2	1	..	..	..	..	3
	TOTAL	63	141	110	52	15	11	1	393
	AVERAGE A	4·63	4·88	5·04	5·02	5·53	5·45	5·00	4·94
	AVERAGE B	5·43	5·55	5·48	5·61	5·77	5·78	5·00	5·54

TABLE 6

Stagnation by Sex and Schools (Science Students)

	Year	Sex				Schools		
		Men	Women	Total	Per cent	Local	Non-local	Others
I	2	700	83	783	68·2	406	361	16
	3	228	23	251	21·9	124	121	6
	4	73	9	82	7·1	52	29	1
	5	24	1	25	2·2	15	10	..
	6	5	..	5	0·4	3	2	..
	7	1	..	1	0·1	..	1	..
	8	..	..	..	..	..	..	..
	9	1	..	1	0·1	1	..	..
	TOTAL .	1032	116	1148	100	601	524	23
	AVERAGE A .	2·46	2·38	2·45	..	2·49	2·42	2·35
	AVERAGE B .	3·44	3·33	3·43	..	3·50	3·36	3·14
II	2	229	49	278	70·7	177	99	2
	3	84	4	88	22·4	58	29	1
	4	20	..	20	5·1	8	12	..
	5	6	..	6	1·5	3	3	..
	6	1	..	1	0·3	1	..	..
	TOTAL .	340	53	393	100	247	143	3
	AVERAGE A .	2·43	2·08	2·38	..	2·35	2·43	2·33
	AVERAGE B .	3·31	3·00	3·30	..	3·24	3·41	3·00
III	4	120	32	152	38·7	105	46	1
	5	126	18	144	36·6	87	56	1
	6	64	3	67	17·0	40	26	1
	7	27	..	27	6·9	13	14	..
	8	3	..	3	0·8	2	1	..
	TOTAL .	340	53	393	100	247	143	3
	AVERAGE A .	5·02	4·45	4·94	..	4·87	5·08	5·00
	AVERAGE B .	5·58	5·14	5·54	..	5·51	5·59	5·50

TABLE 7

Stagnation by Marks at the Intermediate Examination

(A) Arts Students

Years	Marks at the Intermediate Examination (per cent)						
	30-34	35-39	40-44	45-49	50-54	Exempt	Total
2	8	36	49	31	16	21	161
3	3	4	2	2	..	6	17
4	1	1	1	..	..	..	3
5	1	2	..	..	..	1	4
TOTAL .	13	43	52	33	16	28	185
AVERAGE A .	2·16	2·28	2·08	2·06	2·00	2·32	2·19
AVERAGE B .	3·60	3·71	3·33	3·00	..	3·29	3·46

(B) Science Students

Year	Marks at the Intermediate Examination (per cent)											
	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	Exempt	Total
2	2	16	72	95	59	9	3	4	1	1	16	278
3	1	4	26	27	20	3	1	..	..	..	6	88
4	..	2	4	11	2	..	..	..	..	..	1	20
5	..	1	1	4	..	..	..	..	..	..	..	6
6	..	..	..	1	..	..	..	..	..	..	..	1
TOTAL .	3	23	103	138	81	12	4	4	1	1	23	393
AVERAGE A	2·33	2·48	2·36	2·47	2·30	2·25	2·25	2·00	2·00	2·00	2·35	2·38
AVERAGE B	3·00	3·57	3·19	3·51	3·09	3·00	3·00	..	..	..	3·14	3·30

TEACHING OF GENERAL SCIENCE IN THE SECONDARY SCHOOLS OF ORISSA

(This is a summary of the report of the first phase of a research project on the teaching of General Science completed by the Bureau of Educational Research, Radhanath Training College, Cuttack, under Scheme B-3 of the Ministry of Education. In the first phase of this project, a questionnaire was sent round to teachers and administrators to ascertain the present position of the teaching of General Science in the schools of Orissa. The questionnaire method has its own obvious limitations and it is not always possible to draw valid conclusions from the data collected by the method. The findings of this Report have, therefore, to be taken as subject to all the limitations of the method by which the basic data was collected. It is, however, felt that, even after making all allowance for these limitations, they are sufficiently interesting in themselves and that they may also provide a basis for planning the reform of science teaching in the schools of Orissa.— Editor.)

General Science is offered as a compulsory subject in the High schools of Orissa which prepare students for the Matriculation Examination of the Utkal University. At present, the syllabus consists of topics from Astronomy, Geology, Physics, Chemistry, Botany, Zoology, Physiology and Hygiene. The course is covered in four years from Class VIII to XI. No laboratory experience is required of the students.

Throughout India and particularly in Orissa, Secondary education is being reorganised. It was, therefore, considered desirable to make a study of the present state of affairs with regard to the teaching of Science in the Secondary schools of Orissa with a view to finding out the improvements that can be made. For this purpose, a comprehensive plan of study, divided into five stages, was prepared and implemented between 1954-55 and 1959-60 with the help of a grant-in-aid from the Ministry of Education. It is the aim of this report to discuss the results of the first phase of the project.

The Problem

The problem taken up for investigation in this phase was to determine the present state of affairs with regard to the teaching of Science in the Secondary schools of Orissa, and to obtain the opinion of teachers and inspectors regarding the defects of the present system and methods of improvement.

Method of Study

A questionnaire consisting of 107 questions which could be answered for the most part, by putting a circle round 'yes' or 'no', was prepared and sent out to all the High schools of Orissa (taken from the 1953 list of the High schools approved by the Director of Public Instruction) with a request that it may be answered by the senior most science teacher of the school truthfully and accurately. The replies received were analysed. Furthermore, copies of the questionnaires were sent to Inspectors of Schools, District Inspectors and Headmasters of the Training Schools with a request to answer the ques-

tions by placing themselves in the position of teachers of science in ideal schools. Their replies, which gave a picture of conditions desirable in ideal schools, were analysed separately and compared with the replies of the senior science teachers.

Findings of the Study

Questionnaires were sent in February 1955 to 207 High schools and by the end of July 1955, replies were received from 113 High school teachers. The percentage of return was 57·4. The number of questionnaires sent to Inspectors of Schools, District Inspectors, and Headmasters of Training Schools was 18 and the number returned was 10. The percentage of return was 55·5. In analysing the replies, the view expressed by 60% or more of the teachers and administrators was taken as the view of the majority (which is statistically significant at the 5% level of confidence).

(1) *Objectives of Science Teaching in Secondary Schools.*—In the questionnaire the teachers and administrators were asked to underline, from amongst eleven statements, those which they considered to be the objectives of Science teaching in the High schools. Of these eleven statements of objectives, six have been considered as objectives of science teaching by more than 60% of the teachers as well as by more than 60% of the administrators. These are :—

TABLE I

Objectives of Science Teaching in High Schools

Sl. No.	Statement of Objectives	Percentage of Teachers choosing it	Percentage of School Administrators choosing it
1	To develop the power of accurate observation . . .	70·8	100
2	To create interest in Science	77·9	70
3	To develop logical thinking and reasoning	70·0	80
4	To develop a habit of enquiry	77·0	80
5	To understand fundamental principles of science and their application in life and nature	77·9	100
6	To apply scientific knowledge in day-to-day life . . .	79·7	80

In addition to these, the following objectives for the teaching of science were suggested by some of the teachers and administrators :—

(1) To eliminate blind faith ;
(2) To make pupils practical-minded ;
(3) To develop the scientific attitude ;
(4) To encourage hobbies ;
(5) To develop a sense of neatness and order ;
(6) To create interest towards industries and inventions ;
(7) To understand scientific facts ; and
(8) To understand the mysteries of nature.

(2) *Curriculum.*—The opinion of teachers and administrators regarding the syllabus of General Science for High schools is given in the following table :

TABLE II

Opinion of Teachers and Administrators regarding General Science Syllabus

Sl. No.	Statement	Percentage of Teachers agreeing with it	Percentage of Administrators agreeing with it
1	The present syllabus of General Science in High schools is not very good.	78·9	80·0
2	The present syllabus of General Science is too lengthy.	55·9	33·3
3	More of applications and less of pure science topics should be taught.	83·7	80·0
4	Topics of pure science which are of theoretical interest and have no bearing on life should be omitted.	89·2	80·0
5	Principles of Agriculture should be taught as part of General Science.	81·2	100·0
6	Astronomy and Geology should be taught as part of Geography and not of General Science.	56·4	55·5
7	The present practice of dividing General Science into the different subjects such as Physics, Chemistry and Biology etc., is good and should be continued.	75·2	70·0
8	Students do not see the inter-relation of the different branches of Science when it is taught as a group of subjects.	55·7	66·7
9	Students would not get a clear understanding of the different branches of science if General Science is treated as a single subject.	74·3	55·5

It will be seen that the majority (60% or more) of the teachers and administrators think that—

(1) the syllabus of General Science is not very good ;

(2) more of applications of science should be included ;

(3) principles of Agriculture should be included ; and that

(4) the present practices of dividing General Science into the different subjects such as Physics, Chemistry, etc. is good and should be continued.

Teachers and administrators are almost evenly divided on the question as to whether Astronomy and Geology should be taught as part of Geography or of General Science.

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Under two questions in this section, the teachers and administrators were asked to write, in the space provided, the topics which they would like to add to or delete from the present syllabus. Topics suggested by more than five teachers in their reply to this question are given in tables III and IV.

TABLE III

Topics suggested by more than five teachers to be added to the present syllabus

Sl. No.	Topics	Number of Teachers suggesting to add it
1	C. G. & Equilibrium	5
2	Air Pump	6
3	Water Pump	5
4	Images through Lenses	5
5	Telescope	5
6	Electric Cells	5
7	Telegraph	6
8	Telephone	9
9	Radio	6
10	Chlorine	5
11	Common Salt	5
12	Acids, Bases & Salts	7
13	Some Metals	13
14	Sulphur	7
15	Some Non-metals	5
16	Soap-making	10
17	Preparation of Ink	5
18	Earthworm	6
19	Snake	6
20	Fish	6
21	Birds	5
22	Bee	6
23	First Aid	8

TABLE IV

Topics suggested by more than five teachers to be deleted from the present syllabus

Sl. No.	Topics	Number of teachers suggesting to delete it
1	Force and Pressure	6
2	Friction	5
3	Classification of Plants	6
4	Classification of Leaves	7
5	Classification of Seeds and Fruits	7

(3) *Method of Treatment of Syllabus.*—The method of treatment of syllabus followed by the teachers of science is indicated in the following table :

TABLE V

Method of Treatment of Syllabus

Sl. No.	Statement of Method of Treatment	Percentage of teachers using the method	Percentage of administrators desiring the method
1	During the first year the easier parts of all branches of science are taught.	50·4	62·3
2	During the first year, one branch of science such as Astronomy or Geology is finished before another is taken up.	68·1	25·0
3	The order of treatment of the text is not always followed.	84·9	62·3
4	A scheme of lessons for the whole year is prepared at the beginning of the year.	90·2	100
5	The topics are arranged in a logical order so that each topic is developed from the topics of the previous lesson.	91·9	100

It is obvious that statements (1) and (2) cannot go together. From the replies, it is evident that a majority of the teachers are finishing one branch of science before beginning another, while the replies of inspectors and headmasters of training schools suggest that easier aspects of all branches of science should be taught first before taking up their more difficult aspects.

(4) *Method of Teaching.*—Before discussing the method of teaching followed, it is necessary to study the facilities available in the schools which influence the method of teaching. These are shown in Table VI.

TABLE VI

Facilities in School Which Influence Teaching Method

Sl. No.	Statement of facilities available	Percentage of teachers reporting it	Percentage of administrators in favour of it
1	There is a separate science room in the school. . . .	57·5	77·8
2	There is no science laboratory for students to do experiments. .	87·6	50·0
3	There is adequate apparatus to show most of the experiments. .	52·6	20·0
4	No apparatus is made in the school.	71·4	77·8
5	There is no garden in the school.	55·7	12·5
6	There are no specimen plants in the garden for use in the teaching of Botany.	80·3	44·4
7	There are no pot plants for use in the teaching of Botany. .	87·6	50·0

Regarding the teaching facilities available, it is seen that about half the number of schools have separate science rooms; but a great majority of them do not have laboratories in which students can do experiments. Most of the schools do not keep specimen plants in gardens or pot plants for use in teaching Botany. Further, no apparatus is made in the schools. It is also strange that half or more than half of the inspectors and headmasters of training schools are not in favour of science laboratories for students, making apparatus in school, or keeping specimen plants or pot plants for use in teaching Botany, while almost all of them desire that students should do some experiments in the laboratory.

In the light of the above findings, the methods followed regarding experimentation in science become restricted. The present position in this regard can be seen from Table VII.

TABLE VII

Methods of Teaching followed by the majority of the Teachers of Science

Sl. No.	Particulars of method	Percentage of teachers using it	Percentage of administrators in favour of it
1	2	3	4
1	The lesson to be taught is always prepared before-hand. . .	91·9	88·9
2	The new lesson is introduced from a discussion of some familiar things.	99·1	88·9
3	Oral questions are put to students while teaching. . .	97·3	88·9

TABLE VII—*contd.*

1	2	3	4
4	Asking of questions is helpful in making the lesson understood by students.	100·0	100·0
5	Questions are asked throughout the lesson and the topic is developed from their answers.	77·8	77·8
6	Demonstration experiments are shown to the class.	97·3	100·0
7	Experiments are planned before showing them to the class.	94·6	100·0
8	Questions are put to find out if the students have noticed the essential points of the experiments.	100·0	100·0
9	Experiment is shown first and then theoretical principles are explained.	59·2	100·0
10	Students are not allowed to do some experiments.	77·0	22·2
11	Students should do some experiments in the laboratory.	89·2	100·0
12	Science can be taught through simple projects.	69·4	100·0
13	Stories regarding important scientific discoveries are told to students.	96·4	100·0
14	Brief life histories of some of the great "Men of Science" are told to students.	77·2	100·0
15	Applications of scientific principles are discussed.	95·5	100·0
16	Home-work is given in Science.	84·9	77·8
17	There is time to correct the exercises given for home-work.	62·1	77.9
18	Questions requiring short answers are generally given for home-work.	69·8	60·0
19	Students are asked to do simple experiments at home with ordinary things available at home.	90·0	88·9
20	Notes are not dictated.	56·6	55·5
21	Main points of the lesson are written on the blackboard step by step.	96·4	100·0
22	Students take down what is written on the black board.	95·5	88·9

It will be seen that while most of the teachers and administrators feel that science can be taught through simple projects and that students should do some experiments in the laboratory, the students are not allowed to do experiments in the laboratory mainly because there is no such provision in most of the schools.

As regards the teaching of the theoretical aspects of science, the method most often followed is this: introducing the lesson from something familiar, developing the topic of the lesson by questions put throughout the lesson, and discussing applications of

science. In doing this, the main points of the lessons are written on the blackboard. Stories regarding scientific discoveries and life-histories of famous scientists are usually told to students. Notes are dictated by about half the number of teachers ; and about half the number of the teachers as well as administrators are in favour of dictating notes. It is thus seen that the method most commonly used is the one where the topic is developed through questions put to students. When correctly applied, it leads to heuristic method of theoretical teaching. But when not properly applied, it reduces itself to the lecture method.

(5) *Teaching Aids.*—The information on the teaching aids used in most of the schools is given in Table VIII.

TABLE VIII

Aids used in Science Teaching

Sl. No.	Statement on aids used	Percentage of teachers reporting it	Percentage of Administrators in favour of it
1	Diagrams are drawn on blackboard.	100	100
2	Pictures and diagrams drawn on paper are shown to students. . .	86·5	88·9
3	Models are shown to students while teaching.	84·9	100
4	Scientific models are not made in the laboratory.	88·3	55·5
5	Scientific models are there in the laboratory.	79·2	100
6	Charts are shown to the class.	98·1	100
7	Scientific charts are not made in the schools.	58·9	11·1
8	There is no magic lantern or epidiascope in the school. . . .	71·4	50·0

It will be seen that diagrams, pictures, models and charts are largely used in the teaching of science in the schools. A majority of the teachers, however, have reported that scientific models and charts are not prepared in the schools. The reason for not making these is not known. Lack of time and lack of facilities of a workshop may be the chief reasons. The making of models and charts with the help of students will certainly give all students worthwhile experience in creative activity and stimulate their interest in science.

It has been found that 71.4% of the schools do not have magic lantern or epidiascope. Most of the schools, therefore, do not have adequate equipment for audio-visual aids.

(6) *Excursion.*—The replies of teachers and administrators regarding taking students out of the classroom to show them things of scientific interest are shown in Table IX.

TABLE IX

Replies of Teachers and Administrators Regarding Excursion for Students

Sl. No.	Statement Regarding Excursion	Percentage of teachers replying "yes"	Percentage of Administrators in favour of it
1	Students are taken outside the classroom to show them things of scientific interest.	41·8	77·8
2	Students are taken out on excursions.	7·1	66·7

It is seen that only a small percentage of teachers take students out of the classroom for instruction and that most of the administrators and inspectors are in favour of taking students out to show them things of scientific interest.

(7) *Science Society.*—Replies of teachers and administrators to questions regarding activities of a science society in the school are shown in Table X.

TABLE X

Activities of Science Society in School

Sl. No.	Statement of Activity	Percentage of teachers replying "yes"	Percentage of Administrators in favour of it
1	Students are asked to read in the class reports on scientific topics.	30·2	55·6
2	There is a science society in the school.	18·6	25·0
3	Discussions on scientific topics are held among the students.	64·6	71·4
4	Outside speakers are invited to speak to the students on scientific topics.	11·8	75·0

It is seen from this table that most of the schools do not have a science society and that most of the administrators do not seem to be in its favour. We, however, find that most of the teachers report that discussions on scientific topics are held among students and that most of the administrators are in favour of holding such discussions. If such discussions are to be held, they can be best organised by a science society. It is also seen that in the majority of schools neither students are asked to read reports on scientific topics in the class nor are any outside speakers invited to speak to the students on such topics. However, the majority of administrators seem to be in favour of using these techniques in instruction. All such activities could be easily organised with the help of a good science society.

(8) *Library.*—It is found that only 48.7% of the teachers report having science books in the school library and only 4.5% of the teachers report obtaining science journals for the school. Also 77.8% of the administrators are in favour of having science books in the library but only 37.5% of them favour obtaining science journals. The equipment of the school library in respect of science books and journals is very poor. One reason for this may be the scarcity of books and journals in the regional language suited for the High schools. However, it appears obvious that greater effort is necessary in equipping the school library with proper science books and journals.

It is also found that only 8% of the teachers report using a Bulletin Board for putting interesting pictures and news items and only 44.4% of the administrators are in favour of having a Bulletin Board. The use of the Bulletin Board does not seem to have been fully appreciated by the teachers and administrators.

(9) *Text and Reference Books.*—The university which conducts the Matriculation examination lays down the syllabus as well as prescribes textbooks to be followed. The university has prescribed the following books as text and reference books :

Textbooks	University Publications.
Reference Books	(1) "Prabesika Sadharana Bignana " by G. Mohapatra & H. P. Patnaik.
	(2) "Matric Sadharana Bignana Sikshia" by R. Padhi.
	(3) "Bignana Prabesa" Behura and others.

The university publications are still incomplete and scarcely used by any school. 48.6% of the schools use No. 1 and 47.7% of the schools use No.2 of the reference books. It may be mentioned here that No.3 is a recent publication and has not yet established its place in the schools. It is found that 60.2% of the teachers consider these books unsatisfactory for being used as textbooks. The need for publishing some good books in Oriya to be used as textbooks in General Science is, therefore, urgent.

Regarding other books recommended for use by students, it is found that no single book is recommended by teachers in more than ten schools. There should be greater effort on the part of teachers to search and find suitable reference books for teaching science in High schools.

(10) *Examinations.*—At present, Matriculation Examination conducted by the university includes one theoretical paper in General Science covering the course of four years. The questions are of essay type. There is no practical examination nor does the university require any practical work in science to be done by students in school. The progress of the student in school during the four years of study is not taken into consideration in deciding the final result.

To a question, whether such a system of examination is considered satisfactory, 77% of the teachers and 70% of the school administrators replied in the negative. It is obvious that the teachers and administrators desire a change in the mode of examination. Replies of teachers and administrators to questions about the examination system to be adopted are given in Table XI.

TABLE XI

Replies of Teachers and Administrators Regarding Examination

Sl. No.	Statement	Percentage of Teachers in its favour	Percentage of Administrators in its favour
1	Questions requiring short answers should be asked in the examination.	60·7	60·0
2	Essay type questions should not be given.	59·4	88·9
3	Both essay type and objective questions should be given. . . .	90·2	70·0
4	Class progress should be taken into account in deciding the final result at the Matriculation examination.	80·1	80·0
5	Short periodic tests should be given in place of terminal examinations.	89·4	100·0
6	Practical examination in science is necessary.	57·1	100·0
7	There should be an oral examination in addition to a written examination.	54·4	80·0

It will be seen that most of the teachers and administrators are in favour of having both essay-type as well as objective questions. The teachers are almost evenly divided regarding the question of having practical examination and oral examination, although the administrators are mostly in favour of having both. Similarly teachers and administrators are also in favour of taking class progress into account in deciding the result at the final examination and of having short periodical tests in place of the terminal examinations.

(11) *Suggestions for Improvement.*—The questionnaire had a section where teachers and administrators were asked to give their comments on the defects of the present state of science teaching in the High schools and to suggest improvements. Their replies regarding the defects and suggestions for improvement (pointed out by ten or more teachers) are given in Tables XII and XIII.

TABLE XII

Defects in the present state of Science Teaching pointed out by ten or more teachers

Sl. No.	Statement of defect	No. of teachers who mentioned it
1	Lack of sufficient apparatus	42
2	No practical work for students	29
3	Lengthy syllabus	20
4	No Science Laboratory	19
5	No Science Room	13
6	No good textbook in Oriya	11
7	Teachers overworked	11
8	Teaching Aids not sufficient	11

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TABLE XIII

Suggestions for improvement of Science Teaching given by ten or more teachers

Sl. No.	Statement of suggestion	No. of teachers who mentioned it
1	Laboratory should be improved.	35
2	Practical work should be provided for students.	29
3	More apparatus should be provided.	28
4	Separate Science Room should be provided.	24
5	Syllabus should be properly modified.	17
6	Funds should be provided for excursions.	17
7	Botanical garden should be provided.	14
8	Science teachers should be given less number of periods for teaching.	11
9	More teaching aids are required	10
10	Science library should be provided.	10

An examination of these tables reveals that the poor financial assistance given to schools is the main cause of the defects. More financial assistance should, therefore, be made available so as to provide good library, laboratory, more apparatus, separate science room, botanical garden, and more teaching aids.

Funds should also be made available for excursions and field trips by students. Teachers are usually overburdened with too many teaching periods. Since the science teacher has to arrange for experiments to be shown, he should be given some free time to prepare and set up experiments. It is suggested by some teachers that science periods be made longer or double periods should be provided for teaching science. This can be arranged by the teachers in consultation with their headmasters. Other defects are that the syllabus and textbooks are not good and have to be changed. An additional defect pointed out by the school administrators is that there are many untrained teachers. While provision should be made for gradually getting all teachers properly trained, during the interim period, extension training facilities may be provided for them by the training college, by offering summer courses, as well as in-service training facilities. In-service training can also be given by inspectors or by having supervisors in each subject assisting the inspector in his work of supervision.

Summary of the Findings

The main points of the findings of this investigation may be summarised as follows—

(1) It is agreed by more than half of the teachers and administrators that objectives of teaching science in the Secondary school are (i) to develop powers of accurate observation ; (ii) to create interest in science ; (iii) to develop logical thinking and reasoning ; (iv) to develop a habit of enquiry ; (vi) to understand the fundamental principles of science and their applications in life and nature ; and (vii) to apply scientific knowledge in day-to-day life.

(2) Most of the teachers and administrators are of opinion that science should be broken up into the different branches such as Physics, Chemistry etc. and taught separately.

(3) They are also of opinion that the present science syllabus is not good and that principles of agriculture should be included. They are evenly divided on the question of including Astronomy and Geology in General Science.

(4) More of the applications of science should be included in the syllabus.

(5) The different branches of science are usually taught one after another. The order of treatment of the textbook is not always followed. A scheme of lessons for the whole year is generally prepared and topics are arranged in a logical order.

(6) The method usually followed in teaching the theoretical aspects of Science consists of introducing the topic from some familiar thing, developing the lesson by putting questions, and discussing applications of science. The main points of the lesson are usually written on the blackboard. Stories regarding scientists and their discoveries are usually told to students. Notes are dictated by about half the teachers.

(7) For the experimental part of science, demonstration experiments are usually shown first before the theoretical principles are discussed, and questions are put to students to find out if they have noticed the essential points of the experiments.

(8) Most of the teachers and administrators think that science can be taught through simple projects and that students should do some experiments in the laboratory.

(9) Most of the schools do not have laboratory facilities for students to do experiments, nor do they have adequate apparatus.

(10) Many schools do not have a garden in the school. Specimen plants for use in teaching Botany are not usually found in the school garden nor are they kept in pots.

(11) Teaching aids such as diagrams, pictures, models and charts are generally used in the teaching of science.

(12) Models and charts are usually not made in school.

(13) Most of the schools do not have magic lantern or epidiascope.

(14) Students in most of the schools are not taken outside the classroom for field trips or excursions.

(15) There is no science society as such in most of the schools but more than half of the teachers report that discussions on scientific topics are held among students. Outside speakers are not invited to speak to students on scientific topics, nor do the students read out any report in science in the class.

(16) Most of the schools do not have science books in the library nor doey obtain science journals.

(17) A bulletin board, for the display of interesting pictures, news items articles regarding science and its applications, is not used in the schools.

(18) The books "Prabesika Sadharana Bignana" by G. Mohapatra and H. Patnaik and "Matric Sadharana Bignana Siksha" by R. Padhi (both in Oriya) are almost equally prevalent in the schools. Majority of the teachers consider the textbooks used unsatisfactory.

(19) Most of the teachers and administrators consider the present system of examination unsatisfactory.

(20) Most of the teachers and administrators are in favour of having both objective and essay type questions. About half of the teachers and most of the administrators are in favour of having a practical examination and an oral examination. Most of the teachers and administrators think that class progress should be taken into account in deciding the result at the final examination. They are also of opinion that short periodic tests should replace the terminal examinations.

(21) To overcome most of the defects in the present system of teaching science, more money should be made available so as to provide good laboratories with adequate apparatus, more aids especially audio-visual aids, science books for the library, and funds for taking students out on excursions. It has also been suggested by teachers that botanical gardens should be provided, that the teaching load of the science teachers be decreased, that the present syllabus should be changed and that good science books (in Oriya) should be written for use as textbooks. The administrators have suggested that teachers should be properly trained.

WASTAGE IN SECONDARY EDUCATION

(This is a summary of the report of an investigation carried out by the Indian Institute of Education, Bombay, under the Ministry's Scheme (B2) for promotion of research in education.—Editor.)

1. *Objectives of the Study.*—The primary object of this investigation is to study 'wastage' in Secondary education, a case of wastage being defined as a student who enters a Secondary school but leaves it without completing the Secondary course. The problem under investigation, therefore, is to study the extent to which pupils drop off between Standard VIII (the first class) of a Secondary school and Standard XI (the top class of a Secondary school) and also to ascertain the different causes of this drop off as well as the extent to which each such cause operates.

2. *Definitions.*—If the final aim of Secondary education is defined as passing the S.S.C. Examination, any pupil who fails in this examination would obviously be a case of 'wastage'. For the purpose of this investigation, however, two specific terms were adopted—'apparent' wastage and 'clear' wastage. Those pupils who do not pass the S.S.C. Examination within the prescribed time of four years, either through failure at the S.S.C. examination itself or on account of detentions at any earlier stage, or on account of early school leaving, lead to wastage which is designated as 'apparent' wastage; while those pupils who, for one reason or another, leave their studies before the completion of this stage of education were termed as cases of 'clear' wastage. The first group obviously combines cases of 'wastage' proper (or clear wastage) and those of retardation.

3. *Schools Selected for Study.*—For the purpose of this investigation, 34 Secondary schools from the Districts of Bombay, Thana, Kolaba and Ratnagiri were selected as given in the following table:

TABLE I

Schools Selected for Investigation

District	No. of schools	Boys	Girls	Total
Greater Bombay	11	793	470	1,263
Thana	3	187	19	206
Kolaba	6	306	51	357
Ratnagiri	14	565	173	738
TOTAL .	34	1,851	713	2,564

II

First Phase of the Investigation

4. *Procedure.*—In each school, the investigation was confined to those pupils who were on the rolls of standard VIII* in June 1949. And the first phase of this study was based solely on information obtained from the school records. The case of each pupil whose name was on the roll of Standard VIII of any of these 34 schools in June 1949 was traced till the pupil appeared for the S.S.C. Examination at the end of the period of four years,*i.e.*, in March 1953, or left school in the middle without completing the course.

5. *Extent of Apparent Wastage.*—It will be seen from Table II given below that, out of 2564 pupils on the rolls of Standard VIII in June 1949, 545 pupils (Boys: 452, Girls: 93) passed the S.S.C. Examination at the first attempt in March 1953. The percentage of pupils who passed in March 1953 to those who were on rolls of Standard VIII in June 1949 comes to 21.2. This implies that the 'apparent' wastage at this stage of education comes to 78.8 per cent. This stands at 65.3 per cent in the case of the Gujarat Investigation.[1]

TABLE II

District-wise Classification of Wastage

District	No. of pupils on rolls of Std. VIII in June 1949	No. of pupils who appeared for the S.S.C. Exam. in 1953	No. of pupils who passed the S.S.C.Exam. in March 1953	Percentage of passes to the number on rolls in June 1949	Percentage of wastage
Greater Bombay	1,263	390	237	18·5	81·5
Thana	206	102	40	19·4	80·6
Kolaba	357	202	94	26·3	73·7
Ratnagiri	738	473	174	23·5	76·5
TOTAL	2,564	1,167	545	21·2	78·8

The apparent wastage in the Secondary schools of the Konkan districts now investigated comes to 78.8 per cent as mentioned above—a figure which is greater by 13.6 per cent. than that arrived at by the Gujarat Report. It reveals a serious drawback in the Konkan Secondary schools. The causes of such a large variation obviously deserve a critical analysis.

*In this area Standard VIII of a Secondary school in the beginning of the High school stage which comprises four years (Standard VIII to Standard XI) the Secondary School Certificate Examination (S. S. C. E.) is taken at the end of Standard XI.

[1].An investigation into the Wastage in Secondary Education in Gujarat conducted by L. R. Desai and K. G. Desai, 1957.

6. *Wastage and Community.*—Table III given below classifies this apparent wastage according to community:

TABLE III

Apparent Wastage according to Community

Community	Total No. of pupils on rolls of Std. VIII in June 1949	No. of pupils who passed S.S.C. Exam. in March 1953	Percentage of passed to the number of rolls of Std. VIII in June 1949	Percentage of wastage
Advanced	1,247	343	27·5	72·5
Intermediate	1,066	176	16·5	83·5
Backward	251	26	10·3	89·7
TOTAL	2,564	545	21·2	78·8

As may easily be expected, the advanced community fares better than the intermediate, and the intermediate fares better than the backward. The reasons for these differences in apparent wastage are obvious : the economic and social conditions of these communities differ materially and this difference is reflected in the extent of apparent wastage shown above.

7. *Wastage and Age.*—The age factor of the pupils under investigation is also worthy of consideration as the following tables will show:

TABLE IV

Number of pupils in Standard VIII in June 1949 *at different age levels*

The total number of pupils on rolls of Standard VIII in June 1949	Average age in years at which pupils were in Standard VIII in June 1949	The number of pupils
2564	11	28
	12	150
	13	427
	14	513
	15	539
	16	425
	17	274
	18	124
	19	44
	20	22
	21	16
	22	2

TABLE V

Average Ages of Early School-leavers

District	Average age of pupils on rolls of Std. VIII in June 1949	Average age of pupils in June 1949 who passed the S.S.C. Exam. in March 1953	Average age in June 1949 of pupils who left school before passing the S.S.C. Examination
Greater Bombay	14·8	13·6	15·2
Thana	13·9	13·1	14·3
Kolaba	14·2	13·3	14·4
Ratnagiri	14·9	13·9	15·4

The above tables refer to the ages of pupils on the rolls of Std. VIII in June 1949 and to the ages of those pupils from this very group who passed the S.S.C. Examination in March 1953 at the first attempt completing the course of High school education in exactly four years. It will be seen from table No. V that the average age of the pupils who reached the S.S.C. class (without stagnation) in June 1952 and passed the S.S.C. Examination of March 1953 is less than the average age of the whole group. It is also clear from the same table that those pupils who left their studies before passing the S.S.C. examination are older than those who passed the S.S.C. examination at the first attempt in March 1953. Their average age is also greater than the average age of the whole group. It would thus appear that the tendency to wastage increases with age. For, these grown-up children are naturally looked upon by their parents as sources of income to supplement their earnings and hence they are withdrawn from schools for seeking some employment.

Table No. V helps one to look at the same aspect of the problem from a different angle. According to this table, it is clear that as many as 964 pupils out of a total of 2564 (*i. e.* 37·6 per cent) are of the ages of 15 and 16. Generally, a pupil has to be of the age of 13 at the beginning of Standard VIII if he starts his school education at the age of 6 which he is expected to do. These pupils, therefore, are older than what they are expected to be in Std. VIII. The presence of such (or even older) pupils in these classes is definitely a major contributory factor to wastage.

8. *Wastage and Class.*—The following two tables (Nos. VI and VII) will show how the pupils drop out while proceeding from Standard VIII to Std. XI.

TABLE VI

Number of pupils (out of those on rolls of Std. VIII in June 1949) going ahead and appearing for the annual examinations in respective years in the schools of Greater Bombay only

No. of pupils on rolls of Std. VIII in June 1949	Year	Std. VIII	Std. IX	Std. X	S.S.C.	Passed S.S.C.
1263	1950	1,134 (89·7%)				
	1951		873 (69·1%)			
	1952			501 (39·6%)		
	1953				390 (30·8%)	237 (18·7%)

TABLE VII

Number of pupils (out of those on rolls of Std. VIII in June 1949) going ahead and appearing for the annual examinations in respective years, in the schools of Thana, Kolaba and Ratnagiri districts only

No. of pupils on rolls of Std. VIII in June 1949	Year	Std. VIII	Std. IX	Std. X	S.S.C.	Passed S.S.C.
1301	1950	1,181 (90·7%)				
	1951		990 (76·8%)			
	1952			846 (65·0%)		
	1953				777 (59·7%)	308 (23·6%)

It will be seen that the greatest blow is received in the final examination *i.e.* the S.S.C. examination, for a large section of the pupils who appeared for this examination, met with failure here only.

9. *Causes of Failures.*—An attempt was made to analyse the causes of failures at this stage of Secondary education and so the marks in the subjects of English and

Mathematics obtained by 20 out of 164 pupils selected at random as they passed from Stds. VIII to XI were studied. The results will be seen in the following table :

TABLE VIII

Marks obtained in English and Mathematics in the successive annual examinations by 20 pupils (selected at random) out of 164 pupils who appeared and failed at the S.S.C. Examination in March 1953 from the schools of Greater Bombay

Sl. No.	English Marks out of 100				Mathamatics Marks out of 100			
	Standards				Standards			
	VIII	IX	X	S.S.C.	VIII	IX	X	S.S.C.
1	27	P	27	23	16	16	13	0
2	31	P	P	P	24	13	29	Alg. 33
3	23	P	32	21	18	12	31	32
4	20	27	25	27	18	23	P	P
5	31	23	P	29	18	17	19	20
6	18	25	26	32	P	P	P	P
7	35	P	25	25	20	P	P	27
8	26	25	23	12	25	25	31	Left
9	35	39	35	16	25	35	39	Maths. 59
10	P	36	29	14	25	13	27	4 Alg.
11	Ab	35	26	29	Ab	20	15	Left
12	35	P	35	21	P	37	P	Maths. 33
13	26	P	35	21	P	25	P	28
14	69	P	P	21	P	P	P	P
15	38	34	29	26	P	24	27	Left
16	P	36	21	13	P	14	P	Maths. Left
17	35	P	26	20	P	39	P	Maths. 34
18	65	38	27	27	P	P	P	P
19	P	P	32	17	37	P	P	Left
20	P	P	29	22	37	25	P	Maths. 35

Minimum marks required for passing in a subject is 35. (P indicates 'Passes' in the subject.)

It will be seen that these pupils have failed in the two particular subjects consistently in earlier classes. The seeds of the failure that was to be met with in the School Final Examination (S.S.C. Exam.) were thus sown years ago. Had a note of this fact been taken in due time and arrangements made to effect improvement in these subjects, the number of failures could have been reduced considerably.

III

Second Phase of the Investigation

10. In the second phase of the investigation, an attempt was made to go beyond the school records and to study the nature and causes of wastage. For convenience, this phase of the investigation can be divided into three parts :

(A) Investigation in the middle-class locality in Greater Bombay;

(B) Investigation in the lower-class locality in Greater Bombay; and

(C) Investigation in the Districts of Thana, Kolaba and Ratnagiri.

A—Middle Class Locality in Greater Bombay

11. *Sample Selected.*—For this part of the study, 204 pupils from the following three High schools in the middle class area in the City of Bombay were contacted and interviewed and information was obtained about their economic condition (in their school days particularly), their educational achievements, the use they could make of their education so far, etc.:

(1) King George English School, Dadar, Bombay;

(2) Indian Education Society's Boys' High School, Dadar, Bombay; and

(3) Balmohan Vidyamandir, Dadar, Bombay.

These schools are located in the areas predominantly populated by the middle class people mostly belonging to the advanced communities.

The analysis of the pupils on the rolls of Standard VIII of these three schools on the basis of their community is as follows:

TABLE IX

	Total Number of pupils on rolls of Standard VIII in June 1949		Pupils belonging to advanced communities		Pupils belonging to Intermediate communities		Pupils belonging to backward communities	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
	196	41	146	35	46	6	4	0
TOTAL .	237		181		52		4	

Out of 237 pupils who were on the rolls of Standard VIII, 204 pupils could be contacted and their analysis according community is given below :

TABLE X

	Advanced		Intermediate		Backward		Total	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
	126	33	38	5	2	0	166	38
TOTAL .	159		43		2		204	

This table shows that more than three fourths of the pupils belong to the advanced communities.

These pupils were further classified under the following three groups according to their family income :—

Group A : Families with monthly income of Rs. 500 and above.

Group B : Families with monthly income from Rs. 250 to 499.

Group C : Families with monthly income below Rs. 250.

12. *Extent of Wastage.*—Analysis as per the school record, of the 204 contacted cases only is as under :

TABLE XI

	No. of pupils who passed S.S.C. Exam. in March 1953		No. of pupils who passed S.S.C. Exam. later than March 1953		No. of pupils who failed in the S.S.C. Exam. with several attempts		No. of pupils who left education before appearing for the S.S.C. Exam.	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
	65	16	61	11	25	6	15	5
TOTAL .	81		72		31		20	

Out of the total of 237 pupils who were on the rolls of Standard VIII in June 1949, 93 pupils (Boys 75, Girls 18) passed their S.S.C. Examination in March 1953 completing he four year course of High school education in the prescribed time, without contributing anything to 'wastage'. This gives the wastage percentage of these three schools to be 60·8 as against the wastage of the whole sample which stands at 78.8. This low percentage of wastage can undoubtedly be attributed to the fact that these schools draw their pupils from the culturally advanced communities.

13. *The School Leavers.*—Another very important fact about these three schools must be noted. There are only 20 cases of pupils who left school before passing the S.S.C. Examination. All these 20 pupils were personally contacted and their cases were scrutinized closely. 14 of these 20 cases belonged to the lowest group of income, *i.e.* group C. 2 pupils came from group A and the remaining 4 belonged to group B. 15 of these 20 pupils were employed and were getting, on an average, a monthly salary of Rs. 70. All the five who were unemployed were girls. It is interesting to note that the average age of these five girls (while in Standard VIII) was 15·2 as against 11·9 of others who went ahead. Four out of these five girls belonged to income group C and the fifth girl, to group A. The four girls of group C had been detained previously in some standard or other.

After leaving school, these 15 pupils had tried to acquire training in some such trade as tracing, wireman's work, or some course in Technical education. In this regard, no uniformity of any kind could be seen. But it is certain that almost all of them had to struggle very hard either to secure a job or to maintain it. One of them (who had left school in Standard X) is employed as a peon and he had to do that job, either in a leave vacancy or otherwise, for two or three years, before becoming permanent. A few of them are still undergoing apprenticeship in some factory or other. It is worth noting that many of these pupils have received training in two or three different trades (*e.g.* type-writing, tracing, textile designing, engraving, etc.). These pupils had to make desperate attempts to obtain some sort of employment, to learn anything they were required to learn, or to undergo training, sometimes without any emolument for years together. The picture is disheartening. Their life is a continuous struggle. They are earning something at present, no doubt ; but they can hardly be said to have settled down in life.

Here is an interesting case of a boy who had left study after being promoted to Standard IX in 1950. He had to leave Bombay for some personal reasons. After leaving school, he was doing nothing for five years. Then he joined a process studio as an apprentice with a hope to acquire some training in the trade. But he found that the head of the office was reluctant to teach him anything of real importance. He was disappointed and left the studio without any addition to his knowledge. Again, after some time, he joined the firm of a commercial artist. He got some training from this job ; but it was not enough to bring him an earning. Next, he joined a night school (night school because he had not still given up his hope to secure some job for the day-time) with a desire to pass the S.S.C. Examination in 1956 (with a gap of about six years). He got through the examination in October 1958 at the third attempt. The boy is still unemployed and wants to join a short-term course in Physical education as he had been promised a job as a drill-teacher.

Various causes were given by these school-leavers for discontinuing their education but the most important ones are : continuous illness, adverse economic conditions ; and aversion to studies. The number of school leavers in this study is very small. Had the number been larger, a greater variety of reasons could be enumerated. And then, it would have been possible to face such questions as : (i) Does the fault lie with the kind of education given ? (ii) Are the pupils unable to face the course of studies ? (iii) Do the parents desire their children to have some other form of Secondary education ? Answers to those questions will help to solve many problems about wastage in Secondary education ; and we are sure that such an investigation has many potentialities. It will also be very useful to study the career of pupils from the technical schools in the background of the present study.

14. *The Failures.*—The next few paragraphs are devoted to the study of those pupils who have not been able to pass the S.S.C. Examination in spite of several attempts. There are 31 such pupils in these three schools and all of them were actually contacted. 17 of these have got some kind of employment. 6 of them are clerks in shops or private establishments, while others are working in some factories as fitters or wiremen or even as ordinary workers. The majority of these pupils have learnt their trades *after* getting these jobs. There are six girls in this group of pupils who made repeated unsuccessful attempts at the S.S.C. Examination. All these girls now stay at home without any kind of employment. 5 out of these 6 girls belong to the advanced communities. and the remaining belongs to the intermediate communities. It should also be noted that 23 pupils come from income group C and that 21 belong to the advanced communities.

Of these 31 pupils who have not been able to pass the S.S.C. Examination, 17 were already detained in some standards previously and some were even detained twice in the same standard. It will be very interesting to study such cases on a larger scale to find out the causes of such repeated failures and to suggest remedies to save the money, time and labour of all concerned.

One of these cases is studied here in detail. This particular pupil belongs to the advanced community and stands in the lowest income group. This boy was once detained in Standard IX and had failed in three major subjects (English : 31/150, Mathematics : 2/150, Science : 3/75). The boy had made six attempts at the S.S.C. Examination but without success. The last attempt was made in March 1957. He still desires to appear again for the S.S.C. Examination and after passing it, become a teacher. He has, however, also passed special examinations in Marathi and Hindi.

He has done a number of petty jobs so far. He was a part-time clerk ; he served in a laundry for some time ; he has worked as a salesman ; he was a clerk-*cum*-librarian ; and he was working as a compositor in a small printing press. These jobs have each fetched him an income of Rs. 30/- approximately per month. At present he is employed as a clerk in a tailoring school where he gets a salary of Rs. 75/- per month. Though employed in a tailoring school, he has no desire to learn tailoring himself.

15. *The Retarded Pupils.*—The last group is of those students who have passed the S.S.C. Examination but later than March 1953. There are 78 such pupils out of whom 72 were personally interviewed. 46 of them had been detained previously in some standard or other. But it would be very interesting to note that 21 pupils, who had been detained in school examinations previously, have passed the S.S.C. Examination at the first attempt. On the other hand, there were several cases of pupils who passed the S.S.C. Examination at the fifth, sixth or the seventh attempt, but they were not detained even once in their previous school careers. These cases throw light on the anomalous method of giving promotions to pupils in schools.

It was found that 42 out of these 72 pupils have been employed, though some of them have only temporary jobs. 25 are clerks and 17 others have been doing different types of odd jobs. 46 out of 72 have continued their education further and have gone in either for arts or science course, or for technological courses (Arts : 27, Science : 14, Commerce : 1, Technical Courses : 4).

There are 11 girls belonging to this group. 8 out of these 11 girls went in for Higher education. All of them took up the Arts course. Only 1 out of them has passed the B.A. Examination and has been employed as a clerk and gets a basic monthly salary of

Rs. 75. 5 others who were employed, are pursuing their Higher education. 3 of them are clerks, 1 is a Primary teacher and 1 is a Machine operator. They draw, on an average, a monthly salary of Rs. 130. Except one, all these belong to advanced communities.

Out of these 78 pupils, 17 have already left college after failures at the first or the second year examinations. And the others, though continuing still, are not without failures at one stage or other.

16. *The Successful Pupils.*—It is from this point of view that the cases of the pupils who have passed the S.S.C. Examination at the first attempt and have completed the course of Secondary education in exactly four years are worth studying. There are 93 such cases. Out of them, 81 were contacted personally.

It was found that 75 of them have continued Higher education : Arts 18, Commerce 8, Fine Arts 3, Engineering 7, Medicine 7, Science. 32.

Out of these 75 pupils, 23 have so far completed their respective courses. 2 out of 7 who went in for Engineering have received their degrees. Only 8 have left college after a failure or two at the first or second year examinations. The remaining 38 are still struggling to pass and have had repeated failures at one stage or other.

Out of these 81 pupils, 16 are girls. Out of these 16, as many as 13 have continued their education further. The three who stopped at the S.S.C. stage belong to the lowest income group. (Two out of these are employed, one as a clerk and the other as a Primary teacher.) Of the 13 girls who continued education further, 8 have gone in for Arts and 5 for Science (two are studying for the final M.B.B.S. and the remaining 3 have passed the B.Sc. Examination). Of the 8 who had gone in for Arts, 2 have already left college after having failures in the first or the second year. 5 others have secured their B.A. degrees and the remaining one is studying in the senior B.A. class. 3 of the girls who have passed their degree examinations have been employed (two as clerks and one as a demonstrator in a science college).

The six pupils who did not continue their education after passing the S.S.C. Examination at the first attempt belonged to the lowest income group. Four of them are employed as clerks, one as Primary teacher and one more has started his own small shop and earns a fair monthly income. Of those who had continued their education further, 37 have been employed. It is interesting to see that 25 out of them are working as clerks in various government or private offices and the remaining are engaged in other types of jobs. These cases are examples of "learning while earning".

The preceding table shows that 46 pupils out of a bulk of 75 had gone for Science course. The reasons for this are quite obvious. It is this course which opens doors for various technical, technological and medical courses. There are a number of cases where pupils have gone for the Science course in the hope that they would get admission in Engineering or Medical courses but were sadly disappointed later on. It is seen from their examination results that some of them had failed once or twice in the first or the second year in examinations, or if passed, they had fared very poorly. Had they known that there was always a keen competition for securing admission to the colleges of Engineering and Medicine and had somebody made them conscious of their own abilities, this disappointment could have been avoided.

B—Lower Class Locality in Greater Bombay

17. *The Sample Studies.*—In order to study the conditions of the pupils in the lower class locality in the City, the following three schools were selected:

(1) Dadar Vidya Mandir, Dadar, Bombay.

(2) Saraswati High School, Lalbaug, Bombay.

(3) Pioneer High School, Matunga, Bombay.

The pupils from these schools are drawn from the lower middle and the working class population of the City.

There were in all 324 pupils on the rolls of Std. VIII in these schools in June 1949. Out of these pupils, 267 (boys 217, girls 50) were contacted personally and interviewed. On the basis of community, their classification was : advanced 79 ; intermediate 140 ; and backward 48. According to income groups, it was found that out of 267 pupils none was in group A, 22 were in group B, and 245 were in group C. In other words, as many as 91·7 per cent of the pupils belong to the lowest income group.

18. *The Successful Pupils.*—From the results of the annual examinations of the successive years in the school, it was found that only 36 pupils passed the S.S.C. Examination in March 1953. This means that 231 pupils either left the school in the middle or passed the S.S.C. Examination later than March 1953. The above figures indicate that the wastage in this area stands as high as 86.5 per cent.

On further analysis of those who passed the S.S.C. Examination at the first attempt, that is, in March 1953, it was found that only 5 out of them could complete their Higher education. 2 passed their B.A. Examination, 2 B.Sc. and one could secure a diploma in Engineering. On scrutinizing the cases of these pupils, it was found that all of them belonged to the income group B.

The remaining 31 pupils (excluding the 5 who could complete their Higher education) got employed in different occupations: Clerks 16; Primary teachers 5; bus and tram conductors 6; and shop assistants 4. Those who are employed as clerks earn a total salary of Rs. 140 per month on an average and they are the best placed amongst those employed. Next to them come the Primary teachers whose average monthly income stands at Rs. 115. The average monthly income of the bus and tram conductors is Rs. 110 and that of the shop assistants is Rs. 90. All these 31 pupils were unable to go in for Higher education due to economic difficulties. According to the income groups, 6 were found to be in group B and 25 in group C.

19. *The Retarded Pupils.*—Out of the 231 who could not pass the S.S.C. Examination in March 1953, 30 passed the S.S.C. examination later than March 1953. All of them, except one, are employed: clerks 15; Primary teachers 4; Bus and tram conductors 5; postmen 3; and mechanical apprentices 2. All these 30 pupils could not complete their course of Secondary education in four years due to failures in the pre-S.S.C. Classes or in the S.S.C. Examination.

20. *The Failures and the School Leavers.*—It will be seen that 201 pupils left school without passing the S.S.C. Examination (58 in Standard VIII; 79 in Standard IX, 39 in Standard X; and 25 in Standard XI). On interviewing these pupils and after checking their annual examination results, it was found that only 30 pupils left school after deten-

tion in the examinations, and the remaining 171 left their education on passing the annual examinations in the schools or in the middle of the year. Of these, 47 belonged to advanced communities, 115 to intermediate and 39 to the backward. Comparing these figures with those given in paragraph 17 above, it will be seen that only 59·5 per cent of the pupils of advanced communities have left school while the corresponding percentages for the intermediate and backward communities is 82·1 and 81·2 respectively. This indicates that a large majority of those who left school belongs to the intermediate and the backward communities.

The careers of the 201 pupils who left education for good were studied closely. 57 of them were unemployed and 144 were engaged in eight different occupations: clerks 24; peons 48; postmen 19; bus and tram conductors 15; mechanics 8; shop assistants 13; business 10; and farming 7.

The causes that led the pupils to leave the school were analysed and in most cases, multiple causes were found to be in operation. In the case of about 57 per cent, economic difficulties were the predominant reason. The other causes reported were illness, family mal-adjustment, absence of adaptability in school, repeated failures in one and the same standard, absence of proper conditions for study in homes, parents' decision to stop the education of the ward, etc. On the basis of the predominant cause, the remaming 43 per cent cases (excluding the 57 per cent who left school on economic grounds) can be divided as under:—

Causes for Failure	Percentage of Failure
1. Illness	10
2. Family mal-adjustments	9
3. Repeated failures in one and the same standard	8
4. Absence of proper study conditions in homes	6
5. Parents' decision to stop the education of the ward	6
6. Absence of pupil's adaptability in school	4
Total	43

In the case of the girls, 45 per cent have left school in Standards IX and X at the ages of 15, 16, 17, obviously with a view to matrimony and/or priority being granted to boys' education in the circumstances of undue pressure on family budget.

The following typical cases deserve to be described in detail:—

Case No. I.—This pupil was in a day school till Standard IX. Then he left the day school and joined a night school in Standard X so that he could earn and learn. He went on doing some petty jobs till he was in Std. XI. In 1953, his father died. His mother was already working in a mill since 1945. After the death of his father, he was being maintained by his mother. The boy was taking active part in physical training activities,

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both as a student and as a teacher (mostly without remuneration), and for some time he was an honorary instructor in a gymnastic institute. Recently he joined the National Discipline Scheme conducted by the Government of India and underwent training for it. Later on, he was appointed as a teacher under the Scheme and now he is posted in a school at Parel. His mother had been having occasional fits of insanity for two years; but recently her trouble was aggravated and finally she had to leave the job. Thus the responsibility of maintaining her and himself has fallen on him. Besides his regular work, the boy has been working as a part-time games instructor. His total earning comes to about Rs. 180 per month. He is a person full of enthusiasm, and in spite of adverse conditions, has vigour to push his way through.

Case No. II.—This is a girl who joined Std. VIII at the age of 16 in June 1949 and left it after a few months in that standard, due to illness. This illness later developed into tuberculosis and she suffered from it for about two years. She is completely cured now. Her present age is 26. She is one of the eight daughters of her parents. Her father is working as a salaried agent to a Steam Ship Company for the last twenty years and the salary he gets is about Rs. 250 per month. The father is the only earning member in a family of 12 persons. Because of poverty, all the children are ill-fed and dissatisfied. The girl is not employed anywhere and has no hobby. Recently, she has been attending a sewing class. Her physical constitution is very weak and she appears to have few chances of going in for a job or marriage. The family falls obviously in income group C.

A great number of similar cases, each unique in itself, have been found in the present investigation.

C—Nature and Causes of Wastage in the Districts of Thana, Kolaba and Ratnagiri

21. *The Sample Studied.*—The work of contacting and interviewing the pupils in the schools of these districts was entrusted to a teacher in the school or a person appointed by the Head of the school. Out of these schools, the following schools responded to our request and contacted the number of pupils shown against their names:

TABLE XII

Names of the Schools	Number of Pupils
1	2
Thana District	
1. R. P. Wagh High School, Bassein	32
2. New English School, Bassein	85
3. K. G. High School, Agashi	49
Kolaba District	
4. N. E. S. S. High School, Nagaon	35
5. Industrial High School, Aligab	48
6. K. E. S. High School, Ravdanda	55
7. Private High School, Pen.	85
8. N. M. V. J. High School, Goregaon	24
9. Abhinav Dhyan Mandir, Karjat	54

TABLE XII—*contd.*

1	2
Ratnagiri District	
10. S. M. G. High School, Deogad	54
11. Rajapur High School, Rajapur	93
12. New English School, Deorukh	3
13. Bharatgad High School, Masure	35
14. Vidya Mandir Kanyashala, Vengurla	31
15. R. K. Patkar High School, Vengurla.	38
16. R. L. Patne High School, Khed	48
17. Bhandari High School, Malvan	37
18. Varadkar High School, Katta	39
19. Topiwala High School, Malvan	108
20. Aronda High School, Aronda	32
21. Kudal High School, Kudal	39
22. Kalsulkar English School, Sawantwadi	32
Total number of pupils	1056
Total number of schools	22

Out of the total of 1056 pupils who were contacted, 857 were boys and 199 girls. 31 out of these girls were from a Girls' High School and the rest from other schools. The percentage of girls in the total number comes to 23·2. 550 pupils out of 1056 (*i.e.* 52·1 per cent) belonged to the advanced communities, 426 (*i.e.* 40·3 per cent) to the intermediate and 80 (*i.e.* 7·6 per cent) to the backward communities. The ages of these pupils in June 1949 were as follows:

TABLE XIII

Age in complete years in June 1949	Number of pupils
11	14
12	68
13	171
14	214
15	220
16	168
17	102
18	63
19	19
20	9
21	7
22	1
TOTAL	1056

It will be seen from this table that the majority of the pupils (*i.e.* 73·2 per cent) are of the ages of 13, 14, 15 and 16. The number of pupils tends to decline as the age advances.

22. *Extent of Wastage.*—On tracing the educational progress of the above pupils with a view to finding out how many of them reached the S.S.C. Class and subsequently passed the S.S.C. Examination in the normal course in March 1953, it was observed that 480 out of 1056 (*i.e.* 45·4 per cent) reached the S.S.C. Class in the year 1952-53 and subsequently 213 out of them (*i.e.* 20·2 per cent of the total number admitted to Std. VIII in June 1949) passed the S.S.C. Examination in March 1953. This means that 79·8 per cent has been the 'apparent' wastage amongst the number of pupils under study.

It was found that the percentage of wastage varied from school to school, the lowest percentage being 66·9 and the highest 87·2. It also varied from district to district as the following statistics will show:

TABLE XIV

District	Thana	Kolaba	Ratnagiri
Number of pupils on rolls of Std. VIII in June 1949	166	301	589
Number of pupils who passed the S. S. C. Examination in March 1953	40	59	114
Percentage of those passed to the number on rolls in June 1949	24·1	19·6	19·4
Percentage of wastage	75·9	80·4	80·6

Out of the 1056 pupils, only 213 completed the Secondary course in four years, as stated earlier. Of the remainder, 186 passed the S.S.C. Examination, but at a later date; and the remaining 657 left school without passing the S.S.C. Examination—178 in Std. VIII; 225 in Std. IX; 173 in Std. X; and 81 in Std. XI.

23. *The Successful Pupils.*—Out of the 213 pupils who passed the S.S.C. Examination in March 1953, 72 pupils have received Higher education and passed the first degree examination of a university, *i.e.* B.A., B.Sc., B.Com., etc., and of these again, 21 have taken further education and obtained additional University qualifications.

24. *The Retarded Pupils.*—186 pupils passed the S.S.C. Examination later than March 1953 as follows:

TABLE XV

Year	Number of pupils who passed
1953 (October)	89
1954	41
1955	28
1956	20
1957	7
1958	1
TOTAL	186

The above analysis of the pupils' success or failure at the S.S.C. Examination and of the nature of Higher education they received show two things: (1) a negligible proportion of the pupils *i.e.* only one-fifth of those who were admitted to Standard VIII passed the S.S.C. Examination at the first attempt; and (2) only 6·8 per cent of the pupils were able to obtain the first University degree.

25. *Wastage and Community.*—On going through the figures of wastage, it is found that these figures vary according to the communities the pupils are drawn from, and this variation can be seen from the following table:

TABLE XVI

	Communities			Total
	Advanced	Intermediate	Backward	
Total No. of pupils on the rolls of Std. VIII in June 1949	550	426	80	1056
Number of pupils who passed the S. S. C. Examination in March 1953	122	78	13	213
Percentage of the number passed to the number on rolls of Std. VIII in June 1949	22·1	18·2	16·3	20·1
Percentage of Wastage	77·9	81·7	83·8	79·9

It will be seen that the percentage of wastage is the highest amongst the backward class communities. The percentage in the advanced communities is lower, presumably because the cultural surroundings of these communities are better.

26. *Use of Education Received.*—It is also necessary, in the present context, to see whether the pupils who were admitted to Standard VIII have been able to make any use of whatever education they received while they were in school. It is heartening to see that 691 out of these 1056 pupils were found to be employed. (No information was available about 61 pupils.) Out of the 691 employed, 151 were clerks in offices and the rest were working in various capacities such as mill and factory workers, police constables, artists, office peons, shop keepers etc. It was found that these persons, with the help of the education they received, were able to improve their economic as well as their social status to a certain extent ; and some of them, in spite of their incomplete Secondary education, have achieved a fair degree of success in life. It is difficult to establish a relationship between the amount of education received by a person and the degree and nature of success he has been able to achieve in life. However, it is of significance to note that, in spite of a break in education resulting in incomplete Secondary education, a considerable number of persons has shone in business on account of their enterprising nature and versatile abilities.

Data about monthly income could be had about 333 pupils only and it is given in the following table :

TABLE XVII

Incomes of the Employed Pupils

Income in Rupees :	Less than 100	100 to 124	125 to 149	150 to 174	175 to 199	200 & above
Number of pupils :	107	82	79	39	12	14

This indicates that 56·7 per cent pupils have a monthly income of less than Rs. 125. A larger number of these pupils are leading a hard life and their struggle for a better life is handicapped on account of their inadequate Secondary education.

Although the passing of the S.S.C. Examination is the main aim of a pupil in Secondary schools, it is thus seen that his discontinuance of schooling prematurely does not prevent him from earning his bread in some way or other. Seen from the angle of passing the Secondary School Certificate Examination, such pupils are cases of 'wastage'. But it is obvious that this is only an apparent wastage. It has been found in this study that a pupil is always able to make some use, however little, of the education he has obtained, and that it helps him in earning his bread and in finding a place for himself in life. This has led us to the conclusion that in most cases where there is a break in Secondary education, even the little education which the pupil has received, has been used profitably by him.

IV

Findings and Conclusions

27. The main findings of this study may be summed up as follows :—

(1) 21·2 per cent of the pupils enrolled in Standard VIII passed the S.S.C. Examination in the regular course *i.e.* in March 1953. This means that apparent wastage at the High school level is 78·8 per cent.

(2) The above figure of wastage includes cases of stagnation and school leavers at any stage (clear wastage).

(3) The maximum of clear wastage is seen in the first two years of the High school stage *viz.* Stds. VIII and IX, and it later declines from Standard X onward.

(4) Percentage of wastage is found to vary with the communities the pupils are drawn from. It is the highest in the backward communities and declines progressively in the intermediate and the advanced communities.

(5) The average age of a pupil in Std. VIII who passed the S.S.C. Examination in March 1953 is less by 1 to 2 years than the average age of a pupil who left school before passing the Examination.

(6) A critical study of the marks obtained in English and Mathematics from Standards VIII to XI by a few pupils selected at random from those failed in the S.S.C. Examination of March 1953 has indicated that the seeds of this failure were sown already years ago, as these pupils were failing in those particular subjects in earlier standards as well. Had a note of this fact been taken in time and arrangemets made to improve the situation, the number of failures could have been reduced considerably.

(7) The percentage of wastage is found to be more in the schools from the lower class localities in the city of Bombay (94 per cent) than in those from the middle class localities.

(8) Wastage is found to be more in the case of girls than in the case of boys.

(9) 92.6 per cent of the pupils from the middle class localities in the city of Bombay who have passed the S.S.C. Examination at the first attempt in March 1953 have been able to take Higher education. The corresponding figure from the lower class localities is 17.8 per cent only.

(10) Although a student who fails to pass the S.S.C. Examination is designated as a case of 'Wastage', it is found that even the little education that these students receive is of great use to them in after-life and helps them to make a better use of opportunities in life.

EDUCATION AND DEMOCRATIC ATTITUDES IN SCHOOLS

(This is a report of an investigation conducted at the Vidya Bhawan G. S. Teachers' College, Udaipur, under the Ministry's Scheme (B2) for promotion of research in education.--Editor)

India has decided to adopt the democratic way of life, and rightly too. But a democracy can function and thrive only through the participation of its citizens who need to possess the desired qualities of a democratic citizen. "Citizenship in democracy", in the words of the Secondary Education Commission's report "is a very exacting and challenging responsibility for which every citizen has to be carefully trained"[1]. The most important question, therefore, is, who is responsible for giving this desired training for citizenship?

2. Scholars are in general agreement that development of good citizens is the most significant responsibility of a nation's schools. Educational programmes of the schools are the most important instruments that a society has for shaping individuals into good citizens. The Indian schools of today should, therefore, be able to inculcate democratic qualities in students and even help them to carry over these attitudes in the larger community where they will live and grow.

3. Are India's schools fulfilling this responsibility today ? If so, to what extent, and with what type of programme ? More fundamentally, what are the desirable qualities and attitudes that the citizens of the Indian democracy should develop today ? What can India's schools do to inculcate and develop these qualities and attitudes ? These and other significant questions face the educationists in India today.

4. Specific analysis of these problems through scientific research techniques, seems to be the educational need of the day. But in spite of a cognizance of this need, not much substantial research has been done in India in this very important area. In the United States, the Educational Policies Commission of the N.E.F. has been conducting regular researches with a view to assessing American education in terms of its democratic objectives and goals. The work and reports of these Commissions have proved to be very beneficial to the educational programmes of the country. In India, in spite of a belief in democracy and in the important role of education in training for democratic citizenship, not much scientific research has been conducted to assist in the implementation of these beliefs. The Secondary Education Commission, therefore, has discussed and specially emphasized the need of investigating into the responsibility of Indian schools in developing the qualities essential for India's new democracy. The present study was, therefore, undertaken with a view to attempting some practical and constructive research in this area.

5. The main *objectives* of this project were two :

(a) to study democratic attitudes in students ; and

(b) to investigate factors in school life which help or hinder the development of democratic attitudes in students.

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[1] 'Report of the Secondary Education Commission,' Government of India, Ministry of Educat ion 1952-53, p.23.

The study was not solely interested in merely finding out these factors. It was also hoped that it would help in making constructive suggestions for improvement in the existing Secondary school system with a specific purpose in view.

6. The *scope of investigation* was limited to only *two* different kinds of schools in the city of Udaipur in Rajasthan. This was done for two reasons. Firstly it was not practicable to take up more than two institutions for investigation in view of the time to be devoted to the study ; and secondly, intensive and specific work was considered to be more valuable than extensive and scattered research. It may also be noted that the two institutions selected were of *different* types so that a *comparative* study of factors in school life relating to the development of democratic attitudes was possible.

7. It should be further pointed out that the study was confined mainly to the *school* life of the subjects of research and, for purposes of the actual investigation, the *home* and *community* life of the students was deliberately kept out of the picture. It cannot, of course, be denied that home influences and community environment play a major role in moulding the attitudes of the youth. It was not, however, practicable in the present study to enter into the variegated home life of the students. It was also felt that in a single limited study of this type which was more concerned with the educational rather than the social aspects of the problem no useful purpose would be served by extending its scope to factors relating to the home and the community which ought to form the subject of a separate investigation.

8. The two schools selected may be called School A and School B. School A was a routine type school, representative of those that are generally found in the country and School B was a comparatively unusual type of school where various experiments with new educational methods and practices were being conducted. Of course, it was not *presumed* that the attitudes of students in any of the two schools would be more democratic or that the school life of *any* of the two institutions was more conducive to the inculcation of democratic attitudes. But in view of the wide difference in the two schools, it was expected that an intensive comparative investigation of the two schools *may* bring out factors favourable or unfavourable to the inculcation of democratic attitudes among students.

9. The study has been broadly divided into the following *four parts* :—

(1) Development of certain working concepts about democracy and democratic attitudes;

(2) Development of tools and techniques to be used in the study;

(3) Study of democratic attitudes among students in the institutions under investigation; and

(4) Study of factors in school life influencing the development of democratic attitudes in students.

The first part was intended to serve as a basis for the remaining three parts which are more directly related to the investigation.

10. *Basic Democratic Values.*—In order to ascertain the basic democratic qualities which were to be investigated, the first step taken was to study the spontaneous responses of students, teachers and educationists as shown in the following table.

Level	Work Done
293 students from 6 schools	Spontaneously written answers in the classroom situation.
40 teachers from 6 schools	Spontaneous responses in unplanned interviews.
30 eminent educationists	Ditto.
A large group of scholars in education, psychology, sociology and politics.	Discussion in unstructured conferences.

11. *Responses from Students.*—Questions about democracy are difficult to answer; but in order to seek some evidences of democracy in educational practice, students were asked to write a page about their conception of democracy and democratic practices in schools. These spontaneous paragraphs were written without previous preparation. The papers of 293 students (Classes VI—IX) from six schools were read and analysed and a final list of 14 student-ideas about democracy was prepared and the students' responses were tabulated according to them. No system of tabulation or objective scoring can give an idea of the range of attitudes and understanding; but the following data will indicate the kind of concepts students had in their minds:

Concept	Number of responses
1. Students' Government	232
2. Right of equal opportunity in education	57
3. Right of free expression and work	55
4. Social equality	49
5. Hindi as medium for teaching English	18
6. Facilities for vocational education	17
7. Facilities for sports and recreation	14
8. Right to protest against negligent workers in school (including staff)	14
9. Introduction of activity methods in teaching	14
10. Sympathetic teacher-pupil relationship	11
11. Facility to receive education according to interest	11
12. Education for all-round development	7
13. Need for better equipped schools	5
14. No clear concept at all	43

The following two facts that emerge from the above data are worth noting:—

(1) 79·2% of the students have interpreted democracy and democratic practices in terms of students' governments in schools; and

(2) an analysis of the concepts show that students mostly think of democracy in terms of their rights and privileges. There is hardly any indication of thinking about responsibilities and obligations.

12. *Responses from Teachers.*—In unplanned interviews, teachers were asked to express their concept of democratic qualities in students. Strangely enough, they were reluctant to answer. They expressed their preference for checking a ready-made list of qualities rather than giving some from their own ideas. Forty teachers from six schools were interviewed. Often the teachers wanted to postpone the answering of a question which they thought was complicated. Their lack of interest in conversing on a topic which is generally acclaimed to be of great educational importance was amazing. It seemed as if they wanted to escape thinking on this topic.

13. *Responses from Educationists.*—Thirty eminent educationists were also interviewed for this purpose. The interviews were not pre-scheduled and the persons interviewed mostly comprised principals of colleges, school headmasters, professors and directors of educational institutions. The attitude of most of these educationists was more cooperative than that of the teachers. Although slightly reluctant to talk in the beginning of the interview, they seemed to warm up through the conversation and generally ended by giving an impressive list of democratic qualities.

14. *Educational Conferences.*—The above three procedures were adopted mainly to pool together the opinions of persons at various levels in the educational ladder. But mere pooling of views is not a reliable technique of research unless it is properly analysed, interpreted, and supplemented by other methods. The educational conferences —which have remained a regular feature throughout the study—were organised from this point of view.

15. *Tentative List of Democratic Qualities.*—On the basis of all these studies, a tentative list of 21 democratic qualities was prepared. The list was mainly developed according to the frequency of spontaneous responses from teachers and educationists about their concept of democratic qualities in students. This grading list was then administered to 100 teachers from 9 schools in Udaipur. The teachers' opinions were invited in three grades—A, B and C—according to the teachers' estimation of the importance of the qualities in a democracy.

16. The return of responses was 60%. The following data gives an idea of the teachers' concept of democratic qualities in students:—

Qualities	Rank in gradation
Honesty	1
Love for Discipline	2
Sense of responsibility	3·5
Love for the nation	3·5

Qualities	Rank in gradation
Cooperativeness	5
Punctuality	6
Self-confidence	7
Self-respect	8
Love for knowledge	9
Independent thinking	10
Understanding of other's view point	11
Industry	12
Tolerance	13
Sense of sacrifice	14
Free self-expression	15
Organising capacity	16
Perseverance	17
Devotion for one's culture	18
Social sensitiveness	19
Aesthetic sense	20
Open-mindedness	21

It is amusing to note that teachers ranked "honesty" and "love for discipline" as the most desirable qualities in a democratic social order.

17. These ideas were further discussed in conferences and the main democratic values which finally emerged were: (1) creative participation; (2) understanding and tolerance; (3) respect for individuality; (4) freedom of thought and expression; and (5) respect for higher values of life. This was the conclusion of Part I of the study.

18. *Some Recommendations.*—In view of the fact that 79·2% of the students interpreted democratic practices in terms of students' governments in schools, and that almost all of them thought of democracy in terms of rights without much attention to responsibilities, one important role of the school should be to help students to clarify their ideas about democracy. A clarification between democracy in politics and democracy in education may also prove useful in easing some of the problems of discipline in our schools.

In view of this urgent need, the reticence and reluctance of teachers to intelligently think on the problem has been disappointing. Experiences with teachers in the course of this research indicated that during the interviews, a consciousness of their own lack of

attention to this problem dawned upon them. It was also felt that the teachers' interest in this problem was stimulated through the discussions during these interviews. It is, therefore, recommended that frequent discussions, meetings or seminars on this and other educational problems should be organized for the benefit of teachers.

19. *Preparation of Tools to Assess Democratic Attitudes in Students.*—Having thus determined the basic or most significant democratic attitudes, the next step was to devise tools for assessing them in the students. For this purpose, three tools were designed, *viz.*,

(a) A Test of Democratic Attitudes—"What do you think?";

(b) A Test of Democratic Attitudes—"What will I do?"; and

(c) Experimental Designs.

20. *'What Do you Think' Test.*—During the Five Year Citizenship Education Study of the Detroit Public Schools, 1945-50, a test called "what do you think" was one of the instruments used to assess democratic attitudes of students. The test comprised forty-seven items selected from "The Collyer Test of Democratic Attitudes"*. It was decided to develop a test on similar lines, but on the basis of the main criteria of the present study. It was obviously not within the scope of the present study to standardize the test.

The test as it was finally designed and used in this study can be called an Attitude Scale. It consists of forty-eight items divided equally under six parts. Each test item consists of a searching statement concerning which the student is asked to express whether he agrees, is uncertain, or disagrees. An attitude considered by the author to be favourable to democracy is scored 2, uncertainty is scored 1 and an attitude unfavourable to democracy is scored 0. Addition of the scores on the forty-eight items yields a total test score, which can be divided by the number of items to show an attitude score. The scale was constructed in Hindi.

The development of the scale roughly passed through the following stages: (1) Planning of items; (2) Selection of items—preliminary elimination; (3) Circulating copies of the first draft to a jury of experts; (4) Re-draft of the test according to suggestions of the jury; (5) Try-out of the test; (6) Final elimination or modification of items; and (7) The final draft.

(1) *Planning of Items.*—The planning of items was done in terms of the five main democratic values stated above in para 17. Under each value, several statements (approximately 20 to start with) purporting to test the presence of that particular value in the testee were planned. For this planning, situations other than the pupil's school life were also kept in view because the value, if really imbibed by an individual, tends to be reflected in all life situations.

(2) *Selection—Preliminary Elimination.*—After careful thought and discussions in the Educational Conferences referred to earlier, a preliminary draft of the scale was prepared. This draft contained about 75 statements—approximately 15 under each democratic value.

*Stanley E Dimond : *Schools and the Development of Good Citizens*; Detroit, Wayne University Press 1953, p. 77.

(3) *Circulation of the First Draft Among Jury of Experts.*—Copies of this draft were circulated to a jury of three experts from the fields of education, psychology and sociology. Items were carefully scrutinized in meetings of the jury and the research workers. Besides modifications, eliminations and substitutions, the jury suggested that "Equality of Opportunity" should be added to the original list of democratic values.

(4) *Re-draft of the Test.*—The scale was, therefore, re-drafted, for six values in the scale and it had sixty items—approximately ten under each value.

(5) *Try-out of the Test.*—The scale was administered to a random sample of twenty students from classes VII—X.

(6) *Final Elimination or Modification of Items.*—A scrutiny of the answer-sheets resulted in a further elimination of twelve items.

(7) *Final Draft.*—Having passed through all the stages described above, the final draft of the scale was prepared which consisted of forty-eight items distributed equally under six heads.

21. '*What Will I do*' *Test.*—Another very simple aid developed to assess democratic attitudes in students was a multiple-choice test called "What will I do"? The booklet of the test consisted of descriptions of twelve problem-situations with multiple-choice statements of probable actions under the given circumstances—there being two problem-situations under each of the six main democratic values and three statements under each problem-situation. In each item, the student is asked to select and check *one* statement which most correctly describes his own probable course of action under the given problem-situation. This test also was developed in Hindi.

This test was developed to serve as a check-up on the previous one. As the main basis of assessment through both the instruments is the same basic values of democracy, the validity of the responses on the first test could be checked by administering the second. Tests are not claimed to be psychometric instruments because it was not possible to standardize them. They emerged as useful incidental outcomes of the study. The internal validity of the tests, however, was ensured to a great extent. External validity is a problem of prediction with which the present is not concerned.

22. *Experimental Designs.*—A third tool devised for this assessment was that of experimental projects. The purpose of these projects was to further validate the results obtained through the attitude tests described above. The investigation wanted to find out how far the school, through its various practices has been successful in not only inculcating democratic attitudes among students, but also in transferring these attitudes to situations other than those controlled by the school.

23. Three small projects involving cooperative group-activity were planned and they were to be assigned to three groups of about seven students each selected from both the institutions on a random-sample basis. It was proposed that each group would be called upon to complete the project. The group would be asked to elect a leader, plan out the work, execute it and also to evaluate it. The entire process would be a very good example of the imbibed attitudes of the students working on the project.

24. Observation of behaviour was the only technique that could be used for evaluating democratic attitudes in an experimental design of the present nature. In order to make the evaluation objective, simple and specific, a systematic Observation Schedule was developed. The observation of behaviour was to be carried on in three stages; plan-

ning, execution and evaluation through group discussions. Under each stage, certain questions were framed on the basis of the six democratic values. By assigning 1 mark to each answer considered to be democratic and 0 to one considered undemocratic, a quantitative scoring could be obtained. This scoring was possible only in the first two stages—planning and execution and the Evaluation stage provided for discussions and suggestions which stimulated students to think about democracy and the importance of democratic attitudes in life and education.

25. The three projects selected were :

(1) Organizing a hike-*cum*-tea party ;

(2) Preparing a brief illustrated history of their own school ; and

(3) Preparing a basket-ball court.

26. It may be noted that each of the three devices outlined above is a progressive check-up on the assessment of democratic attitudes in students. In responding to statements in an attitude scale, there are chances for the intelligent student to pick up the most favourable response. Such response, therefore, cannot be very reliable. Similarly, it is not necessary that people will always *do* the things that they *profess they will do* under given circumstances. Hence the assessment of students' attitudes was planned in three successive stages to make it more reliable. Secondly, it will also be seen that the check-up was also planned at different *levels*. Firstly, it was attempted to find out as to what the testee *thinks* about certain situations (related to the main values of the study) in school life and his life in general. The statements in this scale, therefore, were meant to assess democratic attitudes on the *purely thinking level*. Next, the testee is stimulated to think about his probable *actions* in certain given circumstances related to the particular values to be assessed. So in the second test, this assessment was to be on the *doing level up to a certain extent*. Last and the most reliable assessment of attitudes was to be done on a *functional level*. In the experimental projects that were planned, it was attempted to assess democratic attitudes of students in *practical work-situations*. Attitudes can be considered as a part of an individual's personality only when they can be seen in action outside the control of the situation where they are taught. An examination of the situations selected in these projects would, therefore, indicate the attempts to test the democratic attitudes in situations uncontrolled by the school.

27. *Results of 'What do you think' Test.*—The test was administered to 125 students (classes VII—X) from School A, and to 129 students (VII—X) from School B. Students in Rajasthan are not generally oriented to test situations. Hence, the event was of some excitement and on the whole, the students responded well. The significance between mean scores of the two institutions is given below :—

Schools	N	Mean	SD	D	CR
A	125	61·0	12·05		
				11·75	8·7
B	129	72·75	9·35		

The highly significant difference obtained between mean scores of the two schools is surprising. Hence it was decided to further analyse the results on this test.

28. It may be recalled that this test purported to measure democratic attitudes in terms of the six democratic values. Accordingly, the scores from the two institutions in terms of the percentage of democratic responses on *each* value were further analysed. The results are given below :—

Schools	Percentage of Democratic Response in					
	Creative Participation	Understanding and Tolerance	Respect for Individuality	Equality of Opportunity	Freedom of Thought and Expression	Respect for Higher Values of Life
A	53·5	52·22	63·87	61·12	65·25	60·62
B	74·05	73·26	71·15	72·98	74·61	79·10
Difference . . .	20·55	21·04	7·28	11·86	9·36	18·48

The above analysis of the results indicates the greatest difference in students' attitudes of the two schools in the particular areas of "Understanding and Tolerance", "Creative Participation", and "Respect for Higher Values of Life". Least difference is seen in attitudes towards the value of "Respect for Individuality".

29. Item analysis of the value, "Creative Participation" gave the following results.

Percentage of Democratic Responses on "Creative Participation"

Items	School A	School B	Difference
	Per Cent	Per Cent	Per Cent
1	98·9	98·46	—·44
2	54·8	55·38	·58
3	34·1	75·38	41·28
4	55·2	81·54	26·34
5	31·9	56·15	24·25
6	19·9	52·3	32·4
7	94·6	95·38	·78
8	46·06	78·46	32·40

A study of the data in the above table in the light of the test is very interesting. The following facts are noteworthy :—

(1) Largest number of students from *both* the institutions responded democratically to item No. 1 from the section "Creative Participation". This item is related to students' governments in schools. As stated earlier, 79·2% students had interpreted democratic values in terms of students' governments in schools. The same fact is confirmed here.

(2) The largest difference in the percentage of democratic responses between the two schools is found in item No. 3 which states that it is *not* for students to suggest what games are to be played in the school. A large difference in responses on this item indicates a better understanding of democratic practices in the sphere of extra-curricular activities in school B.

(3) Items No. 6 and 8 stand next in order of differences in democratic responses between the two schools. Item No. 6 describes one of the most commonly prevalent undemocratic methods of teaching and says : "In the classroom, it is the job of the teacher to talk and of the students only to listen." Item No. 8 was planned to test a social sense of responsibility. It said : "If the children in our neighbourhood are dirty, it is better to keep away from them than to try to improve them." A large difference between responses of students from the two schools on these items carried significance. It was, therefore, decided to specifically look for the causes of these attitudes while exploring causative factors of democratic attitudes among students.

30. A further examination of the analysed items of the two sections revealead a very interesting fact. As compared to School B, the number of "uncertain" responses was much greater in School A. This is clearly seen in the following table :—

Comparative Percentage of Uncertain Responses of Schools A and B

Items	Sec. I Creative Participation		Sec. III Respect for individuality	
	School A	School B	School A	School B
1	0	0	3·0	·75
2	3·0	4·62	3·9	0
3	12·0	2·32	6·1	12·13
4	6·0	3·84	12·0	4·15
5	19·0	13·08	4·1	2·28
6	6·0	4·61	11·2	5·30
7	0	1·59	10·1	0
8	4·0	1·59	9·0	3·04
TOTAL .	50.0	31·4	59·4	27·65
MEAN .	6·25	3·95	7·42	3·44

In the plan of scoring the test, it had been decided to score democratic response 2, undemocratic 0 and uncertainty 1. Larger number of uncertain responses in school A bring out the following facts :—

(i) Democratic Attitude Score of this school has risen up on account of a large number of uncertain responses.

(ii) Uncertain response is generally indicative of a lack of ability to make decision. This ability is commonly associated with the qualities of a democratic citizen. In a school having a lower Democratic Attitude Score, the comparative lack of this quality was meaningful.

31. *Results of the 'What Will I do' Test.*—Having assessed students' reactions regarding what they will *think* under certain situations, a check-up on these reactions was planned at the doing level. The test, "What will I do?", was administered to 104 students (classes VII—X) from School A, and 123 students (classes VII—X) from School B*. The scores of the two institutions are given below :—

Schools	N	Mean	SD	D	CR
A	104	21·78	2·48	·96	3·2
B	123	22·74	2·04		

Results of this test strongly confirmed the conclusions arrived at through the test "What Do You Think?".

The significance of difference between mean scores of the two schools is of a very high level. As there was found to be a positive correlation between the two tests (.40), this confirmation validated the results of the first test.

32. *Results of Experimental Projects.*—As stated earlier in paragraph 24, responses to questions under the section "planning" and "execution" of the projects could be scored quantitatively. The scores obtained lent further support to the conclusions arrived at through the two tests. The data is reported in the following table :—

Difference Between Median Scores of Schools A & B in Experimental Projects

Schools	N	Median	SD	D	CR
A	21	20·91	8·0	9·59	3·0
B	20	30·5	8·7		

Difference between median scores of the two schools on the first two sections of experimental projects is significant above the ·01 level.

*The classes tested were the same as for the test "What Do You Think ?". The difference in the number of students tested is due to chance reasons such as number of absentees or number of cancelled answer sheets.

33. It has already been stated in paragraph 24 above that the evaluation part of the projects could not be scored quantitatively. An examination of this part will show that the questions have been framed for the purposes of self-evaluation of participants on the work done in the experiment. The questions stimulated intelligent thinking on democratic problems among the students, and tried to create a consciousness regarding their innate responsibilities as democratic citizens. It was felt that students of both the institutions had much to gain from these discussions. The expectation was justified and the procedure proved to be a rich experience for *all* the participants.

34. *The Attitudes of Teachers and Teacher-Pupil Relationships.*—Scholars are in general agreement that among the casual factors that have possibilities of influencing the students' attitudes, teachers' attitudes assume a major significance. The educator tends to pass on his attitudes indirectly to the educated along with the direct instruction he gives him. Teachers' attitudes towards school life in general and school work in particular are, therefore, bound to be reflected in their students' attitudes.

35. The difficulty which faced the investigation in measuring the attitudes of students presented itself in a multiplied form in the case of teachers. The difficulty of finding an appropriate instrument to assess attitudes was present in both cases. In addition to this, there was the problem of obtaining the teachers' cooperation in a project purported to scrutinize their attitudes towards school-work and students. The ego of the teacher rebelled against direct questionings, or for that matter even against psychological testing, on the subject. Both the problems had to be courageously confronted.

36. After a careful survey of related literature on the topic and cooperative discussions, it was decided to use Cook, Leeds and Callis's MTAI (*i.e.* Minnesota Teacher Attitude Inventory) as one of the instruments for measuring teachers' attitudes. This inventory has emerged after several years of research. The instrument consists of 150 statements designed to measure teachers' attitudes related to teacher-pupil relationships. Responses to searching statements concerning various school situations and matters are invited on a five-point scale ranging from Strongly Agree to Strongly Disagree. Separate answer-sheets for making the responses are provided.

37. It may be clarified at this stage that the instrument has been used with the full awareness that the Inventory has been planned and standardized on a foreign population. A careful scrutiny of the test items, however, will indicate that the situations used are worth examining in any system of democratic education. It has also been taken into account that the conception of "right" or "wrong", "desirable" or "undesirable" attitudes can be correctly comprehended only in the context of the particular socio-cultural modes of the society where any such study is to be conducted. The present instrument, therefore, was used with a clear understanding of the limitations outlined above. It was decided that the results would be viewed along with the conclusions arrived at from other sources. The results were to serve only as support to other evidences.

38. There was an apprehension that Indian teachers may find it difficult to comprehend some difficult English words or typical American phraseology used at certain places in the test. Hence, a translation of the items in Hindi was done and a few copies mimeographed. Booklets in English were distributed to the teachers and they were requested to make use of the Hindi translations available to them only in cases of language difficulty.

39. *Planned Observation Schedules.*—After having assessed teachers' attitudes on a foreign psychological scale, it was decided to verify the results by checking up the actual behaviour of the testees. Regular Classroom Observation Schedules were, therefore, carefully planned and systematically carried out. The six main values which served as the main foundations of the plan of the study, were also the bases of these observation schedules. Questions purporting to test the presence of each value in the teacher were framed. For purposes of this test, however, Values 3 and 4 were dealt with under one heading. The questions were so framed as to elicit 'yes' or 'no' answers so that the results could be quantitatively scored. The schedules were filled in the classroom situations while observing the teachers.

40. *Results from the MTAI.*—The MTAI was administered to 15 teachers from school A and 11 teachers from school B. These teachers taught the senior sections of the schools and came in regular contact with the students whose attitudes were tested.

41. It was satisfying to note that teachers from both the schools indicated a curiosity to learn about the MTAI. As translated copies of the instrument in Hindi were available for reference purposes, the teachers did not have much difficulty in filling out the answer-sheets. Items of the MTAI stimulated many questions from the testees and provided for interesting discussions after the administration of the test. Teachers of *both* the schools scored low on the test. All the 15 teachers from school A had negative attitude scores, the range of scores being from −2 to −71. In school B, 7 out of the 11 teachers tested, had negative attitude scores. The range of scores was very wide in this school—the highest score being −74, and the lowest being −33. Thus teachers of both schools appeared to have a poor teacher-pupil relationship.

42. Difference between the mean scores of the two schools, however, was highly significant as shown in the table given below :—

Mean Scores of Schools A & B on the MTAI

Schools	N	Mean	SD*	D	CR
A	15	−36·7			
			23·52	30·5	3·2
B	11	−6·2			

An examination of the scores on the test had indicated gaps and zero frequencies upon more than one interval. Hence, it was decided also to compute and compare the median scores of teachers from the two schools. This computation at once indicated the

*As the two groups in question were very small, a single SD was computed by pooling the sums of squares of the deviations taken around the means of the two groups.

extent to which only *one* highest score in school B *was* affecting the mean score of the entire group. Comparison of medians gave very different results which are given below :—

Median Scores of Schools A & B on MTAI

Schools	N	Median	SD	D	CR
A	15	—35·0	16·6		
				19·5	1·58
B	11	—15·5	30·3		

Examination of the above data indicates an insignificant difference between attitudes of teachers from the two schools. The CR of 1.58 shows that there are nearly 12 chances in a 100 that a difference as large or larger than that obtained would occur, if the true difference were zero.

43. Actual scores on the MTAI had thus indicated that teachers of *both* schools had unfavourable attitudes. A further validation of the results was, therefore, felt necessary.

44. *Results of the Observation Schedules for Classroom Activities.*—According to the plan of the present project, the assessment made on a foreign psychometric instrument was to be checked up by a device developed during the course of this study, *viz.*, the observation-schedule for classroom activities. It was really in using *this* device that greatest resentment from teachers of both schools had to be faced. The teachers as well as the headmasters did not like the idea of teachers' classroom activities being systematically observed for purposes known to them. A good deal of patient talking over was necessary before the observer was allowed in the classrooms.

45. Thirty classroom observations were made in each school, whose scores on the observation-schedules are reported in the following table :—

Mean Scores of Schools A and B on Classroom Observation-Schedules

Schools	N	Mean	SD	D	CR
A	30	11·3	7·2	2·8	1·7
B	30	14·1	4·8	..	..

Results on the observation-schedules confirmed the results obtained by comparison of median scores of the two schools on the MTAI. The difference between teachers' attitudes from the two schools was insignificant, the probability being ·09. The C.R. indicates that there are 9 chances in a 100 that the difference such as that obtained between the two groups would be found in a situation in which there were really no differences.

46. As the observation-schedules were planned on the basis of the six main values which defined the democratic attitude, it was decided to further examine the scores on the schedule separately in terms of each of these six values. The results of this comparative analysis are reported in the following table :—

Mean Scores of Schools A & B on Observation-Schedules for Classroom Activities

Sections	Schools	No. of Items	Mean	SD	D	CR
1. Creative Participation . .	A	7	14·3	3·4	3·4	·69
	B	7	17·7	3·6		
2. Understanding and Tolerance	A	7	10·1	2·4	3·9	·97
	B	7	14	3·2		
3. Respect for Individuality and 4. Equality of Opportunity. .	A	7	10·4	3·3	1·6	·31
	B	7	12	3·9		
5. Freedom of Thought and Expression.	A	5	10·4	1·7	4·2	1·6
	B	5	14·6	2·0		
6. Respect for Higher Values of Life.	A	5	4·4	2·7	4·4	1·0
	B	5	8·8	3·5		

A glance at the table indicates that a detailed analysis of the scores on the observation schedules again brought out insignificant differences between attitudes of teachers from the two schools in terms of the values that defined democracy. The results obtained through the administration of MTAI were thus confirmed.

47. *Conclusions.*—Teachers' attitudes and teacher-pupil relationships had been presumed as very significant causal factors for the inculcation of democratic attitudes among students. The above findings disproved these presumptions and came as a surprise. But the successive assessment by two devices and a detailed examination of the results left no choice and indicated that the cause of the differences between students' attitudes from the two schools lay somewhere else. Although it was painful for workers in the teaching profession to accept the ineffectiveness of teachers in terms of their influences on their students' attitudes, the unpleasant reality had to be faced.

48. *Study of Schools and School Life.*—Elimination of teacher-attitudes and teacher-pupil relationships as causal factors of democratic attitudes among students emphasised the need for a study of the schools and life in the two schools with a view to examining these influences on the attitudes of students. Both these items are inter-related and had to be studied together.

49. Devices used for the study of schools' lives and organizations were : (a) a study of the relevant literature about the schools; (b) observations; (c) interviews ; and (d) participation in school life.

50. Two things about these techniques should be noted : (1) All these devices were qualitative. The results could be recorded only in the form of personal impressions and conclusions rather than in means, medians and critical ratios. (2) Work with these devices could proceed simultaneously rather than successively as in the case of the tools used in the study until now.

The main findings of this part of the study are given in the paragraphs that follow.

51. *Developmental History of School A.*—(a) *Birth.*—School **A** had its origin in 1933 amongst the village community of——. In the backward area where it originated, agriculture was the chief means of subsistence for the people. The farmers of villages in this area resolved in one of their meetings to establish a school which would improve their lot through proper education of their children. The landowners visualized a school in which the students would receive, not only instruction in the 3 R's, but also purposeful education for their lives. As a school specifically meant to educate children of lumberdars or landholders, it was natural that agriculture would be one of the main subjects of study. Consequently, the curriculum had an overwhelmingly rural bias, with agriculture and agricultural activities predominating the educational programme.

The school started with very few students—about 20—at the Middle stage. A small boarding house was attached and free board and lodge was provided to the students. The school had its own tract of land and traditional implements were used for agriculture.

The school thus had its origin in special circumstances, with a special purpose and for a special class. The cause of its birth was undoubtedly a noble one. The school was initiated with the professed purpose of catering to the needs of the surrounding community.

(b) *Growth.*—In 1935, only two years after its birth, the State took over complete charge of this Middle school. The state also adopted a generous attitude towards the institution from the very beginning and provided for ample freedom to make experimentations in education.

It was unfortunate, however, that the lumberdars themselves were not satisfied with the type of education provided for in this school. They thought—and perhaps rightly—that the education which their children were receiving within the four walls of the school, could be better given on the open fields. Consequently, they started withdrawing their children from the school.

In order to meet this precarious situation, the well-wishers of the institution decided to throw the school open to children from all classes of society. In 1949, the admission was made open to all, and a general course of studies was provided. In the same year, the school was also raised to the standard of a High school.

Provision for the special combination of Agriculture, Biology and Chemistry was made. In fact, at present this is the only school in the area providing for the combination of this trio of school subjects.

(c) *Aims and Objectives.*—The professed aims and objectives of the school at the initial stage were : (a) Expansion of literacy ; (b) providing liberal education to the children of lumberdars; and (c) training of the above class in agriculture. With the development of the school, the aims outlined at the beginning had to be abandoned. The school is now bound by the main object defined in "The Educational Code of Rajasthan, 1957", in the following words: "Secondary schools are institutions whose main object is to afford general education beyond Primary and up to the existing Intermediate stage." It has no other specifically outlined aims.

52. *Developmental History of School B.*—(a) *Birth.*—School B originated as a small school in 1931 at the eventful time of Mahatma Gandhi's Civil Disobedience Movement for India's freedom. It emerged out of the efforts of a group of enthusiastic young scouts who had been inspired by their leader, many years before the origin of the school, to dedicate their lives for country's improvement. At the time when political struggles in the country fired the imaginations of youthful idealists, the first inspiration to start a school as a centre of revolt against conventions came in a scouts' camp and with the support of a few devoted young friends, a scheme for the establishment of a progressive school was drawn up in August 1930. In November 1930, the school was founded in picturesque surroundings and started work in July 1931.

To start with, there were sixty students, four classes and twelve teachers. The school started with a spirit of adventure and experimentation and its very birth represented a revolt against conventional evils in terms of a constructive and courageous implementation of progressive ideas.

(b) *Growth.*—This small school grew with amazing rapidity amidst adverse circumstances. It kept on accumulating a steady record of momentous educational experiments and strides in spite of repeatedly having to undergo distressful periods of socio-economic adversity.

The school was mostly run through donations and collections of funds. Lack of adequate finances was a constant source of worry to the workers. The government gradually started taking interest in the institution and started giving financial aid.

In July 1932, High school classes were started. From the very beginning, the curriculum was planned with a wider purpose of developing the *whole* child rather than only training faculties of his mind.

In 1956, the school was converted into a Multi-purpose Higher Secondary school and provision for the following subject-groups was made : (a) Humanities, (b) Science Group; (c) Fine Arts; and (d) Technical Group.

(c) *Aims and Objectives.*—The accepted aims and objectives of school B today are the same with which it was started. They are :

(1) Providing facilities for the full and harmonious development of each individuals according to his own inclinations and aptitudes ;

(2) Cultivating in the children a broad and open-minded outlook on hfe ;

(3) Enabling the children to adjust themselves to their environment; and

(4) Preparing useful citizens with a keen sense of duty and responsibility towards society.

53. A perusal of this comparative developmental history of the two schools brings out the following facts :

(1) School A was started for a special community with special aims in view. School B was started for the general community with special aims in view.

(2) It was not possible for School A to adhere to the specific aims with which it had started. Secure under Government control, it developed like many other general schools. School B remained steadfast to its special aims in the midst of adversity. It grew under storm and stress but retained its spirit of new experimentation.

(3) School A seems to be bound to no other aims except those outlined in the Educational Code of Rajasthan. School B has its own specifically defined aims which reflect the spirit of modern philosophy and psychology of education.

54. *Size and Status.*—The status of School B was that of a non-governmental institution while that of School A was that of a governmental institution. School B was also larger with 735 students and 28 teachers as against School A which had 229 students and 19 teachers. A comparative examination of fees in the two schools also indicated that School B was much more expensive than School A.

55. *Administrative Set-up.*—Both the schools have records of enthusiastic head masters. Powers of the head, however, naturally vary in government and private institutions. Headmasters in government schools are not the ultimate authorities responsible for the introduction of any new educational method or reform and their powers are specifically defined in the Educational Code of Rajasthan. Hence, the headmaster of School A, who is a person of progressive educational ideas and keen sensitiveness to educational problems, finds it difficult to *directly* implement any new method or reform which he may think of. The headmaster of School B is the ultimate authority in his institution in this respect. He is free and independent to introduce any new educational reform or try a novel educational experiment in his school.

56. The entire working of an institution tends to be influenced by the restriction on freedom for educational experimentation provided to the head of the institution. A difference can be observed in the very spirit of the two institutions under study. With almost every thing pre-determined by the authorities, and anything new to be approved through many channels, things move at a slower pace and matters tend to become routine and traditional. School B has no such handicap.

57. *Selection and Permanency of Teachers.*—Selection of the *right* type of teachers and then their *permanence* on school staff are very important factors in the successful working of a school. The administrative head of an institution knows the needs of the school and is, therefore, in the best position to select the appropriate persons on his staff. In government institutions, however, he has hardly any voice in the selection of his staff. There is a Staff Selection Committee in School B also. Opinion of the headmaster, however, is given the greatest weight in the final recruitment of teachers. In spite of having this advantage of selection, however, there was a general inadequacy of staff and also of competent staff in School B.

58. One thing reported from School A was the evil of frequent transfer of teachers in government institutions. Frequent transfers increase the insecurity among teachers on the one hand and on the other, create a lack of adequate acquaintance with the pupils. Both these factors are responsible for uncongenial teacher attitudes and poor teacher-pupil relationships in that school. Although transfers by higher authorities and the resultant lack of permanency was not a disturbing feature in School B, it was strange to observe the evils of a continually changing staff in that school also. Lack of permanency was added to the defect of inadequacy of staff which has already been indicated. Possibilities for a better staff than School A were, therefore, counter-balanced to a certain extent.

59. It was felt that the factors mentioned in the two preceding paragraphs might be partly responsible for the insignificant difference found in the teachers' attitudes from the two schools.

60. *Staff Council.*—Set-up of the staff council is different in both the schools. In School A, one of the elected staff members is the president of the Council. The staff, it was reported, may come forward with suggestions which may be impracticable. The headmaster, in such situations, can only be the tongue between two sets of teeth—the staff and the higher authorities.

61. In School B, the headmaster is also the head of the staff council. With free provision for a democratic atmosphere for frank discussions of problems and suggestions, he is in a much better position to meet the teachers' demands. All kinds of problems are freely discussed in the staff council which is itself a democratic body to take decision through mutual exchange of ideas. Thus the headmaster as well as the staff live in a free and fearless atmosphere and seem to supplement each other rather than come in each other's way. The six main values defining democracy used to be generally prevalent in meetings of staff council.

62. *Students' Unions.*—Students' Unions are found in both the schools; but they differ in their set-up and activities. In School A, the union is called "Students' Parliament". Not only has the *name* a political tinge, but its character also has a political orientation. The union comprises five representatives from each class and consists of two bodies. Similar to a "parliament", any resolution to be passed goes from one 'House' to the other 'House'. There is usually trouble over getting the budget passed.

63. The composition of Students' Union is entirely different in School B. All students and members of staff make the "Chatra Mandal" (Students' Assembly) which is an experiment in education for democracy. The students are associated with school governance through the Chatra Mandal composed of the whole body of the Secondary school. The assembly freely discusses various aspects of school work and makes suggestions to the headmaster regarding improvements which it thinks desirable. The executive responsibility for discipline, games and literary and social activities rests with the Panchayat composed of the President who is a senior student elected by the Assembly, the ministers selected by him with the guidance of a Teacher Adviser, and elected group-leaders. Thus, ample opportunities are provided for training in democratic leadership, cooperative working, understanding and tolerance and equality of opportunity according to abilities. The defined values of democaracy could thus be amply promoted. Training in democracy through the democratic experiment in education was felt to be one of the most important causal factors for democratic attitudes found among students of School B.

64. *School Life.*—Comparative study of the two schools indicated significant differences in terms of the general life prevalent in the two institutions.

(a) *Timings.*—The first difference which immediately attracts the attention of any newcomer is in the timings of the two schools. School A is run in two shifts—the timings of the shifts being arranged according to specifications in the Educational Code of Rajasthan.

Life in School B is so organized that the students stay at school from morning to evening. They have their mid-day meal, rest and afternoon "nashta" in the school. They are thus brought up in a home-like atmosphere where teacher and pupil come into intimate personal contact.

Self-help is the keynote of the day's life. Inculcation of group and individual responsibility is naturally done through the course of day's manifold activities.

This significant difference in the very plan of the day tends to create different kinds of attitudes in the students.

(b) *Special Features of School A.*—School A has had the reputation of having *good* traditions. The authorities of the school always aspired to develop the institution into a Model Government School. It has already been stated that the government also extended full support to the school. Opportunities for starting democratic practices in the school were also provided for. Some special features of the school are described below.

(1) *Students' Parliament.*—It was found that a students' organization in some form or other had always existed in the school even when other schools were far behind in this respect. At present, the students' parliament shoulders the following responsibilities : (1) Organizing the Annual Function ; (2) Organizing General Hike of the school (once a year) ; (3) Organizing Saturday programmes which comprise debates, talks, music, etc.; (4) Organizing programmes for nationally important days ; and (5) Sending teams for participation in tournaments and other competitions.

Responsibilities of the Students' Assembly in School B have already been detailed in paragraph 63. A comparison shows a much more comprehensive field of responsibilities for "Chatra Mandal" of School B.

(2) *Parents' Days.*—For the last two years the School has also been organizing Parents' Days. Not much cooperation of parents, however, was reported.

(3) *A.C.C. and N.C.C.*—The A.C.C. training is compulsory for all students. The N.C.C. and Naval training of the N.C.C. are for the seniors only and are optional. The school has a very good *N.C.C. Band* of which it is rightly proud.

(c) *Special Features of School B.*—The entire life of school B seemed to be a *special* one. In addition to the unique feature of school timings reported before, some other special features of the school are reported below:

(1) *Group System.*—In School B, each child is respected as a unique individual with special personality traits of his own. Therefore an attempt is made to study his individual needs and problems. At the same time, group responsibility and cooperative working needs to be individually inculcated for the successful democratic working of the school. These two-fold purposes of the school are achieved through a unique educational experiment called the "Group System". The whole school is divided into Groups, each under a senior teacher and an assistant. A Group is a family within the larger school community and has its own programme of camps, hikes, literary functions and cultural activities. Once a year every Group organizes a Group Function to which parents of the Groups' children are specially invited. The Group teacher is responsible for not only the academic but also the all-round development of the child.

(2) *Camps and Hikes.*—Training in leadership, cooperativeness and hardship through regular camps and hikes is another special feature of the school. Every group individually organizes two camps and one hike in the year.

(3) *Regular Games.*—Games and sports form an essential part of the school life. Physical training along with education in character is provided for through this regular feature.

(4) *Parents' Day.*—Once a year every Group organizes a Parents' Day. Special purpose of this day is to seek the parents' cooperation in better understanding the children and planning their lives in a better way.

(d) *Curricular Life.*—A part of the curricular aspect of life in the two schools was already investigated under the study of teachers' attitudes and teacher-pupil relationships. The classroom observations had indicated insignificant differences in the regular curricular activities of the two schools. The MTAI had also reported unfavourable teacher-attitudes in both the schools. Therefore, the features of curricular life were now studied from an angle wider than that of the classroom.

Curricular Life

School A Subjects.—Curricular life in School A is similar to that of any other ordinary school. The only thing worth noting was the special provision for the combination of Agriculture, Chemistry and Biology.

Teaching.—The everyday teaching methods are almost the same as in School B. The curricular life is limited to the school hours scheduled according to the timings of shifts.

Evaluation.—Evaluation is mainly done by means of two traditional examinations—half-yearly and the annual. In addition to these examinations, results of five monthly tests and classroom assignments are also assessed.

Curricular Life

School B Subjects.—Being a Multipurpose Higher Secondary school, a diversification of courses is provided for in School B.

Teaching.—In spite of having good laboratory equipment and intelligent students, inadequacy of proper staff was found to be one of the major loopholes of the curricular life of School B. Lack of their permanency increased this feeling of inadequacy.

Evaluation.—It was in the field of evaluation that commendable progress was observed in School B. The student is evaluated on the basis of day-to-day progress rather than only on the results of the annual examination. Every teacher maintains his subject and class-wise diary in which there is provision for daily rating of the student on a five-point qualitative scale. Terminal and annual reports are sent to parents according to the same scale.

In addition to the above developmental assessment, every Group teacher maintains his Group file in which a comprehensive cumulative record of each student under his charge is maintained. In the Group-meetings, the students are regularly informed of their strengths and weaknesses. Thus, students of School B had a greater sense of security and confidence than that generally found in school students.

(c) *Co-curricular Life.*—Co-curricular features in School A are only those reported already under Special Features. In School B, the following two significant co-curricular features were noted in addition to those mentioned under Special Features:

(a) *Open-Air Session*

Open-Air-Session (O.A.S.) is School B's typical educational experiment in which the education of the child is completely related to his life, and the life related to his immediate environment. For a period of ten days, the entire school goes out to a place selected for study due to some specific importance. All the curricular and co-curricular aspects of life are purposefully correlated to the environment. There is plenty of scope for the development of the qualities of cooperativeness, initiative, and group-work. The O. A. S. is a unique training in democratic education and living.

(b) *Anniversary Project*

Another educational experiment conducted by School B is the Anniversary Project. For a fortnight, intensive work is done on a particular project of cultural importance. The school programme is modified to permit sufficient time for the multifarious activities involved in the project.

The two co-curricular features outlined above may as well be called curricular features if curriculum is interpreted according to its most modern concept. They are in fact educational methods and experiments conducted in the school.

These experiments provide ample opportunities for the inculcation of democratic attitudes amongst students.

65. The most significant causal factors for development of democratic attitudes among students were thus found to be in the *School Life* of School B. A comparative study of the general and special features as well as the curricular and co-curricular aspects of school life, indicated this area to be School B's main stronghold of democracy. Although School A has also aspired and attempted to become a Model School, lack of freedom and restrictions in many things have left it a poorer school in terms of students' democratic attitudes. The organizational set-up of a school and its school life are thus found to be very important causes for the inculcation of democratic attitudes among students.

66. *Final Recommendations.*—The main recommendations of this study may, therefore, be stated as follows :

(i) One important role of schools should be to clarify the *concept* of democracy to students.

(ii) Confusion between democracy in Politics and democracy in Education needs to be clarified.

(iii) Further research into the causes for the generally unfavourable attitudes of teachers should be conducted.

(iv) Organizational set-up of schools and school life should be further studied with a view to improve them in terms of causal factors for the inculcation of democratic attitudes among students.

(v) General life in schools should be more democratically organized.

(vi) Administrative heads of institutions should be given more freedom in terms of introduction of educational reforms and selection of teachers.

(vii) Right type of teachers should be selected and their permanency and security should be ensured.

(viii) Respect for the *teacher's individuality* should be developed hand in hand with a respect for the student's individuality.

(ix) More emphasis on higher values of life should be given in education.

(x) Investigations into the home and community life of students as causal factors of democratic attitudes should be conducted.

STUDENT INDISCIPLINE—THE CASE-STUDY OF AN INSTITUTION

(This is a case-study of an institution—a big Government Secondary school in a city—from the point of view of student indiscipline. The study has been carried out under the Ministry Scheme (B2) for Promotion of Research in Education. In order not to disclose the identity of the school, all names have been excluded and even the names of the institution or persons who conducted this study have been kept out. This voluntary anonymity adopted by the investigators themselves will increase the value and effectiveness of the study. It is hoped that the study will help all concerned to understand this complex problem ; and in particular, the study can be a good guide to individual schools who desire to evaluate themselves and improve the discipline of their students.—Editor.)

I

Introduction

The Seminar in Ootacamund, held in June 1956, suggested the undertaking of an intensive case-study of an educational institution from the point of view of students' indiscipline and this investigation is the result of that suggestion. The names of the school, city, State and even of the investigators have been treated as confidential. Unfortunately, certain adverse remarks had to be made against the school studied and care had to be taken to see that no individual or the school should be penalized on account of this report. The school and its staff have their good points as well as their shortcomings. Owing to the nature of the study itself, the shortcomings have received greater attention; but it must be pointed out, in fairness to all concerned, that there are some very good teachers and conscientious workers in the school, although their qualities have not been effective for certain reasons.

Discipline is a multi-dimensional concept. It has a number of facets and has to be studied from different angles. Each facet is a problem for research in itself. It has not been possible to do justice to all these aspects because much of the time of the investigators was spent in developing new methods to study new problems as they arose from time to time. It is hoped that the approach adopted in this investigation would be helpful to future research workers, if they feel interested in similar investigations. It is also hoped that realistic assessment of facts as presented in this report might help in initiating those esssential changes in the existing educational structure which alone can lead to a lasting solution to the problem of indiscipline. Some suggestions for these are given in the concluding chapter of the report.

It is necessary to acknowlege the excellent cooperation received from the school. The teachers and the headmaster never tried to hide anything and they candidly admitted their own shortcomings. This in itself is a very good sign and augurs well for the future.

II

Objectives and Procedure

The aim of this research project is to study the causes of indiscipline by making an intensive case study of a school as a whole and to supplement it by case studies of individual students with disciplinary problems. The study is divided into four parts. In the first part, a detailed study of the school organisation was made because it is very largely upon this organisation that the tone and discipline of the school depend. This study included an analysis of the history of the school; its present resources in land, buildings, equipment and personnel ; the headmaster's ideas, attitudes to and relations with staff and students; the attitudes of teachers to one another and to the students; and the attitudes of the students themselves.

In the second part, an attempt was made to study and analyse some problems of group indiscipline that arose in the school during the period of the investigation.

In the third part, an attempt was made to locate individual problems of indiscipline. For this purpose, a new test, hereinafter called the 'Guess Who' test was designed. It gave an indication of the students in the school who showed certain problems in their behaviour. On the basis of this test, forty cases were selected for a detailed study, the basis for selection being the score on the 'Guess Who' test, type of disciplinary problems reported, and role in group activities of an undesirable character. Of these, twenty cases were intensively studied. These twenty cases include delinquents who steal, truants, gang leaders, strike leaders, aggressive boys who are fond of fighting, active political workers, dull boys and cases showing minor mischief in the classroom. They were individually given the 'Detroit Scale', which comprises a number of questions, and data were gathered about their health, personal habits, recreational pattern, personality, home atmosphere, etc. Two personality tests, T.A.T. and Rorschach, were also administered. In T.A.T. all the twenty pictures were used. An intelligence test was also given. In the case of young children, 'Kohs Block Design' test, and in the case of older children, 'Jalota's Test of Intelligence' were used. In the case of the remaining twenty, only disciplinary problems were studied. Here again, the method used was to interview the students who had reported names of the selected cases in the 'Guess Who' test. The study yielded detailed information regarding the activities of these students, both inside and outside the class. The teachers' opinion about all the forty cases was sought and some information was secured. Finally, on the basis of all this data, the probable causative factors for the misbehaviour of these students were analysed.

In the fourth and final part, some general suggestions for the improvement of school discipline, in so far as they arise from this investigation, have been made.

III

School Organization

1. School organization has very close relationship with the school discipline and problems of indiscipline generally arise in a school where the administration is slack. With a view to trace the organisational factors responsible for school indiscipline, a detailed study of the school organization was made. Twenty-three teachers were interviewed and their opinions were recorded. Opinions of the students were also collected and, in addition to these, a record of day-to-day observations was maintained. These were further supplemented by interviews with students' guardians, local political leaders and educationists.

2. *A Brief Description of the School.*—It is a government school with a spacious, double-storeyed building which has thirty-eight well furnished and commodious rooms besides a big hall (accommodating 500 students) under construction and a tin shed. There are two big rooms which serve as a library and reading-room and a Science Laboratory. The school grounds also are very spacious and there are separate hockey and football fields. There is also provision for basket ball, volley ball and badminton. The only unfortunate part of the plan is that the headmaster's office is situated on the ground floor of the left wing so that he cannot find out what is happening in the other parts of the building.

There are about one thousand students studying in two shifts. There are 4 sections each in classes VI, VII and VIII, 10 in class IX, and 12 in class X. Half the sections of each class meet in each shift, the staff for the two shifts being separate. There are 54 teachers working in the two shifts taken together. The headmaster usually works in the first shift, and in addition, one of the senior teachers is in charge of each shift.

3. *A Brief History of the School and Its Traditions.*—The school was established in 1945. It has failed to establish good traditions and it is notorious for indiscipline. One main reason for the poor discipline in the school has been the conflict between the headmaster and the teachers which has also resulted in frequent changes of headmasters. The problem of private tuitions has been the one major factor in this conflict and the teachers have revolted against the headmaster's attempt to control private tuitions or to introduce evening classes for weak students which would have affected private tuitions. Teachers also reacted unfavourably when the headmaster tried to introduce new practices like maintenance of diaries and there are even instances where the teachers instigated the students against the headmaster and made it difficult for him to function.

Strange experiments in democracy have been tried in this school. From teachers, who have served here for a number of years, we learnt that a headmaster in this school, in order to reform a very mischievous student, put him in charge of the school discipline. The boy became so bold as to fine a teacher who had not kept his cycle at the proper place. He also had a large following so that the teacher felt intimidated and, astonishing as it might appear, paid the fine. A very responsible teacher said that the boy once complained to the headmaster that teachers visited the cinema too frequently and were setting a bad example to the students. He was, therefore, permitted by the headmaster to visit the cinema and to check whether any teacher had come to see the show.

The school is too big. The staff has usually been inadequate with the result that classes are often left without teachers. The headmasters have not been in a position to supervise the work of the teachers effectively. These factors have undermined the discipline of the school and its students have been rowdy and defiant. Once, when the Minister of Education paid a visit to the school, the students placed their demands before him. When the Minister refused to consider them, the boys went out of control and stoned his car. Such instances can be multiplied. Bad traditions, once formed, act as as a stumbling block for the future also and it requires considerable effort to change them.

3. *The Headmaster.*—To evaluate the administrative efficiency and other qualities of the headmaster of the school under investigation, the teachers were asked to state their general opinion about him. In the analysis of these interviews, only those statements have been accepted which are given by three or more teachers. If the opinion is limited to only one teacher, this has been explicitly mentioned. The following picture of the headmaster emerges from the teachers' interviews.

(a) *Administrative Ability.*—Nine teachers say that he is a good administrator. He is punctual, regular and very good in office work. Papers are promptly disposed of. He delegates responsibility to other teachers; but one teacher says that he does not see whether the delegated responsibility has been properly carried out. He examines the teachers' diary once a month. He does not supervise the teaching work adequately. He takes round of the school only once in a month or two months. One teacher said he did not take a round at all. The investigator himself did not observe him going on a round. He gives no suggestions to the teachers regarding their teaching. Four teachers say that he does not carry out his own decisions. If any irregularity is brought to his notice, he takes a very strict view of it. He believes in punishment and is a strict disciplinarian. Some cases of indiscipline are not reported to him as the teachers fear that he might expel or rusticate the boy concerned. One teacher suggested that the headmaster should stay in the school for a longer time.

(b) *Personality Traits.*—The headmaster is very much interested in games. He plays hockey, football and volley ball. He encourages other teachers also to participate in games. He is a good teacher, but he assumes superior airs. He has an irritable temperament (reported by six teachers). He is too showy and often talks about his abilities and achievements (reported by four teachers).

(c) *Attitudes Towards Teachers.*—His attitude is helpful towards the teachers (reported by 11 teachers). He helps them in their promotion and transfers, sends them for N.C.C. training and gives advice on any problem that may be brought to him. He shields their weaknesses before the higher authorities. This fact is very much appreciated by the teachers but his relations with them are formal. Two teachers say that he is autocratic and five say that he assumes superior airs.

(d) *Relations With Parents and Students.*—He mixes only with those parents who are officials and a few others. All the parents are invited to the annual function. If a boy shows any serious disciplinary problem, the headmaster calls the parent or guardian of the boy to the school and brings it to his notice. He mixes with the students in games and participates in debates. But otherwise, he remains aloof and formal.

On the whole it seems that the headmaster's relationship with the teachers is satisfactory and this may be the reason why there is no serious conflict between the teachers and this headmaster, although such conflicts were frequent in the days of his predecessors. But he also has obvious drawbacks. He ought to see whether delegated responsibility is properly discharged; he must himself go round the school more frequently and supervise the work of the teachers and he should function as a member of the team and should cease to put on superior airs.

4. *Teachers.*—There are only 20 trained teachers in a total of 54 and some of them have only the C.T. diploma.

(a) *Teachers' Popularity.*—In order to find out the popular teachers and the qualities which made them so, the students were asked to write the names of two teachers—the best among their class teachers, and the best among all the school teachers and also to give reasons for the choice. The answers given by the students were analysed on the basis of qualities which make the teachers popular and, for convenience of discussion these were further arranged under two main heads : (1) teaching qualities and (2) qualities of character and temperament.

The study showed that, in teaching qualities, the ability to "explain well" was most frequently mentioned and that, in the qualities of character and temperament, "sympathetic attitude" towards students ranked first. The other teaching qualities mentioned are (1) good voice, (2) putting questions, (3) revising the lessons, (4) giving sufficient home-work, (5) examining home-work regularly, (6) teaching in an interesting manner, (7) teaching at a slow speed and (8) giving illustrative examples. Under qualities of character and temperament, mention was also made of (1) goodness, (2) sense of humour, (3) coolness of temper, (4) unwillingness to give corporal punishment, (5) insistence on discipline, (6) interest in the students, (7) impartiality, (8) capacity for hard work and (9) exercising a good influence over students. Besides these, two other qualities, *viz.*, being a good sportsman and maintaining a good standard of living were also mentioned. Considering the over-all responses, it appears that teachers who can teach well, especially those who can make the students understand their subjects, and those who are sympathetic and talk to students in a friendly and courteous manner, are the most liked. Special significance should be attached to these findings because these qualities were reported by the students without any suggestion from outside.

There are fourteen teachers in the school who participate in games and hence the relationship between participation in games and popularity was studied. The headmaster is the most popular and two teachers in charge of the two shifts come next in order of popularity. Six of the popular teachers are sportsmen and one of the reasons given for liking them is that they play games. This does not, however, mean that all the teachers who play games naturally become popular. There are three players whose names do not come in the first fourteen popular teachers in the whole school and in the class-wise study also, they do not find a place in the first two popular teachers. This indicates that games, in themselves, do not make a teacher popular. All the same, the chances for a good player becoming popular are greater than for those who do not play any game.

(b) *Teachers' Attitude Towards Delinquencies.*—The teachers were questioned as to how they would deal with delinquents and mischievous students. Specific forms of delinquencies and mischief were included in the questions and the teachers' responses have been analysed in the following tables :—

Teachers' Attitude Towards Delinquencies

Problems of Delinquencies	Negative Measures Suggested by Teachers							Total No. of teachers
	Report to headmaster who takes action	Give corporal punishment	Mark the subject absent	Turn the subject out of the class	Rusticate or expel the subject from the school	Make the subject feel ashamed	Miscellaneous	
Truancy . . .	1	..	10	..	2	..	Fine the subject=1	14
Dishonesty . .	1	1	..	1	..	4	Stop giving him any responsibility =1 Advise the parents not to give money=2	10
Stealing . . .	9	3	..	..	1	2	Fine him=3	18
Aggressive Behaviour	5	4	..	2	2	1	Scolding=1 Enter his name in the black book =1 Give warning =3 Make him stand=1	20
Sex Problem . .	1	..	..	..	2	..	Segregate him =1 Give warning =1	5
Disobedience . .	..	3	1	6	..	2	Make him stand=2 Give warning =3	17
Bad Habits . .	..	..	..	1	1	1	..	3
Threatening the teacher	14	..	..	..	1	1	Get written apology=1 Challenge him =1	18
Total No. of Measures	31	11	11	10	9	11		

Problems of Delinquencies	Positive Measures Suggested by Teachers							Total No. of teachers
	Advise the student	Contact the parents	Ignore but keep the boy under observation	Psychological clinics should be set up where the boy may be treated	Make an enquiry to find the cause	Divert the child's energy into proper channels	Miscellaneous	
Truancy . .	2	9	..	..	3	..	Case study method=1	15
Dishonesty . .	2	1	1	..	..	..	Influence the child through his companions=1	5
Stealing . . .	1	2	1	..	..	..	Study the home conditions of the boy=1 Satisfy the boy's needs =2 Study his friends=1 Influence the boy through his companions=1 Give group responsibility =1	10
Aggressive Behaviour	3	3	2	1	1	2	..	12
Sex Problem . .	3	..	1	2	..	2	Encourage co-education=1	9
Disobedience . .	6	1	3	1	..	..	..	11
Bad Habits . .	5	4	..	1	..	..	Change the boy's society =1	11
Threatening the Teacher ..	..	..	..	..	..	..	..	0
Total No. of Measures	22	20	8	5	4	4		

It will be seen that the negative measures suggested by the teachers are greater than positive measures in dealing with dishonesty, stealing, aggression, disobedience and threatening. This is particularly so in the case of negative measures suggested for dealing with aggression. For threatening the teacher, no positive measure has been suggested, thus illustrating the principle that aggression is met by aggression. For sex problems and bad habits, the positive measures suggested outnumber the negative responses while for truancy, positive and negative measures suggested are nearly equal. It seems that the teachers take a more sympathetic view while dealing with these problems. One reason for this may be that sex problems and bad habits such as smoking, gambling and drinking do not directly interfere with the teachers' work in the school.

Some teachers adopt a *laissez faire* attitude in dealing with sex problems, dishonesty, disobedience or even bad habits. Regarding sex problems, fourteen teachers said that they had not come across any such problem. Some teachers also felt that teachers would not be able to discover cases of "bad habits". Some teachers maintained the same nonchalance even when cases of behaviour problems came to their notice.

The negative measure most frequently recommended is reporting to the headmaster and it has been emphasized specially in cases of stealing or threatening the teacher. Corporal punishment, making the child feel ashamed before the class, and marking him absent, have equal frequency and come next in order of preference. Corporal punishment has been most frequently recommended in stealing and aggression. Marking absent is most frequent in dealing with truancy, and making the child feel ashamed is most frequent in dealing with dishonesty. The last method is very unpsychological and is likely to undermine seriously the self-respect of the child. But it was suggested by eleven teachers!

Though positive measures have been suggested, they are seldom used in practice. Only one teacher reported that he tried to contact the parents of the problem children. Many teachers also give advice; but the other measures are not actually worked out by them. The implementation of positive measures requires greater effort on the part of the teachers. They, however, feel that they have no time for this and that they are over-burdened with work. This may be true to a certain extent, but it needs careful examination. Probably, the teachers do not have a real incentive for such work which they consider as falling outside their routine duties.

(c) *Teachers' Attitude Towards Mischievous Students.*—The tables given below indicate teachers' attitude in dealing with the mischievous students :—

Teachers' Attitude Towards Mischievous Students

Problem of Mischief	Negative Measures Suggested by Teachers						
	Give warning	Scold the student	Corporal punishment	Report to the Headmaster	Make the student feel ashamed before others	Miscellaneous	Total No. of teachers
Making Noise . .	5	3	3	1	..	Fine him = 1 Make him stand in the class = 3	16
Drawing funny pictures of the teacher.	3	3	3	..	..		9
Quarelling . . .	2	5	4	2	1	Fine him = 1	15
Putting irrelevant questions	5	2	1	1	1	Turn him out of the class = 1 Overawe him = 3 Make fun of him = 1 Minor punishment = 1	16
Popularising teacher's nickname.	2	2	1	..	..	Turn him out of the class = 1	6
Making fun of the teacher .	2	4	3	..	1	Give him P.T. exercise = 1 Segregate him = 1	12
Making fun of simple boys	5	3	3	..	1	Ask other boys to tease him = 1	13
Total No. of Measures .	24	22	18	4	4		..

Problems of Mischief	Positive Mesaures Suggested by Teachers				
	Advise the student	Contact the parents	Keep the student busy	Miscellaneous	Total
Making Noise	2	2	5	Making him silent by putting more questions = 1 Give group responsibility = 1	11
Drawing funny pictures of the teacher.	4	1	1	Appreciate him = 1 Turn it into humour = 1	9
Quarelling	4	2	1	Investigate and settle the dispute = 2 Satisfy the child's needs = 1	11 11
Putting irrelevant questions .	2	2	..	Interview him personally = 1 Ask him to study the book = 1 Ask him to wait = 1 Divert his attention = 1 Reply in the best = 2	10
Popularising the nickname of the teacher.	5	1	..	Investigate the cause = 1 Don't care, give a smile = 2 Ignore it = 1	12
Making fun of the teacher . .	4	1	1	Tackle him with personal influence = 1 Ignore = 1	8
Making fun of simple boys .	5	1	1	Divert his energy = 1	8
Total No. of Measures . .	26	10	9		..

The negative measures are greater than positive measures in dealing with (a) noise, (b) quarelling, (c) asking irrelevant questions, (d) making fun of the teacher, and (e) making fun of simple boys. The largest number of negative measures have been suggested for dealing with irrelevant questions and quarrels. It appears that, when a student asks an irrelevant question, teachers often feel that he is challenging their knowledge. It will also be seen that the negative measures most frequently suggested are to give warning, scolding and corporal punishment.

Giving advice is the most frequent of the positive measures. In dealing with delinquencies also, this was the most popular positive measure. A few interesting positive suggestions were also made. In dealing with 'noise', one teacher suggested : "Appoint three monitors in the class and give each of them the responsibility for maintaining silence over a section of the class". In dealing with 'drawing funny pictures of the teacher', two teachers suggested that the child's drawing should be appreciated by the teacher and one suggested that this should be an occasion for humour rather than for irritation.

The teachers were also asked : "What will you do if a boy points out your mistake in the class?" The aim obviously was to find out how far the teacher is tolerant and fair-minded. Though most of the teachers say that the teacher should accept his mistake, nearly all of them admit that teachers actually get irritated and try to suppress or punish the child. Three teachers adopted a negative approach and clearly stated that, in such a situation, the teacher's prestige was at stake. Two teachers suggested that the boy should be forcibly made to sit down and one said that the teacher should try to find some mistake of the student and thereby control him!

(d) *Private Tuitions.*—From teachers who have served in the institution for a number of years, it was found that, in previous years, a large number of teachers used to engage themselves in private tuitions and that some of them earned very handsomely. From 1946 to 1952 a very large number of students went in for tuitions and, towards the last three months of the session, the tuition work of some teachers used to become so heavy that they could get very little sleep. The usual practice was to have tuitions in several shifts. Sometimes, each shift comprised as many as twenty students, each paying Rs. 10. Thus the earnings of some teachers went up to as much as Rs. 800 per month. The teachers who had a better reputation charged a higher rate. In 1951-52, the headmaster decided to abolish this practice. He tried to get transferred those teachers who were making a very high earning from tuitions. The teachers resisted the attempt and, with the help of the students, created such a difficult situation for the headmaster that it became almost impossible for him to continue in the school. Students went completely out of his control. They nicknamed him "monkey" and even used to shout 'monkey' within his hearing. The headmaster became so disgusted that, instead of getting the teachers transferred, he got himself transferred from the school.

It has to be pointed out that this evil of private tuitions exists in spite of the law on the subject. The State Education Code lays down that (1) a teacher can take up two tuitions only with the prior permission of the Inspector of Schools, (2) that only two students can be taught in one tuition, and (3) that not more than two hours should be devoted to tuitions per day. The Deputy Director of Education in charge of the school had adopted special measures to enforce this rule. He sent circular letters to all the guardians of students informing them that their wards would be expelled and action would be taken against the teacher concerned if they engaged any school teacher for private tuition without the sanction of the education authorities. The

teachers were also asked to submit a monthly report on the tuitions undertaken by them. A register for this purpose was also required to be kept in the school office. But in spite of all these efforts, it was found that almost all the teachers in the school took up tuitions, and that only one teacher noted his name in the register.

Out of 23 teachers interviewed, 8 said that tuitions have no bearing on discipline, 2 were undecided and 13 said that this practice had an unfavourable effect on discipline. They gave several reasons in support of their view. Students engaging tutors do not care to study in the class and even defy class discipline knowing that the teacher will not take any action against them. The teachers sometimes favour the students who take tuition from them and this creates rivalries among the students. One very objectionable practice was pointed out by two teachers who said that some teachers engaged students as touts to get more tuitions. These boys try to secure tuitions for the teachers and in return, are given free private tuition. They are also favoured in the class and in the examination and if the teacher concerned happens to be the invigilator, they can even copy with impunity.

All the 23 teachers admitted that 'secret' tuitions were being given. Four said that almost all the teachers took up 'secret' tuitions and all agreed that teachers of Science and Mathematics got the lion's share in tuitions. Some teachers give tuitions in groups while others teach individual students. The groups consist of 8 to 10 students each and the number of groups taught by a teacher may be four or five. The maximum earning, as reported by four teachers, is Rs. 500 per month. The season for tuitions begins after December, three or four months prior to the annual examination. Sometimes a few teachers cooperate together and cover all the school subjects through private coaching.

Teachers were further asked to suggest measures to stop the practice of secret tuitions. Seven suggested that it was difficult to detect. One teacher said that teachers and the headmaster connived in concealing this fact from higher authorities. Another suggested that some kind of secret investigation was needed to find out such cases. Eight were of the opinion that the teachers' financial condition should be improved and one suggested that the basic salary of the teachers should not be less than Rs. 200 per month. Some teachers suggested that strict supervision was needed and four suggested that special classes might be organized for weak students and a special allowance may be given to the teachers teaching these classes.

(e) *Transfers.*—There were eighteen transfers from the month of August to December. Owing to such quick transfers, teachers are not able to establish contacts with the students and parents. The problem was discussed with the educational authorities who explained that this problem could not be helped and that it was likely to continue for some time longer due to unavoidable reasons.

(f) *Teacher Absenteeism.*—One astonishing practice found in this school was that many teachers did not regularly take the classes assigned to them in the time-table. Occasionally, if the conversation in the staff room takes an interesting turn, it is not uncommon for the teacher to skip his period. Sometimes this remark may be heard : "Oh ! it was my period. I should have taken it: but now it is over". Some teachers do not stay in for the last period as they feel tired or hungry. Some teachers cut their classes to take tea in a restaurant near the school. Usually they go out in the recess to return only when the next period is half-way through.

In view of this situation, it was decided to make a planned study of the teachers' attendance in the class. Due care was taken not to arouse their suspicions. About fifteen minutes after each period, the investigator went round the classes and noted down those classes in which no teacher was present. On the average, four periods per day were observed in the first shift for eight days, and five periods per day in the second shift for nine days. The observations were made in the month of February when teachers are expected to become serious about their work in view of the annual examination, but even in the month of February, many teachers were found to be absenting themselves from their classes as the following tables will show :

Teacher Absenteeism

I—*First Shift*

Date	$3\frac{2}{58}$	$4\frac{2}{58}$	$5\frac{2}{58}$	$7\frac{2}{58}$	$10\frac{2}{58}$	$11\frac{2}{58}$	$12\frac{2}{58}$	$17\frac{2}{58}$	Total
Number of periods observed . .	1	4	2	6	5	5	2	1	26
Classes without teachers . . .	9	12	7	11	10	23	8	2	82
Classes whose teachers were on leave .	3	10	2	4	4	6	3	0	32
Teachers absent from the classes while present in the school.	6	2	5	7	6	17	5	2	50

II—*Second Shift*

Date	$3\frac{2}{58}$	$4\frac{2}{58}$	$5\frac{2}{58}$	$10\frac{2}{58}$	$11\frac{2}{58}$	$12\frac{2}{58}$	$14\frac{2}{58}$	$15\frac{2}{58}$	$17\frac{2}{58}$	Total
Number of periods observed .	4	4	8	7	8	4	4	5	4	48
Classes without teachers .	14	10	48	23	35	11	9	15	12	177
Classes whose teachers were on leave.	7	3	13	4	4	3	0	0	2	36
Teachers absent from the classes while present in the school.	7	7	35	19	31	8	9	15	10	141

It will be seen that in the first shift, 16 teachers out of a total of 27 cut their classes in eight days. The average number of periods cut is three and the range is one to six. In the second shift, things are much worse. As the headmaster usually stays in the first shift, teachers in the second shift feel freer and cut their periods more frequently. Another reason for their absenteeism may be their participation in games. It is also seen that the fifth period and the last periods are most frequently cut. The reasons have already been explained above.

The senior teachers in charge of the shifts themselves cut their classes and so they are not in a position to demand an explanation from their colleagues.

The attendance of the students is always taken in the first and the last periods. The teachers who cut the last period either take the attendance next day or fill in false attendance.

(g) *Teachers Appearing for Examinations.*—Out of a total of 54 teachers in the school, 18 are appearing for some examination or the other. It was observed that the teachers who appear for an examination take little interest in teaching. Some of them were found studying books for their own examination while sitting in the class. When they are so engaged, the students are generally asked to sit quietly and do their own study. In a week's scrutiny in which about four periods were observed in each shift on every day, it was found that three teachers were studying their own books for the examination in the classroom. The headmaster rarely visits the classrooms and so he does not come to know what the teachers acutally do.

(h) *The Staff Room.*—A study of the staff room atmosphere gives an indication of teachers' interests and cultural level. The staff room is situated adjoining the verandah and the students passing through the verandah can overhear the conversation of the teachers. Sex is one of the favourite topics of conversation. There are two or three teachers who evince special interest in this and express their views in an uninhibited manner. One of them talks in a loud tone and remains completely unmindful of the fact that he may be overheard outside. Another teacher has evolved a certain formulae about sex life and talks freely about it as his research. The conversation on sex is often indecent and objectionable. Some teachers do not like it but are apparently helpless.

Teachers feel free to smoke in the staff room. Students are often asked to get cigarettes and 'pan' from a shop outside the school. In fact, one or two teachers complain that the present day students are not sufficiently respectful towards the teachers and do not very willingly go to fetch these things. It may be noted here that this happens in spite of the fact that the Educational Code prohibits smoking and spitting in the school premises. Some students resent smoking by the teachers and consider it to be a bad example for other boys. Some of the teachers also agreed with this view.

One incident about the staff room is particularly worth mentioning here. On the school inspection day, the staff room was decorated with pictures. When the investigator visited the staff room on the day after the inspection, he found that a number of pictures were missing from the walls. On enquiry, one teacher said that the teachers themselves had removed the pictures to decorate their houses. He also sarcastically added : "You just wait ; very soon you will see that the remaining pictures have also disappeared." Further enquiries about the pictures were not made, but the very fact that a teacher can make such an allegation against his colleagues is not a happy sign.

(i) *Staff Relations.*—Social relations among the staff members appeared to be good Excepting for four, all the teachers are of the opinion that the relations are very good In spite of this, the existence of rival groups among the teachers was generally admitted One teacher said that of the two groups among the teachers, one was usually led by the headmaster and the other by a powerful teacher. The reasons for such group formation were given by a few teachers and included the shift-system, unequal distribution of work, partiality and rivalry due to economic disparity. One teacher suggested that the cause of group formation should be investigated. Ten teachers were of the opinion that a joint meeting should be held to settle the rivalries. Some teachers were of the view that the headmaster should take the initiative and bring about a settlement between the two groups.

To the question "What would you do if you found that a teacher in your school instigated students against other teachers?" The measure most frequently suggested was social boycott. Four teachers admitted that there were one or two such teachers in the school. One suggested counter propaganda against the teachers.

The teachers were asked whether they discussed the common problems of the school Fifteen teachers said 'no' while eight said 'yes'. From the details of the answers given, it seems that there is no formal and organized discussion of common problems of the school. Out of eight teachers who said that discussions were held five explained that discussions were held sometimes in the tea club or in the staff room in an informal manner. One teacher said that when a school problem was referred to the headmaster, he gave his decision straightaway without referring the matter to the teachers. Another teacher said that since the government had set policies and instructions, the teachers did not have any real incentive for discussing new plans and schemes. Sometimes the teachers, who tried to discuss their problems with others, were ridiculed because other teachers felt that they were trying to show off.

(*j*) *Shift System.*—Teachers were asked : "Is there any relationship between the shift system and indiscipline?" Nine teachers said that the shift system had no relationship with indiscipline, while the remaining were of the opinion that it definitely had and two teachers were of the view that it was the main cause behind indiscipline. In the first place, it was found that the shift system created rivalry among the staff members. Staff members of one shift passed disparaging remarks about their colleagues in the other shift even in the presence of students. They boasted of their own achievements and found fault with their counterparts in the other shift. One teacher said that the teachers of one shift instigated students of the other shift against their teachers. Owing to the shift system, teachers could not take part in co-curricular activities and their contact with the students was also limited. Thus three teachers in the second shift said that they could not give any opinion about the union president as he studied in the first shift. The shift system made the students stay in the school shorter and gave them more free time for their idle activities. The school hours also became unsuitable under the shift system. The students in the first shift were sometimes detained over-time and reached home very late for their meals, by 2 P. M. or even later. The teachers also were similarly detained. In cases of damage to school property, each shift blamed the other and it became difficult to trace the offender.

5. *The Students.*—There are about one thousand boys studying in the school. Forty-three students live in hostels and quite a large number live in the city without any guardian. Considered as a whole, the hostel students appeared to be well behaved. At the same time, the study showed that hostels, in themselves, would not solve the pro-

blem of indiscipline. One serious case of behaviour problems is from among the hostel boys and there are several who show truancy. There can, however, be no denying the fact that provision of hostels is a step in the right direction and that it will go a long way in solving the problem of indiscipline.

As compared to the good conditions provided in the hostels, the lot of the student living without any guardian was unenviable. These students who came mostly from villages lived in dark, dingy and ill-ventilated rooms which were very small, some being five feet by five feet and one being only three feet by six feet. These rooms (each of which had 3 or 4 students) formed part of buildings in which other four to five families resided. The students complained that they were much disturbed in their studies due to the noise created by children and other residents. No bath rooms or latrines were attached to these rooms and the students had to use public latrines and public water-taps. They cooked their own meals in the same room where they slept and studied. As they had to cook their meals, they did not get enough time to participate in school activities like scouting, games, N. C. C. etc. At times they even had to be content with one meal only. In spite of these hard conditions, the large majority of the students living alone had no disciplinary problem. The names of fifty-five students (out of a total of 85 students) were not reported at all for any act of indiscipline or behaviour problem. Even with the remaining 30 students, the problems most frequently reported against were ; coming dirty to the class, truancy, putting irrelevant questions to the teacher, copying in home-work and smoking. Four students were also reported for stealing.

It is thus true that the students 'living alone' have not posed serious problems in discipline. This may be due to their good home-training or to the fortunate fact that they had not fallen in bad company.

(b) *Students' Interests and Hobbies.*—School discipline can be improved if the students have some interesting hobbies to keep them occupied in their free time and provide a healthy channel for their energies. With a view to finding out the hobbies in which students are interested, a questionnaire was given to 546 students studying in classes VI to IX. Some of the students did not correctly understand the meaning of hobby, but an analysis of whatever responses were received is given below :

Popular Hobbies of Students

Hobbies	Junior Classes VI, VII & VIII (286)		Senior Class IX (260)		Total 546	
	No. of students	Percentage	No. of students	Percentage	No. of students	Percentage
1	2	3	4	5	6	7
Playing games	167	58%	164	63%	331	60%
Studying	144	55%	80	28%	224	41%
Roaming	98	34%	87	33%	185	33%

1	2	3	4	5	6	7
Agriculture and Gardening .	21	7%	66	25%	87	16%
Cinema	19	7%	36	14%	55	10%
Music	15	6%	23	8%	38	7%
Stamp collecting . . .	12	5%	25	9%	37	7%
Photography	21	7%	14	5%	35	6%
Drawing	9	3%	24	8%	33	6%
Playing Carrom . . .	19	7%	10	3%	29	5%
Swimming	8	3%	13	5%	21	4%
Physical Exercise . . .	3	1%	15	6%	18	4%

It will be seen that "playing games" is the most popular hobby and that it has been reported by 331 students or 60 per cent of the students. Next comes "studying" reported by 224 students. This cannot, however, be included among hobbies. Then came "roaming" which is reported by 185 students. The school can make use of this natural inclination by organizing hikes and camps ; but unfortunately no hike was organised by the school. "Agriculture and Gardening" comes next and has been reported by 87 students (16%). Next comes "cinema" in which 55 boys (10%) are interested. Other hobbies include "music" (38 students), "stamp collecting" (37 students), "photography", (35 students) "drawing" (33 students), "carrom" (29 students), "swimming" (21 students) and "physical exercise" (18 students). Nearly 50 more hobbies were reported by students, but each of them was reported only by a few students. These included radio-listening, acting, tailoring, cycling, smithy, typing, painting, chess, etc.

A glance at the hobbies listed shows the varied interests of students, and excepting for a few, they have educational value. Some of the interests and hobbies like hiking, acting, public speaking, smithy, observing and collecting objects like coins, flower petals, Dewali cards, match box labels, pictures are very healthy hobbies. The school should provide greater facilities for these hobbies and should encourage the students to participate in them.

(c) *The Participation of Students in Group Activities.*—The school prayer is held before the beginning of each shift; attendance is compulsory for the boys, although it is not compulsory for teachers. (In practice, only a few teachers come for the prayer meeting.) The total number of *scouts* was 80 in the month of July, but it fell to 32 at the end of the year. A study of scouts, however, showed that, in so far as disciplinary problems are concerned, they were no better than the ordinary students. 16 students had joined the N. C. C. but at least 50% of them showed serious behaviour problems. It appears that training in discipline received on the parade ground is not transferred to situations outside it. Almost all the students are members of A. C. C. Physical training is compulsory and is arranged twice a week for every class. There are separate playing fields for football, hockey, volleyball, basketball and badminton. But only a limited number of students actually participate in games; mainly the students who are selected in the first or second eleven have the monopoly of the fields and games material. The school has ample grounds and if the organisation is improved, some kind of games can be provided for a much larger number of students.

Every Saturday, class-wise group activities are organized and the last period is devoted for this purpose. Debates, story telling, songs, recreational games are some of the activities commonly organised and these are guided by the class teachers. It is a good feature of the school but all the teachers are not sufficiently interested in it, with the result that the programmes are not very effective.

(d) *Students' Parliament.*—The school has a students' union, formed on the lines of the parliamentary system. Each class elects three representatives. They constitute the executive body. This body elects a prime minister and a deputy speaker. A senior teacher is a speaker. The prime minister forms his own cabinet which consists of six ministers. The students themselves plan for the year's activities and prepare a budget. In the year of this study, the students' union organized the following activities : (a) *Annual Function and Drama :* This lasted for three days. Debates, music competition, story competition, games and P. T. demonstration were organized and prizes were awarded to winning students. A drama was also staged. (b) *Kavi Sammelan :* Very few students and the teachers attended this programme which was not very successful. (c) *Magazine :* The school magazine to which students and members of the staff contribute articles is published annually. In addition to this, a manuscript magazine is issued quarterly. It is prepared wholly by the students and no staff member is associated with it.

Unfortunately, there is another side to this activity. It was also found that the students' parliament became the instrument for open defiance of teachers by the students. In the teachers' conference, the headmaster said that the students' parliament had become a headache to him. He was of the opinion that before introducing the parliamentary system, the students must be properly oriented to it. Another difficulty was that there was no opposition group in the school parliament and if an opposition party was created, it was likely to oppose the teachers and the headmaster. A third problem was how to train the students in parliamentary discussions and procedure. If adequate preparation was to be undertaken it would entail heavy work, for which no one seemed to be prepared. The headmaster also believed that the group system was a better alternative; but since the Department desired the adoption of the parliamentary system, he felt helpless. Lack of freedom to experiment and too much of dictation by the Department in the day-to-day activities of the school are thus mainly responsible for the half-hearted effort or indifference shown by the teachers in the school parliament. We cannot expect a teacher to be zealous about a programme in which he has no faith.

(e) *Suggestions of the Students to Improve the School.*—The students were asked: "What improvement would you suggest in your school?" All the 546 students did not give suggestions and some gave more than one suggestion. The total number of suggestions received is 670. These suggestions, grouped into seven categories, are given in the following table :

Students' Suggestions to Improve the School

Suggestions to improve the school	Frequency
Category No. 1	
Attention to character and discipline	
(a) *Character*	
(i) Students' unity and a sense of brotherhood need to be developed. . . .	36
(ii) Students should improve their character, should speak the truth, obey their elders and teachers, help each other, respect others and work hard.	34
TOTAL (a) .	70
(b) *Discipline*	
(i) Students should improve school discipline by observing all the rules of the institution.	132
(ii) Cleanliness should be maintained.	79
(iii) Stealing should be checked.	15
(iv) Action should be taken against indisciplined students.	7
(v) Punishment should never be given.	3
TOTAL (b) .	236
TOTAL (a) and (b) .	306
Category No. 2	
Improvement in school building, equipment, furniture and grounds	
(i) School grounds should be cleaned.	61
(ii) New furniture should be provided and old repaired.	50
(iii) School building should be improved. Urinals, water tap, stage may be constructed.	23
(iv) Equipment such as fans, typewriters, agriculture equipment, science apparatus and spinning equipment should be provided.	15
(v) Library should be improved.	10
TOTAL .	159

21—6 M. of Edu./60

Suggestions to improve the school	Frequency
Category No. 3	
Improvement in teaching and studies	
(i) Teachers should pay more attention to their teaching. New methods may be adopted.	61
(ii) More teachers are needed. There is shortage of teachers as many periods are left without teachers.	19
(iii) Students should work hard and raise the standard of studies.	9
(iv) Teachers should be more polite and friendly.	3
TOTAL	92
Category No. 4	
Improvement in games	
(i) More facilities and proper arrangement for games should be provided.	29
(ii) Lot of land is lying waste which can be easily utilized for preparing sports' grounds.	10
(iii) Student participation in games should be encouraged for the improvement of standards.	3
TOTAL	42
Category No. 5	
Improvement in the organization of co-curricular activities	
(i) More activities such as hikes, drama, general school meetings, celebration of festivals, and scouting should be organized.	25
(ii) Students should go for social service.	14
(iii) Students should participate in extra-curricular activities.	2
TOTAL	41
Category No. 6	
Improvement in the school orgdnization	
(i) There should be a school uniform.	5
(ii) The school should be raised to Higher Secondary standard.	3
(iii) No period should be left without teachers.	2
(iv) Students should be allowed to attend any period in any shift.	1
(v) Holidays should be curtailed.	1
(vi) There should be only one shift.	1
(vii) Medical Examination should be held.	1
(viii) P T. classes should be held.	1
(ix) First terminal examination should be held.	1
(x) Fees should be reduced.	1
(xi) Fee concessions should be given to the poor students.	1
(xii) Complaint Box should be kept.	1
(xiii) Many students do not come for prayer, all should come.	1
(xix) Concession cards should be issued.	1
TOTAL	21

Suggestions to improve the school	Frequency
Category No. 7	
Miscellaneous.	
(i) Students should collect donations.	4
(ii) Union's constitution should be drawn up by the students themselves. . .	3
(iii) Teachers should meet parents.	1
TOTAL .	8
Total number of suggestions under all the seven categories	670

The students were not told that this study concerned school discipline, but to our surprise we found that the largest number of suggestions received were about the improvement of discipline and character. The total number of suggestions under this head is 306 and for discipline alone, 236. As many as 132 replies say that the students should be made to observe school rules. It will not be wrong to expect that if the school authorities try to enforce the rules, they will get the active cooperation of a large number of students.

III

Students *Versus* Authorities—Problems of Group Indiscipline

During this study, several occasions arose when the student body as a whole or groups of students organized agitation against the school authorities. These agitations took the form of a strike, threat of a strike, non-cooperation or disobedience. In each of these agitations, the authorities were faced with a difficult situation as they had to deal with a group which rejected their advice and was bent upon defying them. The issues soon became matters of prestige between the students and authorities and each felt that any concession to the wishes of the other meant defeat. Open defiance of this kind needs serious thought. The group problems of discipline observed in this study and the manner in which they were handled by the authorities will be discussed in this section along with some allied but minor problems.

2. *Students' Agitation Against Imposition of Fees.*—In the early stages of this study when the schools opened after the summer vacations in July, 1957, the students organized an agitation against the enhancement of fees. They went on strike in all government educational institutions in the city and similar strikes were held in the other important cities of the State as well. It was, therefore, decided to collect data about the strike through personal observations and interviews with the students and authorities. The important issues about which data was collected included: (a) Steps taken by the authorities to dissuade the students from participating in the strike; (b) study of the strike situation, behaviour of the students, their group organization and their leaders; (c) other forces and influences helping the students in their strike; and (d) measures to be adopted to prevent such strikes.

(a) *Events Leading to Strike.*—Before July, 1957, education was free for all boys and girls in all government schools (excluding professional and technical institutions). Education for girls was free even up to M.A. class; but for boys, a small fee was charged at the college stage.

The State Government had been considering the levy of fees for a number of years. Every year, the enforcement of such a measure was postponed for fear of opposition. The Education Minister who first mooted the suggestion had to face black flags in 1952. But gradually, a number of circumstances were forcing the issue. These included the integration of areas where fees were charged and the increasing expenditure on education. But before introducing any change in the scales of fees, Government tried to seek the advice of educationists, administrators and student leaders. On the 16th January, 1956, they held a conference to which Principals of Intermediate and Degree colleges, Presidents of College Students' Unions, and Education Officers were invited. Government placed its difficulties about finance before the conference and suggested the levy of fees. It is reported that the majority of participants admitted the necessity of levying fees. After some time, another meeting of administrators was called. This meeting visualised the difficulties of enhancing fees; but the majority were of the view that it should be done gradually and in stages. A beginning could be made at the college stage and gradually, the proposal may be extended to boys' schools and finally to girls' schools. But in spite of these earlier decisions, an abrupt order was received from the State Government in the month of June, 1957, saying that "fees will be charged from the ninth class onwards from this session". The fees laid down were Rs. 3 for class IX, Rs. 3/8/0 for class X and Rs. 4 for class XI (exclusive of an additional annas eight for Science or Commerce). Girls were to be charged at half the rates of the fees charged from boys. In colleges also, fees were enhanced. There was another unhappy aspect of these orders. The students had already been admitted in the month of May, 1957. If this order had been received earlier, fees could have been charged at the time of admission and the trouble would have been minimized.

(b) *Reasons for Students' Agitation.*—Several reasons led to the students' agitation on this issue. To begin with, Government did not take any previous steps to inform the public of the reasons for enhancing fees. The parents and guardians could not appreciate the decision of the Government and support its standpoint. Even the headmaster of the school under study said that he was not in favour of enhancing fees. It was only after the students had gone on strike that the Government issued certain charts explaining the need to enhance fees and the 'generous' fee concessions which would benefit about 50% of the students. But that came too late. Secondly, it was also decided that the wards of Government servants drawing a salary of Rs. 250 or less p.m. were to get free education *in schools.* When the public came to know of this order, it was severely criticized. Prominent congress leaders also felt that this order was wrong and that it was against the idea of equality of educational opportunity.

In spite of these mistakes of Government, the strike of the students would not have gathered momentum, if it had not been for the desire of the political parties to exploit the situation for enhancing their popularity among the public and their influence amongst the students. These facts were admitted by three political leaders. They were asked a question : "Suppose your party comes into power, you too will have to face the problem of students' indiscipline. Why then are you encouraging it now?" But they had no answer to this question.

(c) *Full History of the Agitation.*—The agitation began in the Capital and in another city of the State. At both the places, the police had to use force to control the situation. In this city, the students went on strike in government High schools and degree colleges as soon as they opened in August, 1957. The private institutions, the Middle schools and other professional colleges were not affected. It seems that the initiative was taken by the Government degree colleges and that the strike spread from there to other govern-

ment schools. A week prior to the strike, an action committee was formed to organize the students' agitation in the city. It consisted of seven students from different institutions and three advisers. All three advisers were advocates, one was a member of communist party, another a member of Congress party and secretary of an educational institution and the third, a non-party man. They used to meet regularly in the evening and review the work done and plan for the next day. These advisers turned down any suggestion for damaging public property or resorting to violent means. They always recommended peaceful and non-violent methods.

The investigator was present when a meeting of the students was held and speeches were delivered by student leaders. All the speeches were emotional and meant to stir the passions of the audience. Glorious deeds of the heroes of this land were recalled and the audience was exhorted to remember that, in this land of great warriors, the sword, if once unsheathed, could not go back without quenching its thirst for blood. In the same breath, the name of Mahatma Gandhi was mentioned and reference to non-violence was also made. After a number of speeches, students formed a procession. It marched through the different parts of the city collecting more students as it passed by other schools along the way. This continued through all the days the strike lasted. The procession had four or five tongas equipped with loud speakers and a few boys on horses carrying black flags. Brief speeches were made from time to time and slogans were shouted.

In the speeches, the students were told that they should not be afraid of the school authorities. The headmaster had actually no power. He was simply trying to overawe them. There were a few speakers who announced that they were prepared to make every sacrifice for the cause of the students. They were ready to go on hunger strike, to face bullets, or to court arrest and imprisonment. The educational authorities were challenged to note their names and take whatever action they liked.

Two political parties were closely associated with the strike. There were several student leaders who were either members of political parties or were connected with them. One of them had even contested election to the State legislature on a party ticket. In the beginning of the strike he addressed a students meeting and offered to place his services at the disposal of the Action Committee. From then onwards, he took a leading part in the strike and directed all its strategy.

On the fourth day of the strike, ten volunteers from the Mazdoor Union also joined the procession. They could be identified by the badges they were wearing on their arms. But the move was opposed and a hand bill bearing the names of fifty-five students which said that they strongly resented the participation of the different political parties in the strike was also distributed. It blamed the political parties for trying to use the students as their tools and expressed a determination to carry on the agitation independently and in a peaceful manner. There was only one incident in which there was conflict between two groups having different political affiliations. But it was not serious.

Funds for the stirke were collected from the public. A majority of the shopkeepers paid of their own accord, but coersion was used in the case of those who resisted. They were told : "The students' procession is coming and if you don't pay, it will stop in front of your shop and damage may be caused to your shop". The shopkeeper, if he did not pay even after this threat, was subjected to further harassment.

The procession was stopped and a tonga carrying a loud speaker was brought in front of the shop. From the tonga, slogans were shouted against the shopkeeper and he was compelled to pay. About Rs. 1,500 were collected from the public.

It does not seem that the majority of the students were in favour of the strike. The Action Committee daily used to send a tonga fitted with a loud speaker and some students to the school. The loudspeaker attracted the students to the tonga and there they were persuaded to join the strike. When the main procession came, it would halt in front of the school and a party of students would enter the school and bring out the students from their classes. In this school, one teacher tried to continue his class; but the students started shouting slogans "Down with the traitors" and he had to give up the attempt. After leaving the school, the students joined the general procession and participated in shouting slogans against Government. The loss to their studies may not be serious; but what is more serious is that they learnt that authority could be defied with impunity.

The strike ultimately started fizzling out. On the 6th August, the school opened. In the college, agitation continued; but a section of students attended the classes. The strike continued in other cities till the government conceded most of the demands. The final agreement was that fees were to be charged only from the wards of those persons who were paying income-tax.

(d) *Conclusions.*—The government failed in its attempt to enhance fees, except that the wards of the parents paying income-tax had to pay fees. Income from this source is not likely to be very substantial. The effect of the strike on the students has been bad and this may be a precedent for similar defiance of authority in future. Government policy should be well thought out and firmly implemented. On the 3rd August, 1957, the Deputy Minister of Education told the newspaper correspondents that fees would not be reduced under any circumstances; but a week after this speech, government had to come down and concede all the demands of the students.

If the government had been a little more cautious, it might have succeeded. Before issuing orders for enhancing the fees, there should have been adequate propaganda and the question of fees should have been fully discussed in the State Assembly. The cooperation of its own party members should have been sought. Meetings of headmasters and teachers should also have been held and government should have explained its policy to them in detail. Moreover, the revision of fee structure was far too drastic. A gradual change in stages would have been better. Government should also have visualized that concessions to government servants would create discontent. In this particular city, it may be said that the administrative authorities completely abstained from any show of force and did not take help from the police. Otherwise the situation might have taken an ugly turn.

Another example of slackness which encourages students' indiscipline may be given here. The students who had paid fees were assured *that the money would be refunded to them* if fees were withdrawn. About nine months had passed by the time this study was over ; but still the fees had not been refunded. One political party leader was saying that another strike might be necessary for getting the refund of fees.

It is unfortunate that the political leaders do not visualize the long-range effects of their policies. It is time that some of the mature leaders asserted themselves and advised their lieutenants to stop exploiting the students.

3. *One-day Strike Against Fresh Imposition of Fees.*—Six months after the strike against the fees was over, another strike was organized by the students on the same issue. It arose out of an order from the Secretary of Education to the headmasters of all government institutions. One part of the order said that tuition fees would be recovered in government colleges and schools for twelve months. In fact, the order was meant for the wards of only those parents who paid income-tax and it was simply a clarification of a previous order. But it was misinterpreted by the headmaster of one institution and the students were told that they would have to pay fees. The secretary of the students' union of this institution informed the union presidents of other schools on the 11th February, 1958 of this order and they all approached the Deputy Director of Education and threatened to go on strike, once again, if fees were to be charged. The Deputy Director assured them that he would consider the matter. On the next day, the investigator met the President of the students' union of this school. The President told him that he was very much dissatisfied with the authorities and that he would organize a strike in the school. The investigator advised him not to take part in such activities as the final examination was quite near. But he was adamant and said that the strike would be organized in any case. Accordingly, the students did not wait for the decision of the Deputy Director and on the 13th of February, they went on strike. On the very day, the Deputy Director, issued an order saying that no new or enhanced fees would be charged and that the students of any class who took part in the strike of Thirteenth February, 1958 would not be marked absent. From the next day, normal work was resumed.

4. *Trouble Over Quarterly Examination and Social Gathering Fees.*—Since the quarterly examination and social gathering could not be held due to certain reasons, the fees realized for these could not be utilized. The Department had issued instructions that these fees should be refunded to the students. The headmaster, with the consent of all the members of the students' union executive and advisers of the union, utilized this sum for purchasing curtains for the school dramatic club. The union office bearers had given their consent in writing. But after the high school examinations were over, trouble arose over the issue when the students demanded the refund of fees. A rumour was spread against the headmaster that he had misappropriated the money. The agitation was led by the President of the union and few members of the executive. The headmaster told them that the money had been spent with their own consent. But the President argued that the headmaster should have taken the consent of students' guardians before utilizing the money and that the consent of the union executive did not mean anything. They were children and the headmaster could persuade them in any way he liked. They threatened the headmaster with strike. The President, along with two other members of the Students' Federation belonging to other institutions, came to discuss the matter with the headmaster; but the latter refused to meet them saying that outsiders had no business to interfere in school administration. Next day, the headmaster consented to meet one of these two students. Many students were critical of this change in decision on the part of the headmaster and the incident also showed how the President was being guided by outsiders.

Later on, the leaders went to see the Deputy Director of Education and explained the whole situaton. They also threatened him with strike. The Deputy Director said that he would send the inspector to investigate. The students gleefully reported to the headmaster that now the inspector would be coming to examine the whole matter. The Deputy Director later called the headmaster and had a talk with him. They made some arrangement for the money and a notice was issued that the fees would be refunded and thus the problem was solved.

5. *Threat of Non-cooperation in the Annual Function.*—The annual function of the school was to be held and all preparations for it had been made. A day before the function, the student workers who had distributed the invitation cards threatened non-cooperation. They demanded certificates for the work they had done in organizing the function. The authorities rejected this demand and quite rightly too; but the students threatened that they would demolish the stage and create disturbance at the time of the function. The group was led by the union president. When the investigator enquired from him about this non-cooperation, he, with tears in his eyes, complained against the authorities and blamed them for lack of interest in students' activities. Later on, the authorities conceded the students' demand and the function proceeded smoothly.

6. *Trouble Over Khaki Shirts.*—The school authorities decided that 'Khaki' shirts and half-pants should be the school uniform and an order was issued that all the students should come in this dress on every Saturday. Many students did not like Khaki shirts and they suggested that the uniform should be white shirts and 'Khaki' half pants. The headmaster did not agree as he felt that poor students could not afford to wear white shirts. In the Saturday assembly, the union president blamed the authorities for not agreeing to the students' proposal. In the next meeting, the union president again wanted to speak; but the headmaster did not allow him. The students did not like it and became noisy. The headmaster threatened the union president with rustication and asked the teachers to see that his order about the uniform was strictly enforced. Students not coming in the uniform were to be marked absent and turned out of the class. Majority of students came in the prescribed uniform but the union president came in white shirt. Later on, other students also followed his example. The teachers turned out some boys from the class. The union president to then organized a strike and all the students left their classes. Trouble appeared to be spreading and student leaders from other institutions tried to contact the headmaster. The headmaster finally decided to overlook the defiance by the students and drop the idea of school uniform.

7. *Play in the Verandah and the Classrooms.*—One very common pastime of the students is playing in the verandah and vacant classrooms. Whenever the students are free and sometimes even when their class is going on, they play in the verandah with pebbles. The students form two teams and the game is to kick the stone like a football and to take it from one side of the verandah to the other. A certain amount of noise and disturbance is created; but the teachers do not make any attempt to check it. In July, an order was issued by the headmaster that no student should play in the verandah; but no further action was taken in the matter and the game continued throughout the session. Boys also play "Kho-Kho" in the vacant classrooms and displace the furniture to make room for their game. And yet, no teacher asked the boys not to play.

8. *Scramble for Front seats.*—Towards the end of the last period of the first shift, students of the second shift keep on waiting in the verandah in front of their classes. As soon as the bell goes, they make a dash to occupy the front seats. This was observed in a number of classes. Considerable disturbance is created and often a scuffle between the students ensues. But no steps were taken to check this.

9. *One Period Strike Against a Teacher.*—One day the investigator observed a teacher sitting in the class while all the students were standing outside and the shift-in-charge was persuading them to go back to their class. The students demanded an increase in their marks in the last written test as, they said, the teacher had not given them sufficient time for preparation. The shift-in-charge assured the students that he would

consider the matter and they agreed to return to the class. On enquiry, the teacher explained that, while awarding the marks, he had taken the time factor into consideration, but the students persisted in their demand. He suspected that some teachers were behind this and had instigated the students.

10. *Conclusions.*—All the incidents cited above show that whenever students go on strike or threaten it, their demands are conceded. At times, the demands are quite unreasonable. Thus demanding certificates for having helped in organizing the annual function was completely wrong. Students should not expect a reward for any little service they render. The headmaster was faced with a situation in which either he could cancel the annual function or issue certificates to student workers. He chose the latter alternative. He might well have cancelled the annual function. But it has to be remembered that, in taking a strong stand, the headmaster runs certain risks. He might become unpopular; the higher authorities might take an unfavourable view; or he might be considered incompetent and lose his next promotion. In the face of such risks, there is a tendency to hushup things, and if the students' demands can be easily met, to accede to them. It is no use blaming a particular headmaster because the same pattern of weakness can be seen from the State Government at the highest rung of the ladder down to the teacher. The State Government did concede the students' demands in the agitation over fees ; and the Deputy Director allowed the students who had gone on one-day strike to be marked present, although the students had no justification to go on strike when he had already promised to consider the matter. The natural tendency is to take the easier course. There is no difficulty in awarding certificates, howsoever undeserved they may be, or in marking the students present when they were actually participating in the strike. No one will call for any explanation. But the long-range effects of this weak and vacillating policy are obvious. It sets up a bad precedent and the students are encouraged to resort to similar methods whenever the authorities want to take any step not liked by them.

It is also seen how the union president is always backed by the Students Federation. He feels that there is a powerful organisation behind him and that, with its support, he can take a stand against the authorities. At times, he is even made to change his decision by the Students Federation. Thus, on the issue of refund of terminal examination fee, he had previously given his consent for the utilization of the amount for the purchase of curtains; but later on, under the influence of his friends in the Students' Federation, he went back on his word. The Students Federation keeps in contact with different institutions and whenever any situation of conflict between the students and authorities arises, gives its advice and full support.

The relatively minor problems like playing in the verandah and creating disturbance at the change of shifts are not without significance. The tone of the school is built by paying attention to the day-to-day behaviour of the students. It does not mean that the headmaster or the teachers should become martinets ; but they should at least enforce rules they notify and restrain disorderly behaviour. Playing in verandah can be easily stopped and students can be assigned seats to avoid scramble for front seats. A little firmness will change the tone of the school and with the improvement in tone, there will be less chances of more serious problems arising.

V

Common Disciplinary Problems (Individual) and Their Causative Factors

In the previous sections, some of the *group* problems of discipline were discussed. In this section, the emphasis will be on individual disciplinary problems, and on the effort to discover the deeper underlying causes of behaviour problems. An effort will

also be made to show how these problems arise from certain personality factors and environmental situations.

2. *The 'Guess Who' Test.*—The first step in the investigation was to devise a tool to locate individuals who had behaviour problems as well as to locate the problems themselves. For this purpose, the 'Guess Who' test was designed in this investigation.

The first step in the designing of the test was to make a list of common problems of indiscipline. For this purpose, 19 teachers were interviewed. These interviews resulted in the preparation of a list of 49 items. On their basis, brief personality descriptions were prepared for 52 items—46 items having been selected out of the first inventory of 49 and 6 items having been newly added.

The design of the 'Guess Who' test was very simple. It stated each item of indiscipline and below it, left space enough to write any number of names up to eight. The students who were given this test were asked to write the names of *all* students *in their class* who, in their opinion, suffered from this problem. An analysis of the replies, therefore, gave data on two points ; (1) a list of students who had these problems ; and (2) the problem or problems which each of these students had.

The 'Guess Who' test was administered to 652 students of classes VI to IX. All sections of each class were included. The following table shows the average number of students per class (the total enrolment in each class was about 35) who were reported by the students against each problem included in the 'Guess Who' test :—

Problems	Classes			
	VI	VII	VIII	IX
1	2	3	4	5
1. Aggressive behaviour to dominate other students	7·2	7·0	9·2	3·1
2. Beating a teacher	0·7	0·5	0·0	0·4
3. Forming aggressive groups	4·2	2·7	5·7	2·4
4. Damaging the school property	2·2	2·5	2·0	1·5
5. Removing pages from the library books . .	2·7	1·2	3·2	0·8
6. Stealing books, pencils etc.	4·2	2·7	3·7	0·9
7. Stealing cycle parts	1·5	2·7	1·0	0·5
9. Running away from the school	12·2	8·7	10·0	4·9
10. Cutting periods	9·0	7·5	9·5	4·2
11. Bluffing the parents and not coming to the school	3·2	4·5	4·2	1·4
12. Tampering with school records	2·7	2·5	2·5	0·8
13. Copying in the examination hall . . .	3·7	4·2	8·5	1·6
14. Copying in home work	7·7	5·0	11·2	3·3

1	2	3	4	5
15. Approaching the press to find out the question paper	1·5	4·5	4·2	0·7
16. Misappropriating school funds	2·0	0·5	1·2	0·1
17. Approaching the examiner to increase marks	3·0	2·2	5·0	1·5
19. Taking eatables on credit but not making the payment	4·5	2·2	5·5	1·5
20. Presenting false certificates for not appearing in the Examination	2·7	1·2	1·5	0·5
21. Proxy	5·0	3·0	4·7	1·0
23. Asking irrelevant questions in the class	6·7	4·5	5·0	3·4
24. Giving nicknames to teachers	4·5	2·0	5·5	1·5
25. Teasing simple boys	7·2	3·0	8·2	4·4
26. Spoiling other's clothes by throwing ink	4·7	3·2	5·7	2·4
27. Making mischief in the absence of the teacher	5·0	3·7	6·5	3·4
28. Teasing girls	0·0	0·0	6·7	2·4
29. Obscene drawings and obscene writings	5·0	4·2	4·5	1·2
30. Using abusive language	5·5	5·2	5·7	2·5
31. Writing anonymous love letters	3·2	0·7	2·0	0·9
32. Acting as strike leaders	2·2	1·0	3·0	1·0
33. Being impertinent to the teachers	4·2	3·7	7·5	2·1
34. Threatening teachers by anonymous letters	1·7	0·2	2·0	0·5
35. Disobeying teachers	6·7	3·0	5·0	2·2
37. Quarrelling	4·5	6·5	7·7	2·5
38. Telling lies	7·5	5·0	6·0	2·6
39. Making false excuses regarding home work	8·2	5·0	7·5	2·4
40. Keeping company of loafers	3·5	3·0	3·7	2·3
41. Drinking wine	1·5	0·5	4·0	0·8
42. Smoking	2·0	1·5	3·5	2·2
43. Gambling	2·7	0·7	1·7	0·5
44. Threatening invigilators	2·2	1·5	1·0	0·5

1	2	3	4	5
45. Not admitting their faults	3·2	4·0	5·0	2·5
46. Not bringing needed material in the class . .	7·7	4·0	6·0	2·7
47. Coming late	9·2	5·2	5·5	2·9
48. Wearing dirty clothes	7·0	5·0	4·2	1·7
49. Shouting in cinema hall	·1·2	1·0	3·7	1·1
50. Participating in the activities of political parties .	1·7	1·7	4·0	2·6

(Item Numbers, 8, 18, 22, 36, 51 and 52 have been omitted as they are concerned with positive descriptions).

The 'Guess Who' test appears to have a high validity. This is evident from the study of forty boys who were mainly selected on the basis of the test. This study showed that, in all the forty cases, with only one exception, students had given their honest opinions. In this exceptional case, when the respondents were questioned, two of them admitted that they had given certain responses out of enmity. It must also be stated that the investigators were not guided by the responses of any single student. If the same problem was reported by two or more students against a classmate, it was felt it could not be entirely without some foundation. The teachers also confirmed that the 40 boys that were selected for detailed study were problem cases and, in some instances, expressed surprise how it was possible to spot out the most problematic cases in the school.

It also appears that the success of the test depends on the age of the students and also upon the person administering it. It seems that students in class IX tried to conceal certain problems while those in the junior classes were more candid. The results will also depend on who administers the test and what instructions he gives. An outsider is likely to succeed better than the class teacher. With the latter, students are likely to be more inhibited. The students should not have any apprehension in their mind that the results of the test will be used to punish them. This should be made clear in the instructions.

No serious problem had to be faced in administering the test. Only in one case, a student lost his temper when he found that his name was being written by a classmate against disciplinary problem. The investigator tried to pacify the boy. Further study showed that he *was* a problem case.

For *scoring* on this test, it was necessary to give a numerical value to each problem to denote its seriousness. For this purpose, a group of ten competent judges which included psychologists, sociologists and educationists was consulted. They were asked to arrange the problems in order of their seriousness from the point of school discipline; and from the ranking of these judges, scale values for each card were derived. These values were assigned to each of the problems pooled together under one description. These are given in the followng table :—

Problem of Discipline Ranked by Competent Judges

S. No.	Fifteen Descriptions in order of seriousness	Calculated scale value	Final scale value
1	N is a boy who tampers with school records such as increasing attendance in attendance register or changing marks in the examination report. He presents false medical certificate in order to escape from the examination.	9·5	10
2	H is a boy who steals books, pens, and pencils. He removes pages from the library books and magazines. He also steals cycle parts from the cycles standing in the cycle shed.	8·4	8
3	D is a boy who is very aggressive and destructive. He bullies and teases others. He is even capable of beating the teacher. . . .	7·8	8
4	I is a boy who threatens the teacher in the class and the invigilator in the examination hall. He also writes anonymous letters to the teacher in order to threaten him.	7·6	8
5	L is a boy who is dishonest in money matters. He makes irregular use of the school money. He refuses to pay back the money for things taken on credit.	7·2	7
6	G is a boy who writes obscene language or draws obscene pictures in latrines and urinals. He teases and passes remarks about girls in the street. He writes love letters to the girls in other institutions and uses offensive and obscene language.	6·6	7
7	K is a boy who is the victim of bad habits such as drinking, smoking and gambling.	6·4	6
8	E is a boy who is very dishonest in school work. He copies in home work and examination hall. He approaches the press to find out the examination paper and goes to the examiner to get his marks increased. .	5·9	6
9	J is a boy who habitually tells lies. He presents lame excuses for not doing home work. He refuses to admit his own apparent mistakes. .	5·8	6
10	C is a boy who keeps company with the loafers of the city and has formed a group in order to dominate others. He is very quarrelsome.	5·2	5
11	M is a boy who is associated with some political party. He acts as a leader in strike.	4·0	4
12	O is a boy who shouts in the cinema hall and public meetings. .	3·8	4
13	F is a boy who is very mischievous. He puts irrelevant questions to the teachers in the class. He also gives nicknames to the teachers and makes fun of the other simple boys.	3·4	3
14	B is a boy who is a truant. He runs away from the school and visits cinema during the school hours.	3·4	3
15	A is a boy who is very careless. He does not bring the needed material in the class such as books, pens, pencils etc. He comes late in the class and is dirty in appearance.	2·4	2

On the basis of this scale value of the seriousness of each problem and the problems reported against each student, the score of each student was individually calculated. On the basis of this score, it was easy to isolate 20 cases with the highest score for individual intensive study.

For convenience of discussion, these 20 cases have been grouped in seven categories: (1) Defiance and aggression; (2) Sex misbehaviour; (3) Stealing; (4) Truancy ; (5) Mischief ; (6) Gang rivalries ; and (7) Miscellaneous. It has to be remembered, however,that a problem student generally shows a complex of problems. Thus along with truancy, one finds stealing, gambling, sex misbehaviour and so on. Hence, even if every student studied has been classified under one category of problems, it has to be remembered that he may have (and generally has) other problems as well.

A.—Defiance and Aggression

Two cases were studied under this category. The first is that of a brilliant boy with an I.Q.of 136 who failed in his High School Examination and got only a third Division in his second attempt. The blame for ruining the educational career of this brilliant boy rests squarely on the political parties.

Case Study No. 1. Boy—A ; Age — 17 years ; Class X.

(a) *Family Background.*—He is a posthumous child born six months after the death of his father. His mother is illiterate and her attitude towards the boy is one of complaint and fault finding. She is always blaming him for one thing or the other. His brother, a clerk .in the Post Office, is supporting the family. He believes in strict discipline.

(b) *Health and Physical Factors.*—The subject is weak in build and of short stature. He is very lean and thin, being only 4 feet 11 inches in height, and weighs 95 lbs. He suffered from small-pox when he was four years old and has pox marks on his face. In the last five years, he suffered from typhoid and pleurisy and was confined to bed for several months.

(c) *Personal Habits and Recreational Pattern.*—Formerly he used to take interest in household work; but since he came in contact with political workers, he has stopped giving any help in household work. He had no recreational facilities in childhood and has none at present. He does not play any out-door game and the only in-door games he likes are cards and chess. He has recently developed an interest in the cinema.

(d) *Personality and Social Traits.*—He is very popular among his classmates because he treats them with courtesy. He believes that all are equal and helps the students who happen to get into trouble with the authorities. If there is any quarrel among the students themselves, he tries to settle it and helps the weaker students. He is very much interested in the Mazdoor Union work as he says that he has sympathy for the poor labourers. Sometimes the Mazdoor Union pays him for his services. Although not a member of any political party, he is very much interested in Communist literature and has his own collection of books and periodicals. He regularly receives free copies of reviews of current happenings and parliamentary proceedings from the party. He is very well informed and can discuss any political problem. His ambition is to become a prominent literary figure, social worker and public speaker. He is not interested in money and looks down on government service. He would prefer to earn his livelihood by some independent work like farming. Whenever in trouble, he withdraws into himself and does not talk about it to anyone, including his family members.

(e) *School and Intelligence.*—He likes the school very much and is always regular. His I.Q. is very high, 136. He is weak in optional mathematics and his failure is due to his pre-occupation with students' problems, which does not leave him time for study.

(f) *Thematic Apperception Test.*—His family adjustment is poor. He had a frustrating childhood and at present also, he feels that his mother and brother do not understand him. He is in need of sympathy and companionship. He also experiences a feeling of guilt because he has not been able to do what his family expected of him. He feels the need for guidance but his guide must be a great man. He has a great sympathy for the poor and is interested in the uplift of villagers. The stories composed by him are of high literary quality. The vocabulary is very rich and there is a smooth flow of ideas. The presentation is artistic and most of the stories are logical. He is obviously gifted with a fine literary talent and wide imagination. He has no definite vocational plans. He simply wants to earn enough to support himself and his one great ambition is to become a great social worker.

(g) *Role in the School.*—He is the president of the students' union. He wields very great influence over the students and has been responsible for organising and leading a number of agitations against the school authorities. He took a very active part in the agitation against the enhancement of fees. At the time of the annual function, he and his companions threatened non-cooperation, if certificates were not given to the students who worked in the annual function. After the high school examinations were over, he demanded the refund of the quarterly examination and social gathering fees, although he himself had previously given his consent to use it for the purchase of material for the school dramatic club. Then he threatened the headmaster with a strike. He was responsible for organising a one-day strike in the month of February, acting on false information that fees would be re-imposed. He organised agitation against the school uniform. In all these agitations, he succeeded against the authorities. He is bold enough to criticize the authorities to their face, alone or in a general gathering. In fact, this quality was the criterion for his election to the post of presidentship. At the time his name was proposed, some old students of the institution, the king-makers, gave him the following reason for his selection for this post. "It is only you who have any guts and you alone can maintain the past traditions of the school union and uphold its prestige". The idea that the function of the union president is to boldly challenge the authorities, whenever occasion arises, is present from the very beginning. He admirably fulfils this role and takes the part of the students whenever they get into trouble with the authorities.

A number of teachers were interviewed and asked their opinion about him. One teacher said : "He is outspoken, resolute, obstinate and can create mob mentality among the students." Similar views were expressed by others. A few said that he is easily led away by his political party associates. It was also pointed out that he was a well behaved student upto class VIII. He was a good speaker and won a number of prizes in inter-school debates. Trouble arose only when he came to class X and became a close associate of X— an active political worker.

In 1958, he passed the High School Examination and wanted to join college. His brother told him that he would be allowed to join college on condition that he gave an undertaking that he would have no connection with political parties. But he was surprised to learn that he had got admission to the college and that his fees had been paid by his political party. In 1958, the investigator found that he was actively participating in municipal elections in support of his party.

It will be seen that this boy has suffered from frustrations of poverty and lack of affection and appreciation from the family. These frustrations find a release in his association with the political party. He is suggestible by nature and can be misled. He is in need of guidance but his guide must be one who can inspire him. A different type of teacher is needed for such gifted children. In ordinary schools, their talents may fail to find expression or may be misdirected. If properly guided, he can become a very good social worker.

It was felt desirable to study at least one more case of defiance because this problem is so important in school discipline.

Case Study No. 2 : Boy—B; Age — 16 years ; Class IX.

This boy is the speaker of the School Parliament. He took active part in organising the strike against enhancement of fees. Immediately after the prayer meeting, he took the lead in shouting slogans and asking the boys to leave their classes. He was one of the seven members of the action committee and attended all the meetings of the committee. In these meetings held daily in the night, the days work was reviewed and plans for the next day were settled. Barring his participation in the strike, he is a well-behaved student, devoted to his studies and no other misbehaviour was reported against him.

(a) *Family Background.*—His father, who was a landlord died when the subject was twelve years old. His mother is illiterate. She has a pleasant temperament but gets easily annoyed. Two elder brothers support the family. They are very anxious to give him the same facilities for education which they themselves enjoyed during the life-time of their father. They never interfere in his day-to-day life and he himself feels that his adjustment with his brothers is good.

(b) *Health and Recreation.*—He enjoys very good health, is 5 feet 7 inches in height and weighs 125 lbs. Excepting for typhoid at the age of four, he never fell ill. He is self-dependent and has been so from childhood. He daily fetches vegetables for his home. He has no recreational facilities during early childhood and even now, he does not participate in any games.

(c) *Personality and Social Traits.*—He does not quarrel but loses his temper easily. If he does anything wrong, he feels very much worried about it. The death of his father gave him a great shock. He is interested in story-writing and literature and prefers to write stories on social themes. His ambition is to become an I.A.S. Officer and his friends include college students who have similar interest and hobbies.

(d) *School and Intelligence.*—He is good in studies and likes the school very much. He aims to get first class in the high school examination. He does not like to stay at home as he is disturbed in his studies and would prefer to be in a hostel. He is very good in Hindi but a little weak in Science. He passed IX class in II Division obtaining good marks. His I.Q. was found to be 128.

(e) *Thematic Apperception Test.*—The subject's relations with the mother do not seem to be good. He strongly feels the need for guidance. In all his stories, the hero succeeds when he gets the help and support of others and fails or feels helpless when left alone. He is keenly interested in social work but, unlike A, he does not identify himself with the poor. He has, however, some leftist leanings and these probably are responsible for his assuming leadership in the agitation against the imposition of fees.

He is very ambitious and wants to occupy a high position in society. He has a fertile imagination and the plots of his stories are original, colourful and realistic and also show a logical sequence of ideas. He has a rich vocabulary and good literary powers.

A comparison of this case study with the preceding will show that the two boys have remarkable similarities. Both are gifted. Both are good speakers and have literary talents, although A is slightly superior. Both are supported by their elder brothers; but A is on bad terms with his brother while B is on good terms. Both are interested in social work. While A identifies himself with the poor and down-trodden and shows bitterness and hatred towards the rich and powerful, B shows no such bitterness. A's vocational plans are vague while B has a definite vocational plan. He is interested in politics, has friends in political parties and has been invited to participate in the activities of parties; but he refused to do so on the ground that it will interfere with his studies. A had no clear cut vocational plans, and being frustrated in his home, preferred immediate satisfaction to a distant goal. Both show need for guidance; but A's guide and inspirer is a superman while B's guide can be identified as a teacher, professor or a doctor. Both have friends who are older and superior in some way to the average student; but A's friends are limited to student leaders and polticians, while B's friends come from a wider circle and also include college students with academic interests and healthy hobbies.

B—Sex Misbehaviour

This is a problem about which teachers generally have very scanty information. They say that sex problems are not usually brought to their notice. This survey, on the other hand, has revealed that the problem is not so rare. In the 'Guess Who' test, there were three questions pertaining to sex: teasing of girls going on the road, writing anonymous letters to girls, and writing obscene things on walls or drawing obscene sketches. Other more serious problems like homosexuality were delibarately omitted as it was felt that they might give rise to disturbance during test administration. Contrary to expectations, however, even the relatively innocuous questions on sex created a certain amount of joking and laughter in the class. (It may incidentally be pointed out that there is no co-education in this school.)

The following details about sex misbehaviours came out during the investigation:—

(a) *Teasing Girls.*—During the recess or in periods which are not engaged by teachers the students stand on the road in front of the school and pass remarks about girls *e.g.* "My beloved is going". One of their favourite jokes is a question addressed to the girl "Would you like to come this way?" Or two boys may start an obscene conversation within the hearing of the girl. One boy had the audacity to wink at a girl student of the teachers' college who had come to the school to observe criticism lessons. Cases have also been reported of boys following girls while they are on their way to school or returning after the school. If the boys come to know the name of the girl they shout it behind her back. In one case, a boy used to come to the girls school and ask small children to go and call a particular girl. The matter was reported to the headmistress and under her orders the chaparasi caught the boy and punished him.

(b) *Anonymous Letters.*—Students write anonymous letters to girls studying in other institutions. The headmistress of a girls' school told us that this was quite a common problem. The letters are usually opened by the authorities and sometimes enquiries are made. Another kind of mischief is writing a love letter purporting to be from a girl, bringing it to the school and reading it to the other students.

(c) *Obscene Writing and Drawings.*—Obscene sketches etc. are drawn on the blackboards in the classroom or on the walls of the school building. This is done to create fun in the class. Some boys also bring obscene pictures to the class and show them to their friends.

(d) *Obscene Jokes and Songs.*—In the absence of the teacher, some students sing film songs loudly. Sometimes, a love song is sung while a girl is passing on the road, as if it were addressed to her. Homosexual jokes are also common.

(e) *Exhibitionism.*—Indecent exposure before other boys has been reported in several cases. Two boys exposed themselves before a woman labourer. A detailed case of study of one of the boys has been made and is reported below.

Case Study No. 3 : Boy—C; Age—17 years; Class VII.

This boy, in company with another, runs after girls and teases them. Once he exposed himself before a woman labourer. The woman reported the matter to the class teacher, who called both the boys and demanded their explanation. Both the boys denied the charge; but the teacher refused to believe them and gave them a severe beating. The matter was not reported to the headmaster as the teacher feared that he might rusticate them. In the interviews with the classmates of this boy, it was reported that he often throws pebbles at women labourers through the window of the classroom. His other problems are truancy and loafing. He runs away from the school after the first period and comes back in the last period. He loafs in the bazaar during school hours and frequently visits the cinema.

(a) *Family Background.*—His father works as a dispenser in a railway hospital. He is very harsh and often beats the subject. His mother is illiterate. His position in siblings is third and there are five siblings younger to him.

(b) *Health and Recreation.*—He is seventeen years old and is overage for class VII in which he is also taller than his classmates, being 5′ 6″ in height. He is weak in build and weighs only 107 lbs. He takes his own care and has been doing so from an early age. He helps in household work and sleeps with his younger brother who is fifteen years old. He has a large number of friends. He is interested in games but does not get adequate facilities in his house.

(c) *Personality and Social Traits.*—He suffers from a sense of inferiority because he is in a junior class and has to study with much younger children. He is afraid of ghosts. He wants to become a ticket collector in railways—a choice of vocation which seems to be suited to his abilities.

(d) *School and Intelligence.*—He is weak in studies, though he managed to pass in the annual examination of '58 in the second division. He likes the school but wastes his time in loafing. His I.Q. is 94.

(e) *Thematic Apperception Test.*—The test showed that the father's treatment is very harsh and the subject has hostile death wishes against him. Father rejects and dominates the subject and the latter shows rebellious tendencies against this domination. Sexual adjustment is not normal. The subject has not yet attained the genital stage of libido development. There is a perverted trend towards exhibitionism, but there are chances that, under favourable circumstances, the subject may make a better adjustment towards sex. His fear of ghosts needs further investigation. He further complains that

his memory is weakening. This may be a hypochondric symptom arising from guilt feelings due to masturbation. Punishment does not seem to be any cure for his sex misbehaviour. The boy, being rejected by the father, is in need of sympathy. His interest in games, social life and his realistic goals in life should be utilized in helping him to achieve a better adjustment.

Some general conclusions can also be stated here. Problems pertaining to sex are usually not brought before the teacher. Whenever such a case comes to them, they resort to scolding and punishment which is hardly the proper remedy. It is also seen that the teachers' knowledge of sex problems and the manner of handling them is very much limited. In the present syllabi of the Teachers' Colleges, this problem does not find a place and hence, when such problems arise in the schools, the teacher does not know how to deal with them and his only remedy is scolding and punishment. Further, sex is a common topic for discussion in the staff room. The conversation and jokes often become obscene and the students passing by in the verandah can hear them. The advice of such teachers is not likely to be very much heeded by the students.

Like the majority of other schools in the country, in this school also there is no provision for sex education. If sex education could be introduced, it is likely to create a better attitude towards sex.

C—Stealing

Stealing appears to be a serious problem. In their suggestions for improving the school, 15 students wrote that the authorities should take some steps to check stealing. The teachers reported that many students are not serious about their studies; that they join the school because education is free and that they have nothing else to do; and that some of these students are habitual thieves—they steal books and other things and sell them in the market. In the 'Guess Who' test, the average number of students who steal was found as follows:

Problem	Average number of students with the problems in each class			
	VI	VII	VIII	IX
Stealing books pencils etc.	4·2	2·7	3·7	0·9
Stealing cycle parts	1·5	2·7	1·0	0·5

Two case studies were carried out for stealing.

Case Study No. 4 : Boy—D; Age—15 years; Class VII.

He was found stealing books belonging to other students and selling them in the market. Very often he did not steal himself but instigated others to steal and then shared the money. The school authorities were thinking of rusticating him from the school. It was found that he lived in a bad-neighbourhood; that he had a number of friends who are delinquents and criminals; that his intelligence is poor (I.Q. 60) and

that he is not likely to succeed in academic career; that his mother is weak and has little control over him; and that the school has not taken any interest in reforming him so far. His personality structure showed several abnormal trends such as a weak and helpless ego, strong urges, strong aggressions, repression of needs for affection, and a super ego which is too harsh and strict. On the other hand, his main assets are that he wants to continue his education, that his parents are also interested in his education, that he experiences a guilt feeling and shows a tendency to sublimate his aggressive trends, and that he is earning Rs. 7 by doing part-time work and that he also helps his mother in her household work.

Considering these assets and liabilities, it seems that the parents should be advised to admit the boy to some vocational school. He is not likely to succeed in academic education; and if continued in the present school, there are chances that he may be rusticated for his delinquencies. This will be dangerous for his future adjustment and he may develop into a criminal, like his other criminal and delinquent friends. A change of environment, a little more attention and some expenditure may save the society from a potential criminal.

The second case was that of a boy who was found to have stolen books belonging to a classmate and sold them in the market. He is also a truant and it is reported that, during school hours and even afterwards, he visits the railway yard and steals sugarcane in company with other friends.

Case-Study No. 5: Boy—E; Age—11 years; Class VII.

Both parents were educated—the father being a lecturer in a distant town and the present step-mother being a teacher in a local girls' school. The boy's own mother is dead and the attitude of his step-mother towards him is one of rejection. He, therefore, seeks the company of other truants which gives some satisfaction to his need for belonging and self-assertion.

The school authorities can help him to improve by providing healthy recreations by encouraging him to cultivate the friendship of normal children, and by giving him help to overcome the retardation in studies.

As a general remedy against stealing, it may be suggested that the whole class should be given the responsibihty for the safety of books. If any book is lost, it should be the responsibility of the class as a whole to search and find it; and if a penalty is to be imposed the entire class should make good the loss. The district authorities should also help the schools and warn the book dealers that they should not purchase any second-hand book directly from children and that while purchasing any book, they should make careful enquiries regarding its ownership. The school authorities should also notify to the second-hand book dealers of every loss of a book as soon as possible. It is true that the stealing of books is a petty offence and one may question the propriety of taking so much trouble over a small thing. But we have to remember that students are passing through a formative period at this age and that even a minor theft may become a stepping stone to further and more serious crime if it goes undetected.

D—Truancy

Another common and serious problem of school discipline is truancy. In the 'Guess Who' test, a considerable number of students in all classes have been reported as truants:--

Problem	Average number of students with the problem in each class			
	VI	VII	VIII	IX
Running away from the school	12·2	8·7	10	4·9
Absenting themselves from some periods . . .	9	7·5	9·5	4·2
Not attending the school at all	3·2	4·5	4·2	1·4

It is a common practice among the truants in this school to attend the first period, stay on for one or two more periods, then run away and come back in the last period in time for attendance. This way they do not lose attendance as it is marked only in the first and the last periods. It is surprising that the teachers do not take any action against these boys.

One factor behind truancy is that, education being free, many students who have no serious interest in studies also join the school. A second factor is that no boy up to class IX is usually detained on account of a shortfall in attendance. We have come across a student whose attendance, after about three months of school session, was 21%. Later on, it improved to 40% only; but the boy was promoted to the next class. In several other cases of promotions also, the attendance was very short. We also found that truants show serious behaviour problems, such as stealing, drinking, gambling, fighting, cheating, and sex delinquency. It is difficult to say whether truancy is responsible for these problems or these problems give rise to truancy, but the former interpretation seems more likely. The boy who runs away from the school does not usually have a definite goal in life. He has a good deal of free time and does not know how to spend it. He is, therefore, likely to fall in the company of other demoralized boys and anti-social elements and this may lead to his initiation into more serious delinquencies.

Three of the case studies covered truancy. The first was that of a boy who is negligent about his studies and does not complete his home assignments. All the teachers punish him. He damages school furniture, uses abusive language, and often fights with other students. He runs away from the school and usually loafs in the bazaar, or plays games like *kabaddi*. He has also spoiled other boys whom he takes with himself. At times he does not come to the school for days together. The teacher once punished him for this; but it had no effect.

Case Study No. 6 : Boy—F; Age—11 years. Class VI.

His father is a peon in the postal department. He has three sisters elder to him and no brother. He being the youngest child and the only son is probably responsible for his being spoilt. His maternal uncle is an operator in a cinema theatre and he has, therefore, free access to pictures. For some reason or the other, he has come to dislike the school and the specific factor behind this attitude could not be located. His intelligence is normal (I.Q. 107); but he is emotionally disturbed. He has frightening dreams in which he sees a ghost trying to stab him. Passive homosexuality is his main problem and conflict over it may be responsible for his emotional disturbances. Too frequent visits to cinema may be responsible for his tendency to withdraw from the world of reality.

Case-Study No. 7 : This is a boy of 17, reading in class IX who tries to bully and dominate over other students. His attitude towards almost all the teachers is rude and defiant. His main problems seem to be two : anxiety about the future and retardation in studies. He wants to be a good boy, to have a big house and large property and to keep his parents in comfort. He realises that this is to be achieved through education and hence he continues to worry about his future. His retardation in studies is partly due to the fact that he has to devote a good deal of time to assist his brother in his shop every day. Though he vaguely realizes the advantages of education, he does not see any meaning in his present education and cannot see how it can help him in solving his problems.

Case-study No. 8 : This is a refugee boy of 16 years, reading in class VI. He has formed a gang of 5 or 6 boys with himself as the leader. He teases girls and he and his gang members smoke, gamble, fight with other boys and damage school furniture. He has friends among adults some of whom are loafers. On every Wednesday, he visits the cinema in the company of his adult friends who pay for his ticket. He also drinks and has himself admitted this fact to the investigator. His main problem seems to be the harsh treatment given to him by his parents. He is dependent on them and shows a submissive attitude towards them ; but he naturally feels emotionally deprived and this may be responsible for his aggressive behaviour in the school. His lack of interest in the school may be due to poor intelligence. His I. Q. could not be exactly determined but there are indications that it is below average.

In all these three cases of truancy, different factors are responsible for the abnormality. In the first case, the main problem is homosexuality, although its relationship to truancy is not quite clear. In the second case, the boy remains absent because he has to spend eight hours daily in shop work. His elder brother allows him to work at the shop even during school hours. He is worried about the future but he cannot see how education can help him in this direction. The third boy is a truant because he is able to find satisfaction for his frustrations in the home in gang activities outside the school.

In dealing with truants, therefore, we should examine the causative factors and the secondary gains of truancy. We should see how the child is spending his time after running away from the school and this will give us an understanding into the secondary gains that the child derives from his truancy.

It is not possible to suggest a single remedy for truancy. Each case should be considered separately. Truancy in itself may not be serious ; but there are dangers that it may give rise to other more serious problems.

E—Mischief

A very large number of students were found to be prone to mischief. It will not serve any useful purpose to describe them all in detail as they are well known to every school teacher. A certain amount of mischief is to be expected among all normal and healthy adolescents. There is, therefore, a very great need for forbearance when dealing with mischievous children. The main problem is to combine tolerance with need for discipline, training, and inculcation of desirable habits, attitudes and values in consonance with the expectations and demands of the society.

A serious form of mischief is damaging school furniture. It is a common practice to throw down the desk as soon as the school is over. Boys jump on chairs and throw them down from the window. A chair has also been used for attacking another boy. In playful chasing, a desk is often placed in between to act as a barrier. It may be pushed and thrown on the floor. At first sight, damaging furniture may appear to be an innocent expression of aggression and surplus energy ; but when we consider that one aim of education should be to develop respect for public property, the problem becomes more serious. It will be good if teachers in government shools begin to take greater interest in this matter.

Case-Study No. 9 : The chief problem with this boy who is 13 years' old and is reading in class VIII, is that he bullies other boys. He has formed a separate group with himself as the leader and with the help of this group, he threatens his other class-mates. Two students were beaten by him and by his friends. He holds back the cycles of students and demands lifts. On refusal, he threatens that he will remove the tube valve. He has contempt for younger and simple students, nicknames them "rato-oram" or rote learner. He writes '420' against the name of the monitor on the black board. He is noisy when leaving the class and damages school furniture. He brings obscene pictures and shows them to his friends. He also draws pictures on the walls. He is defiant towards the teacher. He was reported for the following problems on the 'Guess Who' test :—

Problems	Number of students who reported
1. Teases boys	6
2. Makes fun of the teacher	6
3. Aggressive behaviour	6
4. Forms aggressive gangs	4
5. Draws obscene pictures	4
6. Teases girls	4
7. Quarrelsome	4
8. Comes late	4
9. Other minor mischief	7

His elder brother complained that the boy was very extravagent. Formerly he was in another school where he could get anything from the school store by signing his name. His monthly bills went up to Rs. 60 and so his parents had to remove him from that school and put him in the present school.

(a) *Family Background.*—He comes of a middle-class well to do family. He lives with his grandfather in his ancestral house. His mother died when he was five years old. This was a great shock to him. His father remarried and is posted in another town. The step-mother also lives with the father. The father is educated up to class VIII and brags about his mischievous exploits in his student days. He drinks, takes 'bhang' and loses his temper if these are not available. He is very extravagent and spends much money on drinks and food and realizes that he is not setting a good example to his children.

(b) *Health.*—He enjoys good health but still complains of certain physical disorders which are indicative of hypochondria. He complains of dizziness, too much heat in the body, digestion being slow and weakening of memory.

(c) *Personality and Social Traits.*—He has a number of friends but no one on intimate terms as he is a little suspicious of others. He gets easily discouraged. He is worried about classwork though there should be no worry as he is a good student. He is afraid of "Badmash" or ruffians and it seems that he suffers from a feeling of insecurity. His feelings are easily hurt and he is very sensitive to criticism. He has a number of interests. He is interested in repairing machines, toy construction, listening to radio, reading stories and novels, hiking, gardening and keeping a pet. He plays badminton, cricket and tennicoit. He is fond of drawing and painting which is his main hobby. His ambition is to join J. J. School of Arts, Bombay, and become an artist.

(d) *School and Intelligence.*—His I. Q. is 123 and he is good in studies. His drawing teacher holds a very good opinion of him. He stood first in Class VI; but in Class VII, he got only a second division. In Class VIII he again obtained the First Division with distinction in Mathematics and Drawing. He does not like this school and prefers his earlier school.

(e) *Thematic Apperception Test.*—His attitude towards the father is hostile but affectionate towards mother. He appears to suffer from castration anxiety. He has a strong feeling of insecurity. His super-ego is strong. He also feels that he does not get adequate encouragement and understanding from his elders. He has a very good command over language. His stories have good plots and their dialogues are very realistic. He is gifted with a rich imagination and good reasoning powers.

It will thus be seen that the subject is a gifted and promising boy. His mischievousness may be partly due to his identification with the father who brags about his own exploits in his student days. His aggression and bullying may have emanated from his own feelings of insecurity. He has expressed his fear of ruffians. He has castration anxiety and guilt feeling pertaining to masturbation. This is revealed in his T. A. T. interpretation. His hypochondric symptoms may have the same origin. Sex education will help him in overcoming his guilt and anxieties. He gets some appreciation from his teacher. A little more appreciation and interest on the part of the family members will go a long way in making him better adjusted.

Case-Study No. 10 : This boy, aged 12 years and reading in class VIII, was studied for problems of mischief. But he shows some more serious problems as well. When he came for psychological testing, his shirt was torn as he was coming straight from a fight. A glance at his hands showed that he had written the answers on his hands for a test that was held in the first period. His class teacher says that he is the most mischievous boy in the whole class. He is defiant and disrespectful towards the teachers. He sings film songs in a low tone while the teacher is teaching. He is very fond of cinema. He runs away from the school and sees matinee shows during school hours. He uses abusive language. In games, he often fights with the students.

(a) *Family Background.*—The father is the principal of a medical school. He is very strict and easily loses his temper. He often beats him and also beats his eldest son (a young man in early twenties) and his grown-up daughter. The mother is very lenient. He likes his eldest brother and sister; but he does not like the home and would prefer to stay out.

(*b*) *Health and Social Traits.*—He complains of poor health though it does not appear that there is anything seriously wrong. He complains of cold, tonsilitis and headache. Running gives him a pain in the abdomen and he loses his breath easily. Sitting in the sun makes him dizzy. He also feels that his memory has deteriorated. This indicates hypochondria. He complains that he does not get sleep easily and sometimes keeps awake for hours. He has no intimate friends and he says he is disgusted with his classmates. He has good recreational facilities but he prefers to go to cinema. He either goes alone or in company with a friend.

He is often gloomy and goes to cinema when in such a mood. He cannot sleep alone because he is afraid of ghosts. He sees frightening dreams in which it does something which is forbidden. He is threatened with punishment but is later forgiven with a warning. His classmates tease him and often play tricks on him. They laugh when the teacher either beats or scolds him. He wants to take revenge but forgives them after some time.

(*c*) *School and Intelligence.*—He likes the school, but complains that the teachers and students do not help him when he approaches them with any difficulty. He often remains absent from the class. He cannot concentrate on his studies and thinks that his intelligence and memory have suffered on account of the severe beatings given him by his father. His I. Q. is 77.

(*d*) *Thematic Apperception Test.*—The subject's mischief may be an expression of his frustration in the home and the school. In the home, his father's treatment is too strict. In the school, he is not able to follow the teachers and is retarded in studies. At the same time, he has hypochondrial symptoms which probably have their origin in the guilt feelings associated with sex.

Speaking broadly, it may be said that mischief should not be considered in isolation. There are a number of factors that lie behind mischief. Thus a boy may be feeling frustrated in his home due to harsh treatment by the parents. This frustration may find an expression in the form of aggression in the school. Besides such frustrations, emotional instability retardation in studies, anxiety, sex worries, either alone or in combination, may be responsible for mischief.

The teacher should try to find the underlying factors behind mischief. Many of these problems arise because of lack of a two-way communication between the teacher and the taught. The teacher does not try to find out and understand the child's point of view. He resorts to scolding and punishment too soon. The result is that the child's attitudes are not changed, and he develops resentment against the teachers, which often takes the form of mischief.

F.—Gang Rivalries

The role of juvenile gangs in creating indiscipline cannot be under-estimated. Sometimes rival gangs are formed which are constantly at war with each other. The members of one gang do not talk to the members of the other. In the classroom, members of one gang sit together and try to run down the other gang. They try to make fun of each other and whenever they get an opportunity, they do not hesitate to complain to the teacher against members of the rival gang. During the recess and after school they move in groups. On their way home, they may tease each other and sometimes a fight may ensue. Each gang tries to dominate the other and the members have a strong sense of loyalty for their own gang. The investigation includes a case study of two boys, both of whom are leaders of rival gangs.

Case-Study No. 11 : This boy, who is 14½ years of age and is reading in Class VI is the leader of a gang of students. He tries to dominate others with the help of his gang. There is another gang whose leader is X (case-study No. 12 below). Both the gangs, often fight against each other. He often bullies other students and takes advantage of his large size. He punctures cycles standing in the shed and damages the cycle locks. His neighbours also have the same complaint against him. A serious offence that he committed was stealing Rs. 300 from his home. The gang at times plays in the vacant classrooms. The furniture is moved to one side and space is created for the game. He often runs away from the school. It has also been reported that he drinks wine, gambles and teases girls.

His father runs a cycle shop in partnership with his younger brother. His mother died when he was only nine months old and his grandmother brought him up. He is the only child in the home and his father is over indulgent.

He is tall for his class, being 5′ 5″ in height. He is well built and enjoys good health. He suffered from smallpox in early childhood and his face has been defaced by pox marks. He has to look after his father's cycle shop. He goes there three times a day, spending nearly one hour each time. He has good recreational facilities.

He seems to have normal emotional control but is not much interested in studies. His I. Q. is 83. He is regular in attendance, but has failed twice. He likes the school.

He suffers from a deep feeling of insecurity, and his aggressive behaviour is probably due to this. He is interested in religion and shows a tendency towards reformation. If some adult could take greater interest in him and provide him with a sense of security, the boy is likely to become better adjusted. Since his interest in learning is lukewarm and intelligence dull, it would be better if he is guided to take up a technical course in keeping with his interests.

Case-Study No. 12 : This boy who is 12½ years of age and is reading in Class VII, is also the leader of a gang of students. His gang often comes into conflict with the gang of Y (Case-Study No. 11). He bullies and teases other boys; but no other serious problem has been reported against him.

He comes from a middle-class family. His father runs a foundry in which his elder sons help him. He has a violent temper and the subject is very much afraid of him. When angry, he often gives a severe beating to his son. Mother has an easy going nature. The subject has six brothers and two sisters. Two brothers are elder to him. His adjustment with the siblings is good. He likes to stay at home.

He enjoys good health. He feels that his eye-sight is weak. The doctor had suggested the use of spectacles but he does not wear them. He keeps himself clean. He says that he has to work at his father's foundry for about eight hours a day and that, on certain days, the work continues late in the night. He does not get time to play.

He often quarrels with his classmates and is not afraid of them. The only person he fears is his father. He is interested in mechanical work and wants to become a technician and run his own business.

He is an average student. Last year he could not appear in the examination. His I. Q. is 104. In 1958, he passed his examination in II Division.

His chief worry is about school work and examinations and he feels that he does not get adequate sympathy from his teachers.

The subject's personality appears to be normal. His gang activities are not to be taken seriously. He should be provided with healthier recreations and his interest in mechanical work may well be utilised for giving a technical bias to his education.

G—Miscellaneous

This category consists of 8 cases which have been briefly described below:—

Case-Study No. 13 : Age 13½ years; *Class* VII; *Problems*: Aggression, bullying, teasing and truancy. The boy's own mother died when he was three years' old. He has a step-mother. His father is a motor driver. He loses temper easily. His health is poor and he has to work for about four to six hours in the field. Often he gets late in reaching the school. He suffers from anxieties.

Case-Study No. 14 : Age: 15 years; *Class* VIII; *Problems*: Aggression, teasing truancy and mischief in the class. His father has a very large family. He is a 'Halwai' (Confectioner) and the boy has to devote eight hours to help his father in the shop. In the home also, he has to do house-hold work. His I. Q. is 71. T. A. T. shows that the subject feels neglected and dejected and cannot bear any frustration. Super-ego is non-integrated and on the whole, it is weak.

Case-Study No. 15 : Age 18 years; *Class* VII; *Problems*: Truancy, smoking, coming late, copying in the examination, disobeying teachers, bad company, lying, quarrelling and drinking wine. (One very serious problem is that he bullies students to give him money for cigarettes and beats them if they do not comply.) His father died when he was six years old. He and his mother earn their livelihood through manual work. Their combined income is Rs. 30 only. He is very much worried about money. He is large for his class. His relations with his elder brother are not good, as the latter does not earn anything. T. A. T. shows that he is worried about the future. At his age the boy thinks that the happy days of childhood are over. He cannot withstand frustration and adopts childish methods like obstinacy, quarrelling, telling lies to secure gratification of his desires. Super-ego appears to be adequately developed but the ego is weak.

Case-Study No. 16 : Age 15 years; *Class* VIII; *Problems*: Teasing, aggressive and destructive behaviour, carelessness and making fun of the pupil-teachers. His father is a retired clerk. He is sometimes very strict and sometimes very lenient. His intelligence is only 53. T. A. T. also shows poor intelligence. The stories are illogical and unstructured. Many of the stories are at the descriptive level. The heroes have little control over their emotions. Anger finds expression in physical aggression. There are three stories with anti-social themes but there is no punishment, reformation or guilt feeling indicating weak super-ego.

Case-Study No. 17 : Age 16; *Class* IX; *Problems*: Interrupting teachers in their teaching, disobeying teachers, aggressive behaviour, teasing other boys and quarrelling. His parents live in village. His father is a shop-keeper earning Rs. 90 p. m. Subject's relations with his parents appear to be satisfactory. In T. A. T. stories, no serious problem appears. His main problem is poor intelligence (I. Q. 56). He has healthy interests like hiking and swimming.

Case-Study No. 18 : Age 13 years; *Class* VII; *Problem*: Stealing. He comes from a well-to-do family. His father is a landlord. His own mother died when he was three years' old and he has a step-mother. He lives in a private hostel run by his community. His super-ego has been found to be weak. Other factors responsible for his stealing could not be investigated.

Case-Study No. 19 : Age 15; *Class* X; *Problems*: Disobedience, aggressive behaviour, and stealing. His father is a teacher but lives in a distant town. The subject lives with his uncle who is a doctor. He feels emotionally deprived and is jealous of his cousin. His uncle is very strict and does not trust him. He permits him very little freedom. The father himself is maladjusted. In a fit of anger, he punishes the subject, but later on apologizes. In . T. A. T. pictures, the subject has expressed his frustrations. He feels emotionally deprived and neglected. Super-ego appears to be severe. The ego is weak and does not show any capacity to stand frustration. His I. Q. is 96.

Case-Study No. 20 : Age 19 years; *Class* X : *Problems* : Truancy, loafing, copying in the examination and disobeying teachers. (He has failed for three years in the High school examination.) His father is a well-to-do grocer. He is attached to his mother and sister but his attitude towards the father is ambivalent. He has a tendency towards compulsive and morbid self-examination. Super-ego appears to be normally developed. He experiences guilt and shame and wants to become a good boy.

He is a member of the first eleven of the school hockey and football teams and has strong loyalty for his team members. He has often been involved in fighting and brags about it. He experiences a feeling of security and belongingness in the company of his friends. This may be responsible for saving him from psychological breakdown. His tendency to morbid introspection and guilt feelings are indicative of neurotic trends.

VI

Some Suggestions to Improve School Discipline

Some of the suggestions to improve school discipline have already been given in the appropriate context in previous sections. The purpose here is not to repeat all these suggestions, but to consider some of the main findings more fully.

(*a*) *School Traditions.*—The first thing to be noticed is that unfortunate traditions have grown up in this school. In this school, the students have often succeeded in defying the authorities. They have nearly always succeeded whenever they adopted the group agitation approach under the leadership of the students' union. The teachers have been apathetic and negligent in the past. No headmaster has so far succeeded in taking any action either against the teachers or the students. A *laissez-faire* order has thus come to be accepted and continues to flourish. Only very determined and persistent efforts can succeed in such a situation; but controlling and restrictive measures should be combined with appreciation and encouragement.

(*b*) *The Shift System and Teachers' Absenteeism.*—The evils of the shift system have been discussed earlier. It is better discontinued. But with the increasing demand for education and limited number of school buildings available, this may not be quite feasible in the near future. The chief problem then is to minimize the defects of the system. Lack of effective supervision by the headmaster is one great shortcoming of the shift system. In this school we have studied, the headmaster usually stays only in the morning

shift. It would, therefore, be desirable to have a junior headmaster—for the noon shift. Besides supervision he may also share some of the paper work. This will give relief to the senior headmaster and he will be able to devote more of his time to students and teachers. It will also be better if the headmaster and the junior headmaster are provided with residential quarters near the school.

(*c*) *Private Tuitions.*—This problem has become very serious and several malpractices in connection with tuitions have been reported. Thus touts among students are engaged to procure tuitions for the teachers. The students taught are favoured in the classroom and the examination and so on. More than half the teachers interviewed admitted that private tuitions were related to indiscipline in the school. Their main suggestion to curb this practice was to raise the basic salary of the teacher to at least Rs. 200 per month and to take strong action against him if he persists in having tuitions even after this increase in grade. It is not possible to say how far this would be feasible. Looking at the problem from the angle of the students, we feel that some students who are retarded in studies need private tuition and it becomes the duty of the school to make some special provision for remedial instruction for them. The subjects in which students especially need remedial instruction are three, English, Mathematics and Science. Special classes with a limited number of students may be organized for three to four months in a year for this purpose. Some fee may be charged from these students and a fixed allowance of Rs. 50 a month may be paid to each teacher taking these classes.

(*d*) *Teachers' General Apathy to School Problems.*—It is seen that teachers take only a lukewarm interest in their school work. They know that certain practices are wrong but still they continue to follow and tolerate them. Very few teachers take personal interest in the students. They even cut the classes assigned to them in the time table. Their influence on the students is insignificant. When serious problems like students' strike arise, the teachers generally remain apathetic. In individual cases of indiscipline which directly interfere with classroom teaching or where the teachers feel that the student is trying to be dis-respectful to them they usually resort to corporal punishment or scolding. Other problems like truancy, damaging school property, or stealing are ignored by them, because they do not consider them to be as serious as the problems which hinder their classroom teaching. It seems that the teacher's perception of his role is limited to classroom teaching and that he does not accept any other responsibilities or duties beyond it. The importance of closer teacher-pupil contact does not seem to be recognised. Although some of the teachers have a very clear insight into the problems of students' indiscipline and have suggested excellent positive measures to tackle them, they have hardly ever taken the trouble of putting these measures into practice. Similarly, teachers should not find it difficult to realize that cutting classes, engaging touts for securing tuitions, or talking obscene things in the staff room which can be overheard by the students, will have a detrimental effect on the students. But this is what happens in this school every day. This leads to the conclusion that it is the apathy of the teachers which is the most important problem. The first step, therefore, is to create interest and enthusiasm in the teacher if he is to ungrudgingly share the additional burden of work and personal sacrifice that any measure to improve indiscipline will entail. After this is done, one may go ahead in planning measures for improving discipline.

There are two broad approaches to this problem of motivating the teachers. One approach is to strengthen the inspecting and supervisory personnel so as to give little opportunity to the teachers to ignore departmental rules. At present, the Inspecting Officers complain that they have no time ; that the service rules prescribe a very lengthy procedure to take action against a teacher ; and that there were a number of political

influences at work which restrained the departmental authorities ; and that the Director of Education and his subordinate officers had to change their decisions due to political pressures. This had the effect of lowering the morale of the teachers as well as of government officials. It is not possible to say how far these allegations are true ; but they do need careful examination.

The other approach is to create conditions under which the teacher may experience ego-involvement in his work, his conception of his role as a teacher may become broader, his motivation may arise from his deep seated interest in the success of educational policies, and the absence of external restraints may have no adverse effect on his efficiency. This will be an ideal situation which may never be attained, but it would be well to consider what changes in the administrative set-up are needed to take us nearer this goal. In this direction, much can be learnt from the researches in the field of business and industries. Here also, the same problem of motivating the worker had to be faced and it was found that by creating conditions more satisfying to him and by giving him greater responsibility in the management, the output could be considerably increased, sometimes doubled or even trebled. There is no reason why these well-tried and established principles in industrial administration cannot be applied to education. In fact, teaching work by its nature is such that the teacher must be unfettered by external restrictions and must have a hand in framing the educational policies. The American Commission on Staff Relations in School Administration emphasizes the importance of building up the morale of the teachers and goes on to say that morale is to be built up through stimulation rather than command, through self-motivated activity rather than coercion*. Modern school administration in America (or in fact in all progressive countries), therefore, is moving towards less authoritarian and a more co-operative type of organisation. Pittenger says "whether or not traditional school administration should be liberalized seems no longer to be an issue. The issues, today, are how far the process should be carried and what forms it should take."† In this country also, the same principle has to be accepted if the teachers are to be got out from their present apathy and complacency. It will be beyond the scope of this report to discuss a new plan of educational administration. Three general principles may, however, be pointed out:

(1) Decentralisation to place the maximum responsibility on the teachers;

(2) Flattening of the hierarchical structure so that the highest authority may be accessible to the teachers; and

(3) Involvement of as many staff members as possible in setting educational goals and policies.

At present the teachers' role in the framing of policies of the department of education is negligible. The department itself is so unwieldy that the teachers do not come into direct personal contact with the higher officials. The problems that arise at the operative level are not realized by those who conceive and frame the educational policies. The enlightened members of the community are also capable of making a very important contribution to the progress and betterment of the schools; but at present, they have very little voice in educational administration.

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*33rd Year Book, American Association of School Administration.

†Pittenger, B. F.: Local Public School Administration; New York: Mc Graw-Hill 1951 P.56.

The final recommendation, therefore, is for decentralisation and for setting up of smaller administrative units in which the teachers and inspired members of the community find a representation in the body that frames educational policies and evaluates results.

(*e*) *Politics and Education.*—The political parties have been exploiting the students for their own purposes. In the strikes and other conflicts that arise between the students and authorities, political parties are often responsible for encouraging the students to take the path of defiance. This is a problem for the political leaders and it is for them, to decide whether they are prepared to sacrifice immediate gains for the party to the greater good of the country. Disciplinary problems in our educational institutions will continue as long as the Education Department does not get the co-operation of all the parties in guiding the students to respect the headmaster and to abide by the school rules.

Regarding what the educational institutions should do, Dr. Shridharani has observed that we have given far too much importance to ministers and politicians. In all important functions, we invariably find a minister inaugurating or presiding over it.* Thus the serious mistake of placing wrong values before our students has been made and the students have formed the impression that the highest thing in life is to become a minister or a leader of some party. In convocation addresses and important educational functions, it would, therefore, be well to invite eminent educationists, artists, scientists or literary figures to preside over the functions and deliver the addresses. Dr. Shridharani says that this is the accepted practice in America and he recommends that we should emulate it.

(*f*) *The Students' Union and Indiscipline.*—The role played by the union president in defying the authorities has been discussed earlier. The concept that has developed about the role of the union president is that he should always champion the cause of the students and should be prepared to come into conflict with the authorities if such an occasion arises. It is very similar to that of trade unions. The situation is further complicated by the interest taken by the political parties and students organization in the activities of the school. The union president of the school is associated with a political party and has greater loyalty to the party than to the school and seeks guidance from his friends in the party whenever there is any conflict between the students and the authorities. In the students elections, a candidate's merit is often judged by his boldness to defy the authorities. Moreover, the danger in the union elections is that there are greater chances for the wrong type of student (the agitator type) being elected to this office. Further those students who have political affiliations command greater influence and are more likely to be elected. Once such students came to occupy some important office in the union, the problem of running the school smoothly and avoiding conflict with the union becomes difficult. Valuable educational principles have often to be sacrificed in order to accommodate the views of the union. In the light of these problems, the objectives and achievements of students' union or the students' cabinet need to be reassessed. If the oft-cited objectives of training in democratic methods of planning, sharing of responsibilities, and development of individual initiative are to be considered, they have not been realised at least in the school; and this may be the experience of other schools as well. The parliamentary system, as it exists in our country, has its own defects. It is well known that the best brains of the nation are not elected to our legislatures and that elections and party system have other demerits as well. Knowing all this, why shuld we try

*Shridarani, *Ajkal* (Hindi Monthly) Nov. 58, PP. 6-8.

to adopt the same system in our schools, if there are better ways of realising the educational objectives? This problem was discussed with a number of educationists and the consensus of opinion was in favour of the small-group system. The whole student body may be split up into small societies. They may organise their own activities separately. When programmes in which the whole school has to participate have to be organized, the responsibility may be given to each society by rotation. In this scheme, the election system will continue but it will be limited to small groups, thereby minimizing some of its evils. With the abolition of the students' union, the school will get rid off a rival body which is often responsible for strife between the authorities and the students.

(*g*) *Extra-curricular Activities.*—A brief description of the extra-curricular activities organized by this school has been given earlier. Although the institution has ample grounds, only the good players and those who are members of the school team get an opportunity to play. Games may not be compulsory, but those who are interested in games should get an opportunity to play. The case studies show that many of the problem children have no recreational facilities in the home. If some provision for these could be made in the school, their energies might find a healthier channel of expression. Further, the problem of games material has to be considered. Many children come from poor families and they can ill afford to purchase the sports kit. It will be worthwhile if the government or philanthropic organizations try to find a solution to this problem. At present, the major portion of the games fund is spent on the school team. They are provided with every facility as it is they who win matches and bring a good name to the institution. Wrong standards have thus been set up. Winning matches and tournaments need not be given such excessive importance and the main emphasis should be on providing healthy recreational facilities to the largest number of children.

Of the other extra-curricular activities, scouting seems to be more effective in creating desirable attitudes among students. The study shows that a larger number of N.C.C. cadets show disciplinary problems than scouts, and thus there is little transfer of the discipline learnt on the parade ground to other school situations. The reason seems to be that the contact between the teacher in the role of an officer and the cadet is of an impersonal nature and does not help in moulding the attitude of the students. N.C.C. may have other merits ; but from the point of discipline in real life situations, it does not appear to be very effective. In scouting, on the other hand, there is greater contact between the teacher and the students and among students themselves. The training situations are more life-like. The data of this investigation are insufficient to draw a definite conclusion and further research on the problem is indicated.

(*h*) *Family Relations.*—The case-studies also show that home factors are often directly or indirectly responsible for indiscipline of the boys. In eight of the cases, one of the parents is dead. Four of them have lost their mother and have step-mothers (case nos. 5, 9, 13 and 18) and the remaining four are fatherless (case nos. 1, 2, 7 and 15). Fathers of case nos. 3, 8, 10 and 12 are very strict. Father of case No. 8 once confined the subject in a room for three days because he visited a cinema show without his permission. The boy was given only water and no food. In case no. 12, the father, in a fit of rage, hung the child upside down by the feet. Under such circumstances, it is not possible to expect cordial and harmonious relations between the father and son. Eighteen of our cases feel that they do not get the love and affection of their parents. This is especially true in case nos. 1, 5, 7, 8, 9 and 10.

Another important factor is inconsistent discipline of the home which hampers the development of reality principle. The father of case No. 15 vacillates between strictness and leniency : sometimes he beats the subject severely on a minor transgression and

at other times, he says nothing even if he commits a serious offence. Similarly, in case no. 19, the father sometimes beats the subject and later apologizes for it.

There are seven cases in which the father does not live with the son. These are case nos. 4, 5, 6, 9, 17, 18 and 19. Five of them are living with some relations who do not exercise proper control over them. In the case of the remaining two (nos. 5 and 19) the local guardians are too strict. The boys feel that they are rejected and are jealous of their cousins or step-brothers.

Three of our cases are the only sons of their parents. Case nos. 4 and 6 are not living with their father and being the only sons, they are able to dominate their mother. In both the cases, the mother tries to shield the short-comings of her son. Case no. 11 lives with his father who is over-indulgent.

There are only two cases in which the parents or guardians have a satisfactory relationship with their wards (case nos. 2 and 11).

The study shows the role of the home in determining the behaviour of the students. In considering remedial steps to reform a boy, his home cannot be ignored. Cooperation from the parents is necessary and, therefore, there should be greater contact between the teachers and the parents.

(*i*) *Need for Understanding and Guidance.*—The disciplinary problems have multiple causation. They may arise from the student's inability to follow classroom instruction, feeling of insecurity, anxieties, emotional deprivation in the home, inability to see any meaning in education, desire for belonging which can be satisfied by joining a gang, weak ego which cannot resist temptation or tolerate inevitable frustrations, and so on. In remedial treatment, our efforts should be mainly directed to the investigation of the causes and their removal.

The ordinary teacher is not expected to have a thorough grounding in Psychology. But they can adopt a procedure suggested by Dr. David M. Levy, who says that, in the absence of definite psychoneurosis, modification of social attitudes of adolescents can be effected rewardingly in a few interviews.* It has been observed that in cases where the teacher has taken even a slight personal interest in the student, it has had a strong impact on the latter's personality. The mistake that the teachers commit is that they start giving advice and suggestions too soon. They should first give an opportunity to the student to talk and to explain his point of view. This will give an understanding to the teacher as to how much insight the student has into his own problems. It will also help him in developing a rapport with the student and the teacher's suggestion will be effective only when a good relationship is built between the two. Before giving any suggestion the teacher should consider what the student's own solutions are, what his assets and good qualities are and how a positive programme can be worked out to utilise these assets and how the social situation can be reconstructed in order to give a better insight to the student into his own conduct. No suggestion which is impracticable should be offered. Also no suggestion which is likely to create a conflict between the child and the parents should be given. The aim should be to bridge the gulf between the parents and the child rather than to widen it. Not more than one or two suggestions should be made at a time. The teacher should not expect that his advice will be

*Levy D. N.: New Fields of Psychiatry, P. 67.

immediately accepted. He should be prepared to face the situation with tolerance and patience if his advice is rejected. The same procedure is recommended when meeting parents. The parent should not be blamed. If blamed, he will immediately try to defend himself and this will defeat the whole purpose of the interview. The aim should be to develop in him a better understanding of the behaviour of his son. If the teachers adopt this positive approach to disciplinary problems and have enough zeal, patience and sympathy, they will attain a large measure of success and their efforts will be fruitfully rewarded.

A SURVEY OF THE STANDARD OF LIVING OF PRIMARY TEACHERS OF SHOLAPUR CITY (1954—55)

By

V. P. PETHE

I

Objectives and Procedure

Purpose of the Investigation.—An inquiry into the socio-economic condition of the Primary teachers of Sholapur City was carried out by the author during 1954-55. Its main objective was to assess the economic conditions of the teachers, with emphasis on the levels of living.

2. *Procedure.*—As a first step in the enquiry, a meeting of the headmasters of all the schools was convened and the nature and objectives of the intended investigation were explained to them. They were requested to convey these objectives to individual Primary teachers. Printed questionnaires along with an appeal for cooperation were distributed to all of the Primary teachers of the city through the headmasters. The teachers were instructed to return the filled-in questionnaires in closed envelopes provided to them, for the obvious reason that the facts stated by the teachers had to be treated as strictly confidential. A large number of questionnaires was collected through the headmasters; there were however some teachers who handed over their material personally. Of all the Primary teachers of the city contacted in this way, 662 teachers (*i.e.* about 74 per cent out of a total of over 900 teachers) responded and gave the requisite information.

II

General Information

3. *Teacher.—Status and Type of School.*—Out of the total number of 662 teachers, 528 were employed in the Municipal schools and 134 in private schools (also called the 'aided or proprietary schools'). Among the informants, 73 teachers were of the rank of headmasters (56 in Municipal schools and 17 in aided schools). Male and female teachers giving information numbered 410 and 252 respectively. The details regarding the teacher-status and the kind of school may be seen in the following table:

TABLE I

Distribution of the Male and Female Teachers According to Teacher-Status and the Kind of School

Types of School	Teacher-Status	Males	Females	Total
Municipal	Headmaster	38	18	56
	Assistant Teacher	287	185	472
	TOTAL	325	203	528
Private	Headmaster	12	5	17
	Assistant Teacher	73	44	117
	TOTAL	85	49	134
	TOTAL—All Teachers	410	252	662

4. *Age, Sex and Marital Status.*—Table II presents a distribution of the teachers according to age, sex and civil conditions.

TABLE II

Classification of Teachers According to Age, Sex and Marital Status

Age Group	Males				Females			
	Un-married	Married	Widowed, divorced, etc.	Total	Un-married	Married	Widowed, divorced, etc.	Total
16—20	18	2	..	20	18	7	..	25
21—25	33	34	..	67	21	25	1	47
26—30	7	54	..	61	6	48	2	56
31—35	1	67	1	69	2	39	4	45
36—40	2	71	..	73	1	18	3	22
41—45	2	55	2	59	4	16	3	23
46—50	..	23	..	23	1	14	2	17
51—55	..	15	..	15	8	8	2	10
56 and above	1	7	..	8	..	1	..	1
Not given	4	11	..	15	2	4	..	6
TOTAL	68	339	3	410	55	180	17	252

There are note-worthy differences between the male and female teachers in respect of age composition and civil status. Among the female informants, the proportion of teachers was relatively higher in the younger age groups (nearly 70 per cent being in the age group 16-35) than that among the male teachers (about 53 per cent being in the same age group). The proportion of the unmarried was also found to be higher among the women teachers (22 per cent) than among the men teachers (17 per cent). Both of the above features may perhaps be indicative of the tendency on the part of women to take up a job as a stop-gap arrangement until marriage.

5. *Size of the Family.*—Table III gives a distribution of teachers according to the number of members in the family.

TABLE III

Distribution of Primary Teachers According to the Number of Members in the Family

Family Size-classes	No. of members	No. of teachers	Percentage of teachers
Small	1	7	1·05
	2	32	4·83
	3	50	7·55
Medium	4	89	13·44
	5	93	14·05
	6	106	16·01
Large	7	80	12·08
	8	73	11·03
	9	40	6·04
Very large	10	92	13·90
TOTAL		662	100·00

The average size of the family of the Primary teacher in Sholapur City was found to be 6·51 persons per family. The family-size ranged from the extremes of a uni-member family to a family consisting of as many as 30 members. It may be said that the teachers had, by and large, fairly big families. Nearly three-fourths of number of the teachers were found to have families of medium and large size.

6. In Table IV below, information regarding the number of children born to the teachers and living at the time of inquiry is given :—

TABLE IV

Distribution of Teachers According to the Number of Own Living Children

No. of Own Living Children	No. of Teachers	Percentage
0	77	14·29
1	78	14·47
2	95	17·62
3	86	15·96
4	69	12·80
5	46	8·52
6	31	5·75
7	20	3·71
8	9	1·67
9	..	..
10 and above	6	1·13
Not given	22	4·08
TOTAL	539	100·00

Being unmarried, the question was irrelevant in the case of 123 teachers. Of those who were married or widowed, about 15 per cent did not have a living child, 33 per cent had 1-2 children, 30 per cent had 3-4 children and the remaining had 5 or more than 5 children. The average number of living children was 2·89 per teacher.

III

Economic Conditions : Income, Expenditure and Indebtedness

7. *Nature of Data Collected.*—In the present section, an attempt is made to evaluate broadly the economic conditions and levels of living of the Primary teachers under consideration. Before coming to the subject proper, however, it is necessary to say a word about the reliability of the data. It is a matter of usual experience in socio-economic investigations that there is a tendency on the part of the informants to underestimate their income. Generally speaking, income from salary is more or less correctly reported. But the income received in the family pool from earnings of other employed members in the family as well as income from property and assets or other sources (like tuitions in the case of teachers) is either concealed or grossly under-reported. On the other hand, the informants tend to give inflated figures regarding expenditure and borrowing. On some occasions, one may come across cases where expenditure far exceeds the income and yet the family does not report any indebtedness. As a result, the data may suffer from internal inconsistencies in addition to bias in reporting. It may be said that the data collected in this survey suffered as much from the usual inaccuracies in reporting as would any kind of a similar investigation. As the questionnaires were filled in by the teachers themselves, no attempt was made to set right the shortcomings of the income and other returns. There was no valid way of correcting the inaccuracies either. The data given here thus represent the information as returned by the teachers themselves. In spite of the above limitations, however, they can give a broad picture of the pattern of income, expenditure, savings and indebtedness as found among the Primary teachers. As there is no reason why the shortcomings of the data should be found in larger or smaller degree in particular groups of teachers,inter-group comparisons in respect of economic conditions can be made with all validity.

8. *Income.*—The following table shows the classification of teachers according to their monthly income :—

TABLE V

Teachers Classified According to Total Family Income

Total family income per mensem (Rs.)	Category of teachers by						Total No. of Teachers
	Type of the school		Rank		Sex		
	Municipal Teachers	Private Teachers	Headmasters	Assistant Teachers	Male Teachers	Female Teachers	
Less than 50	..	15	1	14	11	4	15
51—75	45	43	2	86	46	42	88
76—100	228	28	7	249	180	76	256
101—150	153	28	36	145	126	55	181
151—200	52	10	13	49	25	37	62
201—250	24	6	7	23	13	17	30
251—300	13	1	4	10	5	9	14
More than 300	13	3	3	13	4	12	16
TOTAL	528	134	73	589	410	252	662

It will be seen that there are marked differences in the total income of the various classes of teachers. Relatively speaking, the teachers in private schools represented an income position that was worse than that of their counterparts in municipal schools. It was only in the private schools that there were teachers whose total income was even less than Rs. 50 p.m. The proportion of teachers getting less than Rs. 100 was about 52 per cent among municipal school teachers, whereas it was 64 per cent among the private school teachers. As between the headmasters and the assistant teachers, most of the former group enjoyed an income of over Rs. 100, while the proportion of assistant teachers getting less than Rs. 100 was nearly 60 per cent. It is also interesting to note that the women teachers showed proportions higher than the men teachers at the polar portions of the income scale. This is perhaps due to the contrasting situations that may obtain in the case of the women earners. Some women may be obliged to earn because of lack of male earning members, economic distress or widowhood, in which case they are likely to be represented at the lower end in the total income ladder. On the other hand, some women, otherwise well-off, may take up a job because they feel like serving somewhere until marriage or just for pleasure, and thus push up the income of the family in the upward direction.

9. *Salary*.—Normally, the total family income is a function of the income earned from employment by the principal earning member of the family. For, it is generally found that the earnings of other members and income from property, etc. are either non-existent or negligible. It is necessary, therefore, to examine data regarding the salary earned by the different groups of teachers. One may expect that differences in the total family income enjoyed by the teachers would largely represent the varying amouts of salary received by them. In table VI, therefore, a classification of teachers according to their salary per month is given:—

TABLE VI

Classification of Teachers According to Monthly Salary (including D.A.)

Gross salary (Rs.)	Municipal School Teachers	Private School Teachers	Headmasters	Assistant Teachers	Male Teachers	Female Teachers	Total No. of Teachers
Less than 50 . .	..	56	1	55	35	21	56
51—75 . . .	71	64	7	128	68	67	135
76—100 . .	349	10	17	342	220	139	359
101—125 . . .	78	3	20	61	62	19	81
126—150 . . .	30	..	27	3	24	6	30
Not given . .	..	1	1	..	1	..	1
TOTAL .	528	134	73	589	410	252	662

The broad differential picture presented by the salary figures does correspond to the differential picture given by figures of the total family income. The conditions in the private schools appeared to be most disheartening as compared to those in the municipal schools. About 42 per cent of the private school teachers received a salary of less than Rs. 50 and the cases of teachers getting more than Rs. 75 were very rare, whereas most of the municipal school teachers enjoyed a salary of more than Rs. 75. The headmasters received higher salaries than the assistant teachers. About one-fourth of the total number of the headmasters received a salary of Rs. 75-100 and Rs. 100-125. Those getting Rs. 126-150 were about 37 per cent. Among the assistant teachers, the largest single concentration of teachers (accounting for 58 per cent) was in the salary class of Rs. 76-100. About 28 per cent received Rs. 51-75 p.m. The comparison of the proportions of male and female teachers as between the salary ranges showed a slightly better picture for the former.

10. The low payment of salaries in the private schools is to be viewed seriously. It may indicate a number of institutional shortcomings (like weak financial position of the institutions concerned) as well as institutional evils (like exploitation and coercion by owners). It is also said that, in private schools, there is often a marked difference between the amount entered in the salary sheet and that actually handed over to the helpless teacher.

11. *Income From Tuitions.*—One of the advantages of a teacher's profession is said to be the substantial amount of income which he can get from tuitions. It has to be admitted that the question regarding income from tuitions has not been satisfactorily answered. The data do not seem to be reliable. The figures, however, are given here for what they are worth.

(a) *Total Income From Tuitions.*—Of the 82 teachers who supplied the data, 19 earned an amount from tuitions, ranging between Rs. 1-5 p.m.; 28 earned between Rs. 6-10 p.m.; 30 earned between Rs. 11-25 p.m.; and 5 earned between Rs. 26-50 p.m.

(b) *Income and Salary.*—Out of the total of 82 teachers engaging in tuitions, 15 had a salary of less than Rs. 50; 21 had a salary between Rs. 51 and 75; 26 between Rs. 76 and 100; 17 between Rs. 101 and 125; and 3 only above Rs. 125.

(c) The percentages of teachers giving tuition were higher among the male teachers (17), headmasters (16) and the private school teachers (28) than among the corresponding groups (6, 12, and 9) of female teachers.

12. *Income From Other Earners.*—The salary and income from tuitions represented the income earned by the teacher himself. Table VII gives information regarding the income earned by other members of the family.

TABLE VII

Distribution of Teachers According to Income of Other Earning Members in the Family

Income of other earners per month (Rs.)	Total No. of teachers reporting such income
Less than 50	26
76—100	44
101—125	21
126—150	18
151—175	3
176—200	5
201—250	4
More than 250	7
Unspecified	115
TOTAL	243

About 18 per cent of the teachers did not give information on this score and in the case of about 46 per cent of the teachers, no member in the family other than the informant was reported to be gainfully employed. A large number of teachers did not specify the amount of income received in this way. Among teachers who specified income, a teacher was found to report on an average a monthly income of about Rs. 108 from other earning members in the family. It was also found that the proportions of teachers reporting income of other earners were generally higher among teachers getting lower salaries. This is natural because the low earnings of the teacher may induce other members of his family to work and earn.

13. *Unearned Income.*—Table VIII indicates the income received by the teacher's family from property, assets and other kinds of sources of unearned income.

TABLE VIII

Distribution of Teachers According to Unearned Income

Unearned income per month (Rs.)	No. of teachers
1—5	11
6—10	30
11—20	35
21—25	14
26—30	9
31—40	9
41—50	17
51—75	3
75—100	9
Not given	12
TOTAL	149

26—6 M. of Edu./60

About 73 per cent of the teachers said that they did not have an unearned income and about 12 per cent did not specify the amount. Among those teachers who specified the amount, the average income from this source was Rs. 25 p.m.

14. *Family Expenditure.*—Table IX presents a distribution of the various groups of teachers according to total family expenditure.

TABLE IX

Distribution of Teachers According to Total Family Expenditure

Total family expenditure per month (Rs.)	Municipal school teachers	Private school teachers	Headmasters	Assistant teachers	Male teachers	Female teachers	Total No.
Less than 50 . .	15	16	1	30	16	15	31
51—75 . . .	96	37	5	128	80	53	133
76—100 . . .	179	38	15	202	141	76	217
101—125 . . .	99	20	17	102	88	31	119
126—150 . . .	55	14	15	54	48	21	69
151—200 . . .	50	3	14	39	24	29	53
More than 200 . .	23	3	6	20	11	15	26
Not given . .	11	3	0	14	2	12	14
TOTAL .	528	134	73	589	410	252	662

An average family of the teacher was found to be spending a sum of Rs. 105 per month. The expenditure differentials mostly mirrored the income differentials already noted earlier. The differences in the levels of money spent were obvious as between the headmasters and assistant teachers as well as between the municipal and private school teachers. For instance, while nearly 40 per cent of teachers in the private schools spent less than Rs. 75, the corresponding percentage was about only half as much among the municipal school teachers.

15. *Savings.*—Savings and indebtedness are the positive and negative aspects of the income-expenditure relationship. While the reporting of savings may tend to underestimation, figures of debts are likely to be inflated. As regards the information on savings, it was found that among all the teachers, only about 12 per cent saved some amount of money, more or less regularly every month. Tables X-A to X-C give the data on savings.

Table X-A

Percentages of Teachers Reporting Savings

Family income per month (Rs.)	No. of teachers reporting savings	Total No. of teachers	Percentage of teachers savings to total No. in each income class
Less than 50	..	15	..
51—100	26	344	7·56
101—150	26	181	14·36
151—200	13	62	20·97
201—250	4	30	13·33
251—300	3	14	21·43
More than 300	6	16	37·50
Total	78	662	11·78

Table X-B

Amount Saved Per Month

Amount of savings per month (Rs.)	No. of teachers reporting
Less than 5	26
6—10	16
11—15	7
16—20	10
21—30	8
31—40	3
41—50	2
Unspecified	6
Total	78

TABLE X-C

Types of Savings

Savings—Type	No. of teachers reporting
1. Post Office	30
2. Bank balances	15
3. Insurance	35
4. Government shares	14
5. Gold, etc.	2
6. Miscellaneous	10
7. Unspecified	7

NOTE.—Figures are not additive, for a teacher may invest in more than one way.

It will be seen that, the proportions of teachers reporting savings were, by and large, higher among those enjoying higher levels of family income which represent, among other things like size of family, financial commitments and liabilities, habits, etc. possibly the most important factor determining the possibilities of savings. A teacher reporting saving saved, on an average, about Rs. 12—20 per month and a large proportion of teachers seemed to have channelised their savings in insurance and balances with the Post Office.

16. *Indebtedness.*—In Tables XI-A to XI-C, the data regarding indebtedness of teachers is given.

TABLE XI-A

Distribution of Teachers Reporting Indebtedness According to Total Family Income

Total family income per month (Rs.)	No. of teachers reporting indebtedness	Total No. of teachers	Percentage of indebted teachers to total No. in each income class
Less than 50	12	15	80·0
51—75	59	88	67·0
76—100	206	256	80·0
101—150	150	181	60·7
151—200	37	62	59.7
201—250	21	30	79·0
251—300	8	14	57·1
More than 300	7	16	43·8
TOTAL	500	662	75·6

TABLE XI-B

Indebted Teachers Classified According to the Amount of Debt Outstanding

Debt (Rs.)	Municipal school teachers	Aided school teachers	Head-masters	Assistant teachers	Male teachers	Female teachers	Total
Upto Rs. 100 . .	10	5	..	15	5	10	15
101—250 . . .	24	14	1	37	23	15	38
251—500 . . .	74	33	7	100	71	36	107
501—750 . . .	44	8	5	47	34	18	52
751—1000 . .	116	15	15	116	97	34	131
1001—1500 . .	56	4	9	51	46	14	60
1501—2000 . .	35	3	9	29	31	7	38
More than 2000 .	47	6	9	44	34	19	53
Amount unspecified .	3	3	4	2	3	3	6
TOTAL .	409	91	59	441	344	156	500

TABLE XI-C

Agencies From Which Teachers Borrowed Money

Type	Creditor	Municipal school teachers	Private school teachers	Total
Institutional	1. Cooperative Credit Society .	286	16	302
	2. Bank	3	3	6
Private	3. Private individuals (relatives, friends, etc.) . . .	226	70	296
	4. Money-lenders . . .	75	28	103
	5. Private institutions . .	15	11	26
	6. Miscellaneous . . .	19	2	21
	7. Unspecified . . .	5	1	6

Among 662 teachers, 500 teachers (80·4 per cent) were found to be in debt at the time of inquiry. Contrary to expectation, the percentages of indebted teachers were higher among the headmasters (80·8), male teachers (83·9) and municipal school employees (77·5) than among their counterpart groups (74·9, 61·9, and 67·9). On inquiry, it was gathered that the needy municipal school teachers could get loans from cooperative society without much elaborate procedures ; and this may partially explain their higher proportion of indebtedness as compared to private school teachers. It will also be seen from Table XI-A that the proportions of indebted teachers were higher, as one would expect, in lower income classes than in the higher ones. About 70 per cent of the teachers were found to have a debt ranging between Rs. 250 and Rs. 1,500 (Table XI-B). As between the municipal and private school teachers, a large number among the former group borrowed from the Cooperative Credit Society, whereas, among the private school teachers, borrowing from private individuals was relatively more prominent (Table XI-C).

IV

Levels of Living

17. *Expenditure on Necessities* : An idea regarding the level of living of a family can be had by noting how much and what proportion of income is spent by the family for what are generally known as the necessities, comforts and luxuries. Broadly speaking, the levels of living are said to be low, if incomes are small and if consequently higher proportions of income have to be channelised towards the consumption of the necessities of life.

Table XII gives the number of teachers classified according to the percentage of total income spent by their family on the necessities of life. These data are very crucial, for they serve as a mirror to the low levels of economic life of the Primary teachers.

TABLE XII

Percentile Distribution of Teachers According to the Percentage of Total Income Spent on the Necessities of Life

Percentage of income spent on necessaries per month	Teachers in municipal schools	Teachers in aided schools	Headmasters	Assistant teachers	Male teachers	Female teachers	Total No. of teachers
Less than 10 . .	..	..	..	..	..	..	..
11—20 . . .	..	0·75	..	0·17	0·24	..	0·15
21—30 . . .	0·38	0·75	2·74	0·17	0·45	0·40	0·45
31—40 . . .	2·27	..	6·85	1·19	2·20	1·19	1·81
41—50 . . .	4·55	2·24	1·37	4·41	3·66	4·76	4·08
51—60 . . .	11·93	7·46	17·80	10·19	11·71	9·92	11·03
61—70 . . .	20·08	20·15	28·77	19·02	20·24	19·84	20·09
71—80 . . .	30·11	32·09	24·66	31·24	32·44	27·38	30·51
81—90 . . .	23·30	26·87	13·70	25·30	25·12	22·22	24·02
91—100 . . .	5·30	7·46	4·11	5·94	3·41	9·52	5·74
Information not available.	2·08	2·24	0·6	2·38	0·45	4·76	2·11
TOTAL (Actual) .	528	134	73	589	410	252	662

The necessities are taken here to include food, clothing and shelter. It will be seen that nearly 30 per cent of the teachers spent more than 80 per cent of their income on basic necessities. About half of the teachers spent between 60 and 80 per cent. As between the different groups of teachers, the headmasters and the Municipal teachers appeared to give a better, or to put it more aptly, less worse, picture than the corresponding groups of assistant teachers and the private school teachers. Male and female teachers were largely on par.

18. *Housing* : Tables XIII-A to XIII-E present data regarding the housing conditions of the informants.

TABLE XIII-A

Percentile Distribution of Teachers of Different Groups According to the Number of Rooms in the House

No. of rooms	Municipal school teachers	Aided school teachers	Head-masters	Assistant teachers	Male teachers	Female teachers	Total
One	28·22	38·06	20·55	31·41	34·15	23·81	30·21
Two	44·89	35·82	35·62	43·97	46·83	36·90	43·05
Three and Four	21·97	17·16	36·97	19·02	14·88	30·95	20·10
More than 4	2·08	2·24	2·74	2·21	1·22	3·97	2·27
Not given	2·65	6·72	4·11	3·40	2·93	4·37	3·47
TOTAL (Actual)	528	134	73	589	410	253	662

It will be seen that, on an average, a teacher's house contained 2·05 rooms per family or 0·31 room per member in the family. As between the different groups of teachers, the conditions regarding the number of rooms were rather worse among the assistant teachers, male teachers and private school teachers than amongst the counterpart groups.

TABLE XIII-B

Classification of Teachers According to Family Size and the Number of Rooms in the House

No. of rooms	Family size				Total
	Small (1-3 members)	Medium (4-6)	Large (7-9)	Very large (10 and above)	
1	41	99	46	14	200
2	26	133	99	27	285
3	13	39	27	20	99
4	2	8	11	19	40
5 and above	1	2	3	9	15
Not given	6	7	7	3	23
TOTAL	89	288	193	92	662

Table XIII-B gives a classification of teachers according to family size and the number of rooms. It was found that generally speaking the number of rooms in the house increased with the size of the family; but the increase in the average number was not proportionate to the increase in the number of members in the family. Thus the average number of rooms was 1·6, 1·8, 2·1 and 2·7 in the case of teachers with small, medium, large and very large size of family, respectively.

TABLE XIII-C

Distribution of Teachers of Different Income Classes According to Number of Rooms in the House

Total family income (Rs. per month)	No. of rooms						Total
	1	2	3	4	5 & more	Not given	
Less than 50	6	6	2	..	..	1	15
51—75	47	22	9	3	..	7	88
76—100	99	120	20	6	3	8	256
101—150	40	97	28	11	1	4	181
151—200	4	22	24	8	2	2	62
201—250	3	12	8	3	3	1	30
251—300	1	3	3	5	2	..	14
More than 300	..	3	5	4	4	..	16
TOTAL	200	285	99	40	15	23	662

The distribution of teachers by income and number of rooms as given in Table XIII-C indicated that teachers with higher incomes generally had a house with larger number of rooms. Thus, the teachers with an income of less than Rs. 150 had, on an average, 1·9 rooms, whereas those getting over Rs. 150 had 2·9 rooms.

TABLE XIII-D

Number of Teachers Enjoying Different Housing Amenities

Amenities	No. of teachers	Percentage
Separate tap	153	23·11
Separate latrine	114	17·22
Separate Kitchen	167	25·23
Separate bathroom	145	21·90
Tiled floor	293	44·26
All of the above amenities	26	3·93
None of the above amenities	199	30·06
Not given	7	1·06

Table XIII-D gives information regarding the housing amenities. About 30 per cent of the teachers did not have the good fortune to have any of the amenities listed in the table. Only 4 per cent reported that their houses were equipped with all the amenities. About 44 per cent of the teachers had houses with tiled floor and about 20-25 per cent each had a separate kitchen, tap and bath. The amenity of a separate latrine was reported only by 17 per cent of the teachers.

TABLE XIII-E

Percentage of Teachers Having Furniture to Total Number in Each Group

Furniture items	Municipal school teachers	Aided school teachers	Head-masters	Assistant teachers	Male teachers	Female teachers	Total
Chair	34·09	28·36	49·32	30·90	26·83	42·86	32·93
Table	21·02	17·91	30·14	19·19	11·46	34·92	20·39
Cup-board	25·95	28·36	34·25	25·47	19·51	37·70	26·44
Sofa	0·57	..	..	0·51	0·24	0·79	0·45
Cot	26·33	24·63	32·88	25·13	19·51	36·51	25·98
None of the above	48·86	52·24	32·88	51·61	55·61	32·68	49·55

27—6 M. of Edu./60.

The data in Table XIII-E indicated that nearly half of the teachers did not possess even one of the usual items of furniture like chair, table, etc. Comparatively speaking, the headmasters, lady teachers and teachers in the municipal schools showed a better position than the corresponding groups.

19. *Consumption of Efficiency Goods.*—Generally speaking, the proportionate distribution of income on 'the higher things of life' like efficiency goods, quality clothing, education, travel, recreation, etc. is higher amongst the rich than amongst the poor. Low proportion of expenditure on such items, therefore, can be taken as a sure sign of poverty and low standard of living. In Table XIV is given a classification of teachers according to income and expenditure on efficiency goods like milk, ghee, vegetables, fruits, etc.

TABLE XIV

Teachers Classified According to Total Family Income and Monthly Expenditure on Efficiency Goods

Total family income per month (Rs.)	Expenditure on efficiency goods (Rs. per month)										Total
	Nil	1-5	6-10	11-15	16-20	21-25	26-35	36-50	More than 50	Not given	
Less than 50	1	2	5	2	2	1	2	..	..	..	15
50—75	2	2	16	17	22	7	9	8	2	3	88
76—100	2	8	31	49	61	43	34	18	7	3	256
101—150	2	3	12	22	29	41	34	32	5	1	181
151—200	..	1	..	2	4	9	29	13	2	2	62
201—250	..	..	..	..	2	2	7	12	4	2	30
251—300	..	..	..	..	1	2	5	4	2	..	14
More than 300	..	..	..	2	..	..	3	2	9	..	16
TOTAL	7	16	65	94	121	105	123	89	31	11	662

Over 60 per cent of the teachers spent less than Rs. 25 for such consumption. On an average, a teacher spent Rs. 23—80 per month for the whole family or Rs. 3·66 per head in the family. This is not a very happy sum, for even if the whole amount were spent for milk at the most favourable current rate (Re. 1 for one and a quarter of seers), a family of about 6-7 persons could purchase just one seer of milk a day, without any other kinds of efficiency goods whatsoever. Broadly speaking, the proportions of teachers spending more on efficiency goods increased with the increase in income.

20. *Quality Clothing* : The teachers were asked whether and when they made themselves silk or woollen clothes. Tables XIV-A and XIV-B give the relevant data.

TABLE XIV-A

Expenditure on Quality Clothing

No. of years since when silk or woollen clothes were made	Total No. of teachers
Did not stich such clothes any time in life	421
2—5 years	61
6—10	60
11—15	30
15—20	10
21—25	6
26—30	1
Not given	73
TOTAL	662

TABLE XIV-B

Distribution of Teachers According to the Amount of Money Spent During the Year of Inquiry on the Purchase of Silk and Woollen Clothes

Amount spent during the year of inquiry (Rs.)	Total No. of teachers
Nil	576
1—25	22
26—50	20
51—75	10
76—100	2
101—150	7
151 & more	5
Not given	20
TOTAL	662

It was found that about 70 per cent of the informants had never stitched silk or woollen clothes in their life-time. On examining the details regarding the different groups of teachers, it appeared that the proportions of such teachers were comparatively larger among the assistant teachers, male members and those employed in the private schools in comparison with the corresponding groups. It was also found that about 90 per cent of the teachers did not make clothes of superior quality for themselves during the year of inquiry. Nearly two-thirds of those who made such purchases spent less than Rs. 50 for such clothing.

21. *Expenditure on Education* : Tables XV-A and XV-B give (i) the number of members receiving education in the teacher's family at the time of inquiry and (ii) the amount of money spent per month for their education.

TABLE XV-A

Education of Family Members

No. of educands in the family	No. of teachers
None receiving education	78
1	184
2	167
3	89
4	51
5	22
6	12
7	4
8	1
More than 9	2
No. Unspecified	15
Not given	37
TOTAL	662

TABLE XV-B

Expenditure on the Education of Members in the Family

Expenditure on education per month (Rs.)	No. of teachers
1—5	229
6—10	79
11—15	27
16—20	14
More than 20	29
No expenditure	9
Not given	147
TOTAL	547

In the case of about 12 per cent of teachers, nobody was receiving education. Among those who reported educands, there were, on an average, about 2·31 educands in the family. The teachers who specified the amount of expenditure on education spent, on an average, Rs. 6.80 per month. About 150 teachers recorded that they had to discontinue the schooling of some members due to financial incapacity.

V

Measurement Of Poverty And Destitution Among Teachers

22. It may also be mentioned here that the average teacher's family was found to have been worse-off as compared to an average sample family in the city of Sholapur. The average family income (derived from all sources) of the teacher was about Rs. 1,398 ·84 per annum (Rs. 214·92 per capita) as against the average of Rs. 1503·00 (Rs. 264.95 per capita) for the whole city[1]. The average number of members constituting a teacher's family was larger (6·51) than the average for the city (5·61 persons)[2]. Thus, relatively speaking, the expenditure liabilities of the teacher were a great deal higher than of an average family. The very fact that the majority of teachers spent a large proportion of their income towards the purchase of the basic necessities of life was indicative of their low standard of living. For efficiency goods, it would be remembered, a teacher could spend only Rs. 3·66 per month per capita for the family. When large slice of the cake is swallowed by bare necessities, little could remain for the joys of a higher life like good housing, quality clothing, travel, recreation, etc. It was also distressing to find that a number of teachers could not even make both ends meet and the sword of indebtedness hung over many a head. A redeeming feature, however, was that the municipal school teachers could borrow from cooperative society and were thus saved from the money-lender.

[1]. This was found in the course of a sample survey of the demographic-economic conditions of the city, conducted by the author in 1955. *Vide* (unpublished) Ph.D. thesis entitled "Population, Fertility and Attitudes Towards Family Planning in Sholapur City (1955), A Survey," by Dr. V. P. Pethe, Gokhale Institute of Politics and Economics, p. 137.

. *Ibid.* p. 158.

23. The preceding analysis gives a graphic and a harrowing picture of poverty and low standards of living among the Primary teachers. With a view to getting at a quantitative index of the extent of poverty and destitution among the teachers, the problem was examined a little further. Data on income and members of the family were gathered from all the Primary teachers of the city in the course of a complete enumeration of teachers carried out through official channels. On the basis of these data, income of the teacher's family was related to its consumption requirements. The expenditure liability was calculated by reducing all the members of the family of different ages and sex to adult male equivalents. The scale used for the purpose was as follows :—

Adult Male (over 14)	1·000
Adult Female (over 14)	0·875
Child 5—14 years	0·625
Child below 5 years	0·375

The division of the total income by the number of adult male equivalents in the family (which may be termed as income per adult male unit) served as an index of the standard of living enjoyed by the family. The levels of living of the majority of families in this country are very low. Hence with a view to making different levels of the low standard of living precise, we may fix, what may be called, the Poverty, Destitution and Starvation Lines[2]. The poverty line showing the minimum level of subsistence was based along the procedures which the Bombay Textile Labour Inquiry Committee (1937-40) adopted for fixing the "living wage standard"[3]. Conditions of poverty, destitution and starvation faced by a family in Sholapur (in 1954-55) were indicated when the family received an income per adult unit of less than Rs. 645, Rs. 275 and Rs. 150 per annum, respectively.[4]

24. Table XVI presents a distribution of the total number of 903 teachers of the city according to the income per adult unit at the three levels of the low standards of living.

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[1]. "Population, Fertility and Attitutes Towards Family Planning in Sholapur City : A Survey (1955)"—unpublished Ph.D. thesis by Dr. V. P. Pethe, Gokhale Institute, pp. 258-59 ; also the "Nutritive Value of Indian Foods and the Planning of Satisfactory Diets", *Health Bulletin* No. 23, 3rd Edition, 1941, Indian Research Fund Association, p. 3.

[2]. Poverty is indicated when a family can just purchase "the minimum necessaries for the maintenance of merely physical efficiency", and nothing more in the nature of efficiency goods, comforts or luxuries (Cf. B. Seebohm Rowntree, Poverty—A study of Town Life, 1901, pp. 86-87). Conditions of destitution obtain when a family cannot afford to consume even the minimum necessary. It can satisfy only the food needs of the family. A family may be said to face conditions of starvation when it is unable to meet even the food requirements.

[3]. Report of the Bombay Textile Labour Inquiry Committee (1937-40), Vol. II : Final Report, p. 78.

[4]. *Vide* Sholapur Survey, Ph. D. Thesis, op. cit. pp. 263-64.

TABLE XVI

Distribution of the Teachers According to Family Income Per Adult Unit, Indicating the Levels of Poverty, Destitution and Starvation

Income per adult unit per annum (Rs.)	Municipal school teachers	Teachers of private schools	Total
Below 150	42	27	69
151—275	263	90	353
276—645	307	68	375
Over 645	43	10	53
Not given	31	22	53
TOTAL	686	217	903

It will be seen that only about 6 per cent of the teachers' families had a standand of living which was higher than the basic minimum. About 93.77 per cent of the families were below the Poverty Line, 49.65 per cent below the Destitution Line, and 8·12 per cent below Starvation Line[1]. As between the municipal and private school teachers, there was not much difference in the proportions of families below the Poverty Line (about 94 per cent each). In respect of Destitution and Starvation Lines, however, the position of the private school teachers was decidedly worse. The proportions of families facing destitution and starvation were 60·00 per cent and 13·85 per cent respectively in the case of private school teachers, as against 46·57 per cent and 6·41 per cent amongst the municipal school teachers. Thus, on the whole. most of the teachers' families could be said to enjoy not even the minimum standard of living.

Five in every ten families were living in destitution and one in every ten had to undergo conditions of starvation. At such low levels of survival and living, there is no reason why the professional efficiency and attitudes of the teachers should not be hampered to a large extent[2].

[1]. The corresponding percentages as returned by the Sample Survey of Families (1955) were 92.94; 53·70 and 12·64—Sholapur Survey, op. cit, pp. 264-65.

[2]. Cf. Causes of Low Standard of Primary Education—V. P. Pethe, Economic Weekly, Bombay, Oct. 1, 1960. pp. 1478-79.

THE INTELLIGENCE LEVEL OF THE BEST CADETS

By

N. R. Warhadpande and B. L. Sethi

Purpose of the Investigation

There is a widespread impression that intelligence is not a very important ability in the work of a military officer. In order to put this notion to the test it is proposed here to study the level of intelligence among the best cadets.

The best cadet is awarded a sword of honour or a medal at the end of the course. No cadet can get such an award unless he is adjudged best all round *i.e.*, proficient in academic subjects and service subjects as well as in the officer-like qualities he displays throughout the course (*vide* appendix 1). Since this assessment is based on prolonged observation by experienced officers in intimate contact with the cadet, it can be regarded as an important criterion for evaluating intelligence tests.

The Sample

The study is based on the performance of best cadets from the J.S.W.* of the Military College, the Pilot Initial Courses and from the Special Air Force Course.

The Test

Since the courses are spread over several years the available intelligence grades of these cadets are not based on the same tests. The comparability of the grades therefore must be judged from the following 'G' saturations of the various tests used.

Battery Tests	Reliability	'G' Saturation	Intercorrelation between tests in the battery
I. I.S.P. 20 (Verbal)	·85	·72*	·35
Matrix 38 (Non-verbal)	·72	·57**	
II. S.P. 15 (Mod.) (Verbal)	·73	·59**	·39
Matrix 43 (Non-verbal)	·78	·82	
III. Canadian Classification (Verbal)	·85	·74**	·52
Canadian Analogies (Non-verbal)	·69	·64**	
IV. I.S.P. 45 (Verbal)	·64	·82*	·62
Matrix 43 (Non-verbal)	·78	·82*	
Kohs-Block Design Test (Performance)	·87	·58*	

*J. S. W. = Joint Services' Wing.

Kohs is given as a confirmatory test in cases where there is a wide divergence between the two tests in a battery. It is not a part of any battery.

The 'G' saturations marked* are worked out on 384 candidates for the Air Force and those marked** are calculated on 185 candidates, for the Joint Services Wing. The marks* also show the test groups on which the saturations are based. The other calculations are also based on the J.S.W. candidate population.

Comparability of the Tests

Assuming 'G' saturation to be a correlation with a test measuring the ability common to all the above tests, the multiple correlation of the various batteries with this 'G' can be estimated. This will be :

Battery	R
I	·80
II	·87½
III	·80
IV	·91

Thus though the intelligence grades are not based on the same battery, they can, making allowance for over-estimation by multiple correlation, be regarded as comparable to some extent. Comparability could have been better ascertained if the 'G' saturations, reliabilities etc. were available for the same population and if the 'G' saturations were based on the same tests. There is, however, no reason to suppose that the Air force and J.S.W. candidates differ systematically in intelligence as far as validity, reliability etc. are concerned.

Best Cadets and the Ordinary Cadets

The following table gives the distribution of the intelligence grades of the best cadets :

Intelligence Grade	Frequency
I	8
II	15
III	20
IV	10
V	3
VI	0
VII	0
TOTAL	56

28—6 M. of Edu./60.

The intelligence grades of the best cadets not included in this table are not available.

It will be seen that the lowest grade among the best cadets is V. The average grade is III (2.73 to be exact).

It will be instructive to compare this distribution with that of the cadets in general. The following table gives the distributions of the percentages of the total in each grade for these two groups side by side. The ordinary cadets mentioned are the cadets in the Joint Services Wing courses.

Intelligence Grade	% Frequencies of ordinary cadets	% Frequencies of best cadets
I	2·6	14·3
II	9·2	26·8
III	28·6	35·7
IV	35·6	17·9
V	19·5	5·4
VI	3·9	0
VII	0·6	0

It should be noted that there are 0.6% ordinary cadets in grade VII and 3.9% in grade VI as against none of the best. The average grade of the ordinary cadet is IV (3.74).

The difference in the two distributions was tested by the X^2 method. Grades I and II were grouped together and so were V, VI and VII to get large enough expected frequencies. The following table gives the results :

Intelligence Grade	Ordinary cadets %	Best cadets %
I & II	11·91	11·07
III	28·56	35·71
IV	35·55	17·86
V, VI, VII.	23·98	5·36

X^2 is 48·2 for 3 degrees of freedom and is significant at 1% level. It is clear that the best cadets are decidedly superior in intelligence to the ordinary cadets.

The Best Cadets and the Worst Cadets

Best cadets may now be compared with the worst cadets *i.e.*, those who are withdrawn. Studying extreme levels of ability is very fruitful because the contrast throws into relief its distinctive features. Again judgement of the difference between the extremes is easier and dependable. The best-worst dichotomy regarded as a criterion measure therefore ensures the dependability of the criterion. This cannot be said of marks because it is difficult to be sure that the fine discrimination made by the marks corresponds with fact. The following table gives the distribution:

	Intelligence Grade						
	I	II	III	IV	V	VI	VII
Best Cadets .	8	15	20	10	3	0	0
Worst Cadets .	2	2	18	29	25	6	2

The bi-serial correlation of the best-worst dichotomy with the intelligence grades is ·68.

Other Assessments

It will be instructive to know how the best cadets compare with the ordinary cadets in other assessments at the Services Selection Boards.

Average Marks in Initial Assessment

*(1) Group Testing Officer/Technical Officer				(2)* President's Interview							
Best cadet		Ordinary cadet		Best cadet		Ordinary cadet		Best cadet		Ordinary cadet	
'M'	St. d.	'M'	St. d.	'M'	St. d.	'M'	St. d.	'M'	St. d.	'M'	St. d.
99·32	31·07	97·6	20·7	100·87	27·55	88·4	21·42	109·58	32·66	97·6	14·9
't'=0.32											
not significant		't'=2.58**						't'=2·18**			

The difference is significant only in the case of the Technical Officer and the President.

*1. Group Testing Officer's assessment is based on out-door tests of leadership, etc.

**2. This assessment is on the basis of Thematic Apperception and Word Association.

S.S.B Assessments and the Best-Worst Dichotomy of Cadets

We may now compare the total board assessment of the best and the worst cadets as in the case of Intelligence.

S.S.B. Marks

	220	240	260	280	300	320	340	360	380	400	420	440	460	480	500	540	560	620
Best Cadet	1	..	..	1	3	2	1	5	4	7	..	4	1	2	3	1	2	1
Worst Cadet	..	..	..	..	6	7	6	13	4	3	3	1	1	2	1	..	1	..

The bi-serial correlation is ·38 significant at 1% level.

The interpretation of the bi-serial correlation is difficult both in the case of intelligences and S.S.B. marks because the best cadets are drawn from all possible courses whereas the worst cadets belong to the J.S.W. courses. The J.S.W. courses generally draw the poorer type of candidates as compared to the Direct Entry as will be clear from the following table.

Average S.S.B. Marks of Cadets Detailed at Training Academies

Ex.-J.S.W. Courses	Direct Entry Courses	
	Civilians	Serving Personnel
397·4	341·2	389·5
368·6	393·3	382·9
381·0	447·2	408·8
386·7	441·2	395·4
358·5	400·4	410·5
359·7	418·7	400·1
369·4	449·9	428·5
398·9	415·6	417·4
386·4	426·1	399·2
406·1	422	414·8

In all courses except one, the Direct Entry average is higher than the ex-J.S.W. average.

S.S.B. = Services' Selection Boards.

The Intelligence Level of the Best Cadets

Among the best cadets 8 are Direct Entry. Any contribution which the Direct Entry candidates make to the best cadet group will tend to be from among those who score highly on the board assessments of officer-like-qualities. On the other hand the 9 best cadets from the Air Force are less likely to come from the high board officer-like-qualities group because they are selected on the basis of Pilot Aptitude in addition to officer-like-qualities. Maximum marks for officer-like-qualities are 640 and those for Pilot Aptitude are 260. Thus those who are high on officer-like-qualities but very poor on Pilot Aptitude may not be selected. A portion of the high officer-like-qualities group is thus excluded from the best cadet group of the Air Force.

The Direct Entry cadets are superior to those of the ex-J.S.W. in intelligence also as will be seen from the following table :

Intelligence Grade	Direct Entry Military College courses	J.S. Wing
	Percentage	Percentage
I	10·7	4.6
II	15·3	9.5
III	28·7	30.9
IV	27·6	32·7
V	14·3	17·8
VI	2·5	3·3
VII	0·7	1·1

$X^2 = 72{\cdot}04^{**}$

d.f. = 6

The Direct Entry cadets more frequently get grade II and above while the J.S.W. cadets more frequently get grades III and below. The Direct Entry group therefore contributes more high-grade intelligence to the best cadet group than the J.S.W. sample does.

The Air-force cadets are sometimes lower in intelligence grade as will be seen from the following tables:

I

Intelligence Grade	J.S. Wing	Air Force
	Percentage	Percentage
I	5·7	1·2
II	9·8	5·0
III	32·6	16·3
IV	31·8	42·5
V	16·7	27·5
VI	2·5	5·0
VII	0·9	2·5

$X^2 = 21·32^{**}$
d.f. = 4

II

Intelligence Grade	J.S. Wing	Air Force
	Percentage	Percentage
I	6·5	4·1
II	11·1	8·1
III	31·3	40·8
IV	32·8	20·4
V	15·3	26·5
VI	2·7	0·0
VII	0·3	0·0

$X^2 = 5·67$
d.f. = 3

The best cadets from Air Force are, therefore, likely to contain fewer high intelligence grades.

These facts must be borne in mind while interpreting the bi-serial correlations with the best-worst dichotomy.

Upshot

The following are the main findings of the investigation.

(1) The best cadets on the whole belong to high and the worst to the low intelligence grades. The bi-serial correlation with the best-worst dichotomy is 0.68.

(2) The same is true of Services Selection Boards. The bi-serial correlation with the best-worst dichotomy is 0·38.

APPENDIX

List of officer-like qualities assessed at the Selection Boards and the Military Academies :

(1) Effective Intelligence
(2) Reasoning Ability
(3) Organising Ability
(4) Power of Expression
(5) Social Adaptability
(6) Cooperation
(7) Sense of Responsibility
(8) Determination
(9) Courage
(10) Stamina
(11) Initiative
(12) Self-Confidence
(13) Speed of Decision
(14) Liveliness
(15) Ability to Influence the Group.

INTELLIGENCE GRADES AND SUCCESS AT THE NATIONAL DEFENCE ACADEMY

By

W. N. Deshmukh*

Purpose of the Investigation

Every candidate appearing for Selection at the Services Selection Board is given an Intelligence Test Battery. He is allotted an Intelligence Grade[1] on the basis of the combined equivalent scores of the two tests in the battery. Both these tests are group tests. One of these is a verbal test and the other one is non-verbal. The Intelligence Grade is one of the many aspects of the candidate taken into consideration while evaluating his suitability for being trained as a Service Officer. No minimum acceptable score has been laid down.

In the absence of a well defined criterion, the results at the academies where the cadets receive their training after their selection can be accepted as an intermediate criterion for judging the usefulness of intelligence tests for the purposes of selection.

The purpose of this investigation is to find out if and how success and failure of the cadets at the National Defence Academy are related to the Intelligence Grades.

By success, we mean here a cadet's passing out of the Academy without being relegated or rejected at any stage. By failure, we mean his being relegated once or more times in any term of the N.D.A. due to any reason (except the medical) or his being rejected and withdrawn before completion of full training.

Relegation

2. There are six terms in the course of three years at the N.D.A., and a cadet can be relegated or rejected in any one of them. Relegation means holding back of a cadet in one particular term for one of the reasons mentioned below:—

(a) Poor progress in Academic and Service Subjects—Cadets who are unable to cope with the instruction are relegated to the next term. This accounts for the largest number of relegations (about 38%). (For the list of Academic and the Service Subjects at the N.D.A. please refer to Appendix A.)

(b) Lack of officer-like-qualities (referred to as O.L.Q. generally)——A cadet who fails to show an adequate O.L.Q. in spite of sufficient guidance and opportunities provided to him is relegated to the subsequent course. This is a second major ground on which about 22% of the relegations take place.

(For the list of personality qualities rated as the O.L.Q., please refer to Appendix B.)

(c) Poor Academics plus weak O.L.Q. jointly account for about 21% of the total relegations.

*This article has been prepared with the guidance of Shri N. R. Warhadpande, Senior Scientific Officer (Psychology), Ministry of Defence, New Delhi.

1. The grades range from 1 to 7.

(d) Medical grounds like ill-health or physical disability account for about 10% of the total relegations. (Cadets relegated on medical grounds are not included in this investigation.)

(e) Disciplinary grounds—Abount 5% of the relegations take place for severe breaches of discipline.

Rejection or Withdrawal.—Some relegated cadets are finally withdrawn from the Academy when it is found that relegations have failed to bring the cadet up to the mark and when it is felt that any further reasonable amount of training is unlikely to do him any good.

Relegations in one term delays the completion of a cadet's N.D.A. training by six months. Rejection and withdrawl prevents him from completing his training and subsequently getting a commission.

The Sample

3. The sample for this study consisted of cadets of the N.D.A. *i.e.* the then Joint Services Wing courses. To avoid overlapping only, the fresh entrants to each of the above courses were included in the sample and the relegates to each course from the previous courses were excluded from it. Also the cadets who were later relegated or rejected on medical grounds or those who died were not included in the sample.

The Tests

4. All these cadets had been tested on the Intelligence Battery consisting of P.R.W. Test No. 1 and P.R.W. Test No. 2 at the Selection Boards before they were selected for training. Their Intelligence Grades were available from their Selection Board records. Brief information about these Tests is given below:—

P.R.W. Test No. 1.—This is a non-verbal group test of Intelligence (also called the Drawing Test of Intelligence) constructed by the Psychological Research Wing for officers' selection. It contains two parts. The first part contains 9 questions which require the testee to point out a drawing which is different from others given in a set of drawings (all the drawings but one in each question have some common property). The second part contains 15 questions of the series type. A set of drawings is arranged in each question following a certain rule. The testee has to discover the rule and point out a drawing which will correctly continue the series following the same rule. In both parts the testee has to choose the answer from a number of choices given to him for each answer. The time allowed for attempting both the parts is 17 minutes exclusive of the instructions and the practice set. The reliability of this test is 4·7 by rational equivalence.

P.R.W. Test No. 2.—This is a verbal test of Intelligence constructed by the P.R.W. for officers' selection. This too is a group test containing seven parts. Instructions and the time limit for each part are separte. The first part contains questions on analogies. The second part has questions on paired similarities and a few questions on directions. The third part requires some disarranged words to be re-arranged. The fourth part requires the testee to detect an odd pair in a list of pairs given. The fifth part has some codes to be deciphered. The sixth part contains questions which are based on some changes in the ordinary rules of Arithmetic as in the examples on scales of notation. The last part presents questions on completions of a series of letters according to the rule followed within the series. There are 60 questions in all the seven parts together and 36 minutes are given to answer them. Reliability of this test is ·81 by rational equivalence.

29—6 M of Edu./60.

Equivalent scores and the Grade Norms indicating the range of combined equivalent scores on PRW Test Nos. 1 and 2 for each Intelligence Grade from 1 to 7 were established by administering these tests to candidates of the N.D.A. (the then J.S.W.*) courses.

5. The Intelligence grade-wise distribution for each of the courses taken in this sample was worked out for:—

(a) all cadets in the course,

(b) cadets who got relegated to subsequent courses, and

(c) cadets who passed out without being relegated or rejected at any stage during their career.

The percentages of relegated and successful cadets (those who passed out without being relegated or rejected at any stage) in each course, in each Intelligence Grade were calculated. The combined distribution for all the courses is presented in the following table :

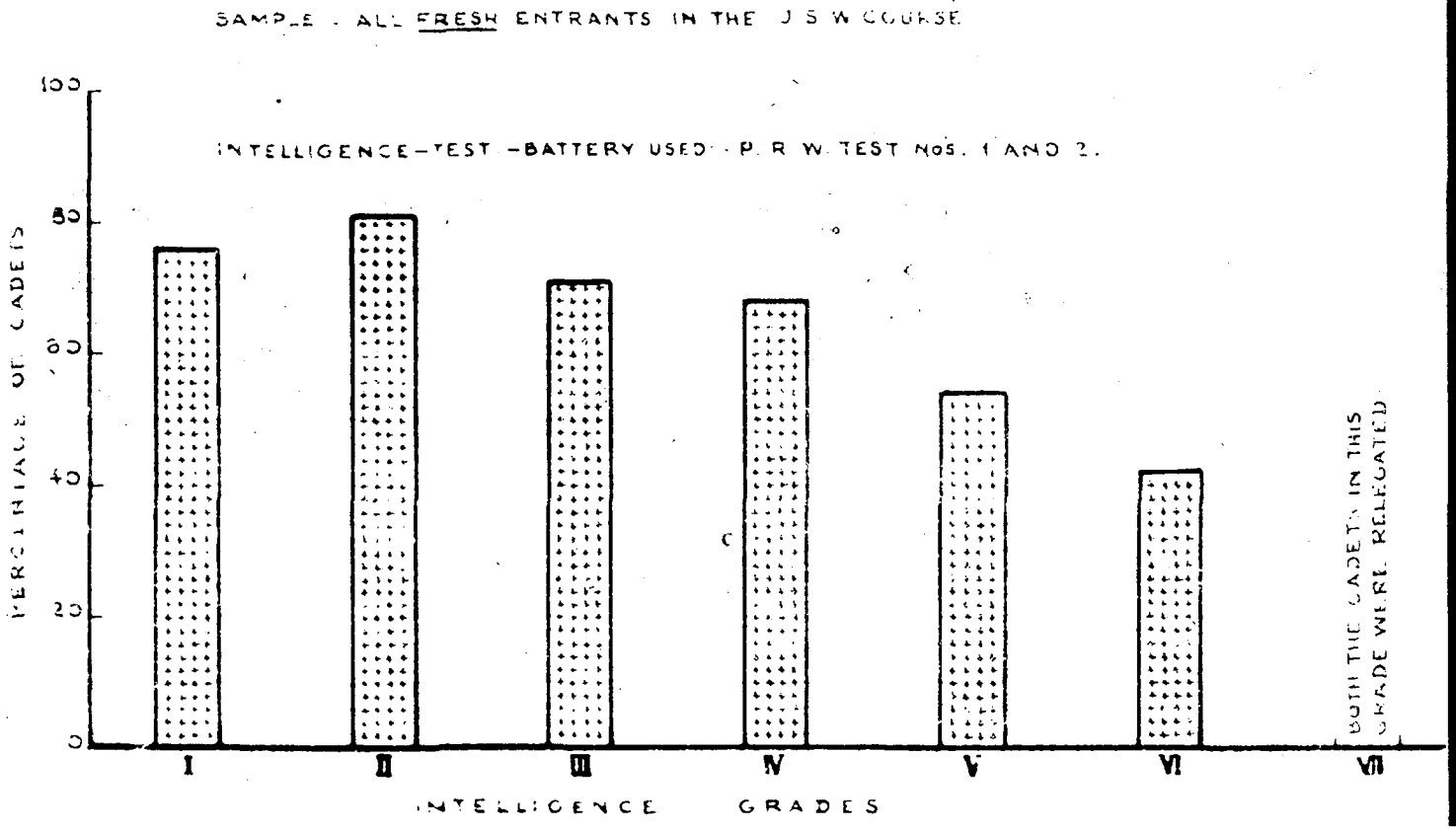
J.S.W. Courses

Intelligence Grade	% relegated	% withdrawn	% of cadets who passed out without being relegated at any stage
I	24	..	76
II	19·0	..	81
III	25·7	2·9	71·3
IV	32·3	2·9	64·7
V	43	2·6	54·4
VI	57	..	43
VII	100	..	0

The distribution is presented graphically on the next page.

*Joint Services Wing.

INTELLIGENCE-GRADEWISE DISTRIBUTION OF CADETS PASSING OUT OF THE N. D. A WITHOUT BEING RELEGATED OR REJECTED AT ANY STAGE.



6. The Chi-square test was applied as shown in the following table:

Intelligence Grade	Cadets who passed out without being relegated at any stage		Cadets who were relegated or rejected at some stage	
	Observed frequency %	Expected frequency %	Observed frequency %	Expected frequency %
I	4·3	3·8	2·7	3·8
II	11·6	9·5	5·4	9·5
III	33·3	31·0	26·3	31·0
IV	35·3	36·2	37·9	36·2
V	14·1	17·1	23·2	17·1
VI & VII	1·4	2·4	4·5	2·4

X^2 is 22·86 significant at 1% level, degrees of freedom 5

This test shows that the difference in the proportion between the successful and the unsuccessful cadets in the different grades is significant.

The relationship as measured by contingency is ·18.

7. *Conclusion.*—The overall rate of relegation is 31·28% of rejection and withdrawal is 2·4% and of passing out without being relegated is 66·33% of the total fresh entrants in these J.S.W. courses. Compared to this, the percentage of relegation seems to be lower than the average in Intelligence Grades I, II and III (which are above average grades); near about average in grade IV (which is the average grade) and above average in grades V, VI and VII (which are below average grades). On the other hand, the percentage of successful cadets is above average in grades I, II and III; average in grade IV and below average in grades V, VI and VII. On the whole the proportion of successful cadets is positively related to the grades on Intelligence Tests.

These findings are on a highly select sample. It can be seen from the grade-wise distribution of all the cadets that about 44•20% of the cadets selected fall in grades III and above, while only 19·6% of them fall in grades V and below. The tendency is, therefore, clear that more cadets from the average and above grades have been selected. If the whole unselected population of candidates were available, it is obvious that the relationship of intelligence scores and training performance would be much closer.

APPENDIX A

List of Academic Subjects taught at the N.D.A.

(1) English.
(2) Mathematics.
(3) Science.
(4) Social Studies.
(5) Geography.
(6) Workshop Practice.
(7) Engineering Drawing.
(8) Hindi/Foreign Language.
(9) Projects and Assignments.

List of Service Subjects taught at the N.D.A.

(1) Weapon Training.
(2) Organisation and Administration of the Indian Army, Navy and Air Force.
(3) Map Reading and Navigation.
(4) Hygiene and Sanitation.
(5) Allied Subjects.
(6) Camps.
(7) Military History and Geography.

APPENDIX B

List of officer-like-qualities assessed on a five point rating scale.

(1) Effective Intelligence.
(2) Reasoning Ability.
(3) Organising Ability.
(4) Power of Expression.
(5) Social Adaptability.
(6) Cooperation.
(7) Sense of Responsibility.
(8) Determination.
(9) Courage.
(10) Stamina.
(11) Initiative.
(12) Self-Confidence.
(13) Speed of Decision.
(14) Liveliness.
(15) Ability to Influence the Group.

MEASUREMENT OF SOCIAL INTELLIGENCE

By

M. B. BUCH

Introduction

The present report describes an attempt to devise a test of social intelligence. Since the test is confidential and cannot, therefore, be reproduced, the report in the main will be confined to outlining the procedure and techniques followed in constructing and validating the test.

It was E. I. Thorndike who first put forward the theory that there are three types of intelligence, namely, Abstract, Concrete and Social. While by Abstract Intelligence he meant the ability to deal with and to understand verbal and mathematical symbols and by Concrete Intelligence the ability to deal with concrete objects, he used the term Social Intelligence to mean the ability to deal with and understand people.

It is a matter of common knowledge that many intelligent people fail to make their mark in life whereas others, though of no high intelligence, succeed beyond expectations. Many a brilliant man fails at his job not because of any lack of intelligence or technical competence but because he is unable to get along with his colleagues or because he is not able to make suitable adjustments to his social environment. The ability to get along and deal with people, it seems, is an important determent of success and happiness in life. It is hoped that the test to be described in this report will be of value for guidance and selection in education, psychology, industry and personnel management.

Nature of Social Intelligence.—While no definite evidence is available, it is generally assumed that the ability to deal with people is more a matter of learning and education than heredity. To quote Gordon Allport, for instance, "it is obvious that social intelligence cannot be an inherited capacity to the extent that abstract and mechanical intelligence may be. It is rather a trait developed through opportunity and through interest, upon the basis of a native general intelligence."

Evidence is also lacking on whether or not to treat social intelligence as a unitary trait. At least one view is definitely against the presumption of its being a unitary trait. On the basis of a factorial investigation, R. L. Thorndike, for instance, concluded as follows:—

"Whether there is any unitary trait corresponding to social intelligence remains to be demonstrated. It may be that when the contributions of abstract intelligence (or of various of the factors which make up abstract intelligence) and of interest in people are removed, there will be nothing left. It may be that social intelligence is a complex of an enormous number of specific social habits and attitude."

Definitions of Social Intelligence

Since 1920 when E. I. Thorndike first put forward his concept of social intelligence, different definitions of the concept have been given by different workers. In some of the definitions, the word 'Social' is used to mean 'pertaining to society'. Here social intelligence is equated to the socially desirable reactions of an individual to the institutionalized

phases of society. In some, social intelligence has been interpreted to mean social interest or social attitude. Sometimes the term has also been used to connote the ability to make social adjustments. Some psychologists equate the concept to sociability while still others consider it as synonymous with knowledge of social usage and etiquette.

But perhaps the best definition of social intelligene is that given by H. Cisney. He defines it as the "ability to understand and manage people and to act wisely in human relations." The definition given by James Drever as "the type of intelligence involved in an individual's dealing with other people and with social relationships" is close to that of Cisney. For purposes of the test and test construction to be described in this study, the investigator has generally guided himself by the definitions of Cisney and Drever.

Earlier Tests of Social Intelligence

In 1926, a questionnaire to measure sociability was prepared by Gilliland and R. Burke. These authors equated social intelligence with sociability. The questionnaire contained tests of memory for faces and also a questionnaire on the range of friendships, number of social visits and the degree of liking for different activities. In about the same time, Dr. Moss and Dr. Thelma Hunt published their "Test of Social Intelligence". This test contains the following seven sub-tests ; Judgements in social situations ; Observation of human behaviour ; Recognition of the mental state of the speaker ; Memory for names and faces; Sense of humour ; Identification of emotional expression ; Knowledge of social information. The Moss-Thelma test has been widely used to sample people's ability to deal with others. Studies have also heen made of its validity against a number of external criteria.

The year 1931 saw the publication of a number of tests of social intelligence. Bernreuter published his "Personality Inventory" for which Flanagan devised a sociability score by a system of weighting the scores. Ruth Strong published "Test of Knowledge of Social Usage". The test measures social intelligence by measuring social information in different areas. The Bureau of Public Personnel Administration also brought out a test in this field. The test by G. Allport, P. Vernon and G. Lindzey also appeared in the same year.

In 1933, J. Stauter and L. Hunting prepared an inventory to measure social intelligence by measuring the extent of acquaintanceship. "A Test of Knowledge of Social Standards" by Frank Tomlin was also brought out in 1933 by Stanford University Press.

In the early years of the next decade, Kansas State Teachers' College published a "Test of Social Comprehension" and George Washington University Counselling Centre published a "Test of Etiquette". Both these tests are intended to measure Knowledge of the accepted rules of social conduct. The "Test of Practical Judgments" by Alfred J. Cardall appeared in 1942. The test items of this test consist of a number of problem-situations. To each problem-situation the subject is called upon to react by choosing from amongst a number of given alternatives.

During World War II, a number of situation tests were developed to aid the selection of personnel for posts of authority and leadership. The Social Manipulation Inventory is one of these tests.

A Few Critical Observations on the Existing Tests of Social Intelligence

A common defect of some of the tests mentioned above is that they do not define in very precise terms the concept of social intelligence. As has already been stated, different workers have given different definitions of social intelligence. Unless care is taken to develop a reasonably "valid" difinition, defferent approaches only add to the prevailing confusion.

Many of the tests available at present do not possess a high validity value. In any case there have been very few studies establishing their validity. On the other hand, from whatever information is available regarding the existing tests it seems that often no care is taken to fix in advance the external criterion against which to validate a given test. The selection of the test items on the basis of their validity co-efficients has also left much to be desired. The author has tried to bear these and other pitfalls in mind and has tried to avoid them as far as possible in planning his own test of social intelligence.

Construction of the Test.—Reference was made above to the definition of social intelligence given by H. Cisney and to that given by James Driver. The first defined social intelligence as the "ability to understand and manage people and to act wisely in human relations". According to James Driver this type of intelligence manifests itself in an "individual's" dealings with other people and with social relationships. Since these are about the least definitions available of the concept of social intelligence, the writer considered it necessary to make a searching analysis of the constituents of the ability to deal with people. The investigations of Dr. T. Hunt and others had earlier revealed that successful insurance agents, salesmen, supervisors, etc, possess a high degree of social intelligence. The author decided accordingly to interview a number of successful insurance agents and salesmen and prepared a list of abilities which seemed to contribute to their professional success. The list included the following functions:—

1. Ability to make a sympathetic approach,
2. Ability to take a proper decision in problem-situations,
3. Ability to understand other people's points of view,
4. Ability to keep cheerful and cultivate a sense of humour,
5. Ability to understand other person's mental reactions,
6. Ability to understand feelings of other people,
7. Ability to read facial expressions,
8. Ability to converse,
9. Ability to observe human behaviour,
10. Ability to adjust,
11. Knowledge of good manners, etiquette etc., and
12. Ability to remember names and faces.

Thirty successful insurance agents and an equal number of successful salesmen were then requested to rank these abilities in order of their importance to professional success. The different abilities have been arranged as follows according to the average rank order assigned to them by the judges :

1. Ability to take a proper decision in problem-situations,
2. Ability to observe human behaviour,
3. Knowledge of good manners, etiquette etc.,
4. Ability to remember names and faces,
5. Ability to keep cheerful and cultivate a sense of humour,
6. Ability to recognise mental reactions of the speaker,
7. Ability to adjust,
8. Ability to make a sympathetic approach,
9. Ability to converse,
10. Ability to understand other person's point of view,
11. Ability to understand feelings of other people, and
12. Ability to read facial expressions.

The lower the rank assigned to an ability the greater is the contribution of that ability to professional success.

It is interesting to note that the results of the foregoing analysis of the constituents of social intelligence were broadly supported by an independent enquiry into the contents of the so-called tests of social ability. The author studied a large number of tests with a view to singling out the most frequently used sub-tests. It appeared that the more commonly employed sub-tests belong to the following types:—

(a) Information,

(b) Situation tests,

(c) Memory for names and faces,

(d) Ability to judge mental reactions from facial expression,

(e) Ability to judge the mental state of a person from his words,

(f) Observation of human behaviour,

(g) Sense of humour, and

(h) Sociability Questionnaires.

Comparing the first six abilities considered important by successful insurance agents and salesmen with those obtained from the content analysis of the existing tests of social intelligence, one will find that excepting for the ability to read facial expressions, the abilities represented in the sub-tests are indentical with those given by the judges to the first six abilities.

It is unfortunate that very few factorial studies are there to throw light on the factorial composition of social intelligence. In the absence of any useful data bearing on that point it was decided, in the light of the analysis of contents of the existing tests of social intelligence and the rank orders arranged by the successful insurance agents and salesmen to the various abilities supposed to enter into the composition of social intelligence, to include the following sub-tests.

30—6 M. of Edu./60.

1. Judgement in social situations,
2. Memory for names and faces,
3. Observation of human behaviour,
4. Recognition of the mental state of the speaker,
5. Sense of humour, and
6. Social information.

It is now proposed to give some idea of the kind of items included in each sub-test.

Judgment in Social Situations

A number of situations which an individual comes across either at home or in his social intercourse or in the world of work are listed These situations are described and different alternate courses of action are presented. The subject is asked to select the course of action he considers socially acceptable.

To construct items for this sub-test the author approached a number of college students, teachers and friends and requested them to write down a number of typical situations that arise either at home or outside where they find it difficult to decide as to the course of action they should follow. In all 67 situations were considered. Those which overlapped or are met with very infrequently in life were eliminated, thus reducing the number of items to 42. All these items are of the multiple choice variety. The distractors were selected after discussing with a few friends the possible courses of action in the different situations. Where there was a divergence of opinion, the item was formed into a question and a number of students of the S. S. C. class were asked to suggest the best course of action.

The main situations around which the items centre are given below:

(i) *Problem-situation at home.*—In this area 8 items were constructed but only 4 retained after analysis.

(ii) *Social situations involving community relationships.*—Eight items were constructed of which 4 had to be rejected after item analysis.

(iii) *Situations involving relationships with friends.*—Of the 11 items constructed originally 6 were retained after analysis.

(iv) *Situations dealing with neighbours and acquaintances.*—Five items were constructed and retained in the final form.

(v) *Problem-situations arising in the world of work.*—Eleven items were constructed of which 9 were retained in the final form.

It is now proposed to illustrate the sub-test by reproducing three of the items:

(Four alternatives are suggested for each of the following. Select the proper answer to each and write the serial number of the alternative selected at the appropriate place in the answer sheet.)

Item No. 12.—One of your elderly friends does not like the arrangement of the drawing room of your new home. He suggests some changes. What should you do?

(i) Considering the experience of your friend, you should immediately change the arrangement.

(ii) Tell your friend that it is your drawing room and it will be according to your liking.

(iii) Explain your friend why that arrangement is convenient to you.

(iv) Ignore the suggestions made by your friend.

Item No. 15.—You are giving a dinner party. What is the most important consideration in making it a successful party according to you?

(i) Be sure that there is an equal number of men and women at the table.

(ii) Be sure that all guests know one another.

(iii) See that there are tasteful dishes.

(iv) See that you are fresh and not exhausted at the right time.

Item No. 19.—Assume that you are a teacher of a school and while going to school, some of your pupils tease you. From the point of school discipline, you should

(i) punish them there and then for not treating you with proper regard,

(ii) tell them that if they ever do it again you will punish them,

(iii) report them to their parents,

(iv) take it as a joke and ignore it.

Item No. 24.—You are subscribing to a newspaper which is delivered to you at home. Many a time you do not find the paper. You find that the landlord's son is the culprit. It would be best for you

(i) to accuse the boy of taking the paper,

(ii) to say nothing,

(iii) to explain the problem to the landlord and see if something can be done,

(iv) to cancel the subscription to the paper.

It may be mentioned that the present sub-test (Judgement in Social Situation) has generally been found to be a very good constituent of social intelligence. In one form or another it has been included in almost all the tests of social intelligence devised so far.

Recognising the Mental State of the Speaker

These tests are more or less analogous to tests of recognising the mental state from the facial expression. The following mental states are included in this sub-test:—

(a) Ambition; (b) Frustration; (c) Anger; (d) Determination; (e) Disappointment; (f) Hypocrisy; (g) Vascillation; (h) Love; (i) Hate; (j) Scorn; (k) Doubt; (l) Suspicion; (m) Loneliness; (n) Admiration; (o) Affection; (p) Jealousy; (q) Fear; (r) Repentence; (s) Dislike; (t) Envy; (u) Sympathy; (v) Pity.

It has been found that the recognition from words of unpleasant emotions is more difficult than the recognition of pleasant emotions. As such the number of items calling for the recognition of the unpleasant states is much larger than the number of pleasant states. A large number of Gujarati books including plays were examined to select suitable statements. Before a statement was included it was made sure that it did refer to a specific mental state and that it was quite self-contained and unambiguous.

The test is of the multiple choice variety. The subject is presented with a statement and is given four different mental states out of which he has to select the one appropriate to the expression. In selecting the distractors care was taken to see that they belonged to the same family of emotions as the original expression. For this purpose emotions like hate, scorn, anger, despise formed one group; disappointment, frustration, repentence, anger formed another; love, affection, admiration, sympathy were treated together and so on. If the distractors had related to the opposite or even dissimilar emotions their detection would have been easy and affected the discriminating power of the sub-test.

In all thirty-two items were framed for this sub-test, out of which fifteen items were retained.

Four items for the sub-test are reproduced below:

(A number of quotations are given. Against each quotation, four words describing different mental states of the speaker are written. Select the proper word for each quotation and record the serial number of your choice at the appropriate place in the answer sheet.)

1. You have rivers of water at your door whereas I have to struggle even for a cup of water.

   (i) Despair, (ii) Envy, (iii) Disappointment, (iv) Compassion.

2. And there stands that dirty pig.

   (i) Despise ; (ii) Jealousy ; (iii) Rage ; (iv) Scorn.

3. Oof Was it for this house that I struggled so hard.

   (i) Scorn ; (ii) Despise (iii) Rage ; (iv) Hypocrisy.

4. No one can stop us now. For us the slogan is do or die.

   (i) Ambition; (ii) Despair; (iii) Rage; (iv) Determination.

Observation of Human Behaviour

The items of this sub-test are of the true-false type. The items relate to some broad generalisations about human behaviour. These generalisations are put in the form of statements and the subject is to indicate his agreement or disagreement by writing 'yes' or 'no' against each statement. These generalisations have been selected from the following areas : Social competence : Community relationships : Relationship between customers and shop-keepers or employers and employees: Relationship between friends.

To construct these items, the main resources tapped are the various books like "Ethical Commandments", "Hitopadesh" in Sanskrit etc., and, of course, the available tests.

Forty-eight statements were prepared out of which twenty-eight items were finally retained in the test.

A few items from this sub-test are reproduced below.

(If the statement is true, write 'yes' and if it is false write 'No' in the appropriate place in the answer sheet).

1. The weak always resort to flattery.

2. People usually enjoy the success of their colleagues without envy.

3. The patriotism exhibited by Indians in the struggle for independence was an example of carefully thought-out judgment of the masses to stand up for the right.

Sense of Humour

The author requested a number of teachers, university lecturers and friends to contribute items of humour on the basis of their personal experience. About one hundred and ten items were collected. To these were added a number of items from other (foreign) tests and others selected from journals and magazines. All these items related to simple humorous incidents. For each of the 26 items three distractors were prepared. The items were then referred to a group of 10 successful insurance agents and their opinions on the most humorous answers obtained. Only twelve items were retained in the final form. The following item will illustrate the sub-test.

(In each of the following, select one of the four suggested alternatives which contain the best humour. Write the serial number of the alternative you choose at the appropriate place in the answer sheet.)

An enthusiastic book-seller said, "This encyclopaedia is worth buying. Your knowledge will really increase".

(i) "Friend, I am married".

(ii) "My vocabulary is perhaps more than this".

(iii) "One cannot buy knowledge".

(iv) "Good book doesn't need so much introduction".

Social Information

The items for this test were selected from books on good manners and etiquette. The items related to information regarding (i) table manners, (ii) manners for guests and hosts, (iii) respect and consideration for others, (iv) good form in meeting people, (v) behaviour in groups and (vi) good manners at games. The items were then given to fifteen outstanding figures in the social life of Baroda and their opinion about the advisability of including the items in this sub-test was sought. It was the considered opinion of this group that more items on 'good form of talking with and meeting people' and on 'Respect and consideration for others' should be included and that items concerning manners at games, behaviour in a group and manners in dealing with guests and hosts and table manners should be given secondary importance. The suggestion was accepted. Thirty-five items were constructed out of which twenty items were retained in the final form.

The following three items will illustrate the sub-test.

(In the statements below are given different ways of acting or conducting yourself. Some of them are socially approved, some are not. Read each statement and write 'yes' if you think it is the wrong way to act. Write your answer in the apropriate place in the answer sheet).

1. Before interrupting a busy man, wait till he starts conversing with you.
2. If some invited guest comes late in the party, let him find out his seat by himself.
3. There is nothing wrong in opening the personal letters of your family members.

Memory for Names and Faces

The author selected sixteen photographs from the identity cards of the B. Ed. candidates joining the Faculty of Education and Psychology. The photographs were of individuals who had no special facial or sartorial characteristics facilitating recognition. Two individuals were with glasses, five with ties, two with shirts, ten with coats of which three were of the same design, none had any head dress. Another plate contained twenty-five photographs in which sixteen were photographs of such persons who had some identity with some of the photographs in the original plate. The subjects are given the sixteen photographs printed on a sheet with a name written below each photo. After about twenty minutes they are presented with the second plate of twenty-five photographs. In the test, they were given the names contained in the original sixteen photographs. The subjects are to recognise the correct photo of the person named from a group of four different photographs written against each name. In this test, twelve items are retained. The following will illustrate the sub-test :

(In the photographs on the facing page (not included) the twelve photographs which you studied at the beginning of this test are included. The names of the twelve individuals you saw in the beginning are given below. Four pictures (not reproduced) are suggested for each name. Select the correct one and write the letter preceding it in the appropriate place in the answer sheet.)

1. Amin	No. 5	No. 6	No. 23	No. 25
2. Joshi	No. 4	No. 18	No. 10	No. 21
3. Dave	No. 2	No. 14	No. 18	No. 23
4. Shukla	No. 2	No. 5	No. 13	No. 25

Assembly of the Tests.—The final pattern of items for the various sub-tests is given in the table below :—

TABLE I

Number of Items in Various Sub-Tests

Name of the test	No. of items
1. Judgment in social situations	43
2. Memory for names and faces	16
3. Recognition of the mental state of the speaker	33
4. Observation of human behaviour	48
5. Sense of humour	26
6. Social information	35
Total number of items	201

Correct Answers

The correct answers to all the items were decided in a group discussion attended by three post-graduate students, two field officers of the L.I.C., two lecturers of the Faculty of Education and Psychology of the Baroda University, three business executives and two salesmen. Only those items were retained where there was complete agreement as to the correct response.

Criterion

In test construction the problem of selecting a valid criterion is very important Many existing tests yield low co-efficients when tested against external criteria. It has been a sad experience of many a test constructor that the test he had constructed with such care eventually turned out to measure something quite different from what it was intended to measure.

To select the criterion groups, ratings by the class teachers and the games teachers of 3,300 pupils of eighty classes from thirty-five Secondary schools on their participation in social and cultural activities of the schools were obtained. The pupils were rated on a five point scale. To test the reliability of these ratings, product moment co-efficients of correlation between the two ratings were found for each class. In those cases where the co-efficient of correlation was less than ·70 the entire class was dropped. Out of eighty divisions sixteen classes were rejected on the basis of this criterion. Sixty-four classes were retained for further study.

The pupils of these sixty-four classes were then rated on good manners and social etiquette by two teachers of each class. The correlation between the two ratings were calculated for each class. Out of sixty-four classes nine classes were rejected as the ratings of their pupils by two teachers had correlated less than ·70.

Next a socio-metric study was made of each of the remaining fifty-five classes. The plan adopted was to put two questions to each pupil. The questions selected were (i) With whom will you like to play ? (Give two choices in order of preference) (ii) Who is your best friend in your class ? (Give two choices in order of preference).

Each first preference was given two points while each second preference got only one point. On the assumption of normality of distribution, the scores secured by pupils were converted into letter grades A to G.

The criterion group of socially intelligent pupils consisted only of those who had scored an "A" in the ratings and an "A" or "B" in the socio-metric study. The criterion group of low social intelligence on the other hand was confined to those who had scored an "E" in the ratings and an "F" or "G" in the socio-metric study. While forming the two groups care was further taken to see that only those students were included about whom there was agreement between the two teachers and whose scores on "participation in social or cultural activities" were in agreement with those on "manners and social etiquette".

The results of the ratings and socio-metric scores are given in the following tables:

TABLE 2

Number of Pupils in A and E Grades in Participation in Social Cultural Activities of the School

Those securing A grade in ratings by both the teachers	216 out of 2760
Those securing E grade in ratings by both the teachers	213 out of 2760

TABLE 3

Number of Pupils in A and E Grades in Manners and Etiquette

Those securing A grade in rating by both the teachers	189 out of 2360
Those securing B grade in rating by both the teachers	192 out of 2360

TABLE 4

Number of Pupils Securing A and B Grades and F and G Grades in Socio-Metric Studies

Those securing A and B grades	130 out of 2360
Those securing F and G grades	145 out of 2360

TABLE 5

Details of Pupils in the Criterion Groups

Criterion Group A	Those securing A in table 2, A in table 3, A or B in table 4.
Criterion Group B	Those securing E in table 2, E in table 3, F or G in table 4.

Group A consists of pupils with high social intelligence. Group B is composed of pupils with low social intelligence.

Item Analysis—Item Validity

Each item of the try out form was administered to the two criterion groups. The responses of the pupils in the two groups were analysed and the chi-square test was applied to each item to test whether it discriminated between the two criterion groups. The level of significance for each item was fixed at 5%. Out of 199 items which were tried out 72 items failed to show adequate discrimination and were consequently rejected. One hundred and twenty-seven items were further tried out for internal consistency.

Internal Consistency

The valid items were administered to a group of about 400 S.S.C. class pupils from thirty-five High schools of Gujarat. Liberal time was allowed to the pupils for taking the test. Instructions for administering the test were also standardised. The responses of the pupils to the test items were analysed. To find out the internal consistency of the test as a whole, the total score on the test was selected as the criterion score and item criterion correlation was found out for each item. The method employed was to arrange the test scripts according to the criterion scores and to take 27% of the scripts from the two extreme ends. The indices of internal consistency were then found by using the Flannagan's table.

Difficulty Values of Items

The upper and the lower 27% of the distribution of test scripts arranged according to the total score were used to find out item difficulty. The difficulty values of the items were calculated according to the following formula:—

$$D = \frac{RU - WU \times \frac{K-I}{N-NR} + RL = WL \quad \frac{K-I}{N-NR}}{2}$$

Where D= Difficulty value of the item.

RU= the number of pupils in the upper group who mark the item correctly.

WU= the number of pupils in the upper group who mark the item incorrectly.

N= Number of pupils in each group.

NR= Number of pupils who did not reach the item in time.

RL= the number of pupils in the lower group who mark the item correctly.

K= the number of choices in an item.

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Item Selection

The selection of items was guided by their validity against both the external and the internal criterion. In so far as the internal criterion is concerned, no items which had a discriminating index of less than ·25 was accepted. As regards item difficulty, the selection was guided by the following distribution of difficulty values.

Items of difficulty range from 0-40 20% (24%)
Items of difficulty range from 40-60 60% (56%).
Items of difficulty range from 60-90 20% (20%).

(The figures in the parentheses give the actual proportion of items in the relevant difficulty range.)

Final Position of the Test Form

The following table gives the details of the items in the various sub-tests before and after item analysis:

TABLE 6

Number of Items Before and After Item Analysis

Sub-Tests	No. of items before item validation	No. of items after item validation	No. of items finally selected
1. Judgment in social situations	43	27	25
2. Memory for names and faces	16	12	12
3. Recognition of the mental state of the speaker	33	19	15
4. Observation of human behaviour	48	33	28
5. Sense of humour	26	14	12
6. Social information	35	22	20
TOTAL	201	127	112

The present test is designed to be used for two types of populations *viz.*, the S. S. C. class pupils of the Secondary schools of Gujarat and the professional class of salesmen, business representatives, insurance agents and supervisors. It is necessary to say a word about each of the two populations separately.

Selection of the Student Sample

During 1956-57, 36054 pupils appeared at the S.S.C. Examination from the Secondary schools of Gujarat, Saurashathra and Kutch. During the same year approximately 7000 Gujarati speaking pupils appeared for the same examination. Thus with reasonable limits of accuracy about 43,000 pupils appeared for the S. S. C. Examination. These pupils were coming from about 550 Secondary schools of Gujarat and Greater Bombay. Using the tables of random numbers fifty-five Secondary schools from the different districts were selected for administering the tests. The total number of pupils from those schools who were administered the tests was 4,434 of which 954 were girls.

Selection of the Professional Sample

Regarding the sample of the second population, the author selected seven representative cities and towns and selected at random different categories of professional persons as shown in table 7.

TABLE 7

Distribution of the Sample of Salesmen etc.

Places	Insurance Agents	Salesmen	Supervisors
Jamnagar	20	14	23
Rajkot	37	29	12
Ahmedabad	52	60	72
Surat	40	10	12
Baroda	39	47	22
Nadiad	12	31	20
Bombay	67	62	50
TOTAL	267	253	220

The total sample of insurance agents, salesmen and supervisors is fairly large.

Time Limit

The time limit for each sub-test was so fixed that at least 90% of the testees were able to try all the items. The time limits for the various sub-tests are shown in table 8.

TABLE 8

Time Limits for Sub-Tests

Test No.	Time in minutes	Test No.	Time in minutes
1	15	4	10
2	10	5	5
3	10	6	10

Statistical Analysis

The following table gives the various statistics regarding the test with S. S. C. Class pupils.

TABLE 9

Norms for S. S. C. Class Pupils

Measures		Values
Mean	4434	54·7
Median	4434	54·9
Standard Deviation	4434	19·02
S.E. of Mean	4434	0·285
S.E. of Median	4434	0·360
S.E. of S.D.	4434	0·202

Nature of Distribution of Scores

The distribution of test scores is normal. The normality of the distribution has been tested by finding out the measures of skewness and kurtosis and also testing the goodness of fit by using the chi-square technique.

Skewness	—·2
Kurtosis	·260
S.E. of Skewness	·386
S.E. of Kurtosis	·0042

Neither the skewness nor the kurtosis is significant statistically. Again when the experimentally obtained results are compared with those to be expected theoretically on the hypothesis of normality of distribution, the value of P comes out to be very high (P=·92 df=8) showing very clearly that the obtained distribution is very near to the normal distribution.

Norms

The norms for the different populations are given in table 10.

TABLE 10

Norms for Different Populations

Percentile Norms	S.S.C. Class Pupils	Insurance Agents	Salesmen	Supervisors
P_5	22	31	29	27
P_{10}	30	38	40	36
P_{15}	34	44	46	43
P_{25}	42	55	58	53
P_{40}	50	67	70	64
P_{50}	55	72	74	69
P_{60}	59	77	78	75
P_{75}	68	84	85	84
P_{85}	75	89	90	89
P_{90}	80	94	95	99
P_{95}	87	98	100	98

Reliability of the Test

For determining the test-retest co-efficients for the test, two hundred students were administered the test once in April 1959 and again after an interval of two months. The product moment co-efficient of correlation between the two administrations came to 0·92. The co-efficient by the split half method using the Spearman-Brown formula on the same number came to 0·918. The application of the Kudev-Richardson technique yielded a reliability co-efficient of 0·934. The analysis of variance produced a co-efficient of 0·91.

Validity

In the absence of another good test of social intelligence in Gujarati, it has not been possible to estimate the present instruments' validity against such a creiterion. However it has been studied from various other angles.

Content Validity

The sub-tests included in the present test are all constructed on the basis of experts' opinion regarding the social skills that go into the making of the ability to deal with others. As mentioned earlier, before selecting the sub-tests, persons highly successful in occupations requiring ability to deal with others were approached to list a few skills that contributed to their professional success. Twelve different abilities emerged from this survey. Out of these, six that were ranked higher than others were selected for preparing sub-tests.

Concurrent Validity

As was stated earlier, two contrasted criterion groups were formed after obtaining objective and reliable data on a mass scale. The validity of each item was tested against these criterion groups. The test as a whole was also administered to these two groups. The results of this study are given in table No. 11.

TABLE 11

Validity Data Obtained From Two Criterion Groups

Criterion Groups	N	Mean Score	Standard Deviation	S.E. of Mean	Difference $D(M_1—M_2)$	SE of D	C.R.
Criterion group with high social intelligence . . .	89	63·47 (M_1)	10·60	6·12	17·37	1·73	10·4
Criterion group with low social intelligence . . .	93	46·1 (M_2)	12·7	1·32	..	..	..

The difference between the mean performance of the groups on the test is more than ten times standard error showing that the difference is highly significant.

Cross Validation

The above study may yield a spuriously high measure of validity, as the criterion groups to establish the validity are the same as chosen for validating test items. It was therefore considered necessary to ascertain the cross validity of the test in other ways.

(i) Two criterion groups were obtained from amongst the hostel students on the basis of their best social adoptability in their group. One group consisted of students who were active in the community life of the hostel and clearly had a high degree of sociability. The group was selected on the basis of judgments of residential students and house monitors. As against this group, an unselected group of students of the same strength from the hostels was also taken. The test was administered to students of both the groups. The data are given in table 12.

TABLE 12

Data for Cross Validation

Groups	No.	Mean Score	Standard Deviation	S.E. of Mean	Difference D (M_1—M_2)	S.E. D.	C.R.
Group of social students . . .	40	69·1 (M_1)	9·16	1·44	12·9	3·15	3·7
Unselected group .	40	59·2 (M_2)	19·3	2·80	..	..	..

The difference is about four times its standard error. This shows that the difference is quite significant.

(ii) A second cross validation was undertaken by selecting two criterion groups from S. S. C. class pupils of ten different schools. Using the socio-metric technique, sixty two peers and seventy three isolates were selected. Although the samples are small, the results are interesting as given in table 13.

TABLE 13

Data on Groups Obtained on the Basis of Socio-Metric Studies

Groups	No.	Mean	Standard Deviation	S.E. of Mean	Difference (M_1—M_2)	S.E. of D	C.R.
Peers . . .	62	66·3	14·8	1·87	15·6	2·57	6.07
Isolates . . .	73	50·7 (M2)	15·2	1·78	..	..	..

It is seen that the difference between the mean scores of the two groups is very large. It is more than six times its standard error.

(iii) In yet another study to establish the concurrent validity of the test, the test scores are correlated with ratings of insurance agents by field officers. The field officers of an insurance company were requested to rate the agents working under them on a five-point scale on the basis of the amount of work put in by them during the previous two years. The assumption is that agents with a better ability to deal with people will be able to put in more work than their colleagues with an average ability. The five points on the scale were Very Superior, Superior, Average, Inferior and Very Inferior. Ratings by field officers for eighty-two agents were obtained. The product moment correlation between the ratings and test scores was found to be ·52 with a P. E. of ·055. The correlation is appreciable and provides further evidence for the validity of the test.

(iv) The last evidence regarding the validity of the present test is gained from an examination of the mean scores of the S. S. C. Class pupils, general adults, salesmen, insurance agents and supervisors. The data are tabulated in table 14.

TABLE 14

Mean Scores of the Various Groups

Groups	No.	Mean	Difference D	S. E. of D	C.R.
1. S. S. C. Class Pupils . . .	4434	54·7	..	..	..
2. Adults	420	62·3	5·3	·967	5·4
3. Supervisors	220	67·3			
4. Insurance agents	267	68·8	..	..	..
5. Salesmen	253	70·2	..	..	..

Each professional group has a mean score on the test that is significantly higher than that of the unselected adult sample. These professions employ persons who are expected to have and are found to have a good ability to deal with people. The high mean scores of these groups on the present test as compared to the scores of S. S. C. Class pupils and the adults provide further supporting evidence in favour of the validity of the test.

Factor Analysis of the Tests

There are six different variables included in the present battery. A factor analysis of the tests has been carried out with a view to finding out the number of factors involved in the different variables.

The study has been carried out on a sample of 100 S. S. C. Class pupils drawn from five different schools of Gujarat. These pupils were administered the present test in September 1959.

Correlations

The test scores on the six variables were analysed and the nature of distribution of the scores was studied. The distribution of the scores of each of the six sub-tests was found to be normal. Inter-correlations between the six variables were calculated. In each case product moment co-efficient of correlation was computed. The correlation matric of the six variables was prepared.

TABLE 15

Original Correlation Matrix (N=100)

	1	2	3	4	5	6
1. Judgement in social situation	..	·523	·547	·327	·533	·529
2. Memory for names and faces	·523	..	·297	·341	·291	·313
3. Recognition of the mental state of the speaker	·547	·297	..	·335	·479	·463
4. Observation of human behaviour	·327	·341	·355	..	·376	·393
5. Sense of humour	·533	·291	·479	·376	..	·412
6. Social information	·529	·323	·463	·393	·412	..
New order	·2459 a	1·765 f	2·121 b	1·772 c	2·091 d	2·110 e

Analysis

Thurston's Centroid Method was adopted for factorising the correlation matrix factor analysis. The correlations in different columns were added up. The tests were then assigned a new order according to the size of the total of correlations in the columns. The new order given to the tests is indicated by the alphabets a, b, c, d, e, f. In table 16, the correlation matrix is re-arranged according to the new order of the tests. In the diagonal cells, the communalities inserted were the highest correlations in respective columns.

TABLE 16

Correlation Matrix Re-arranged for Analysis

	a	b	c	d	e	f
a	·547	·547	·529	·533	·523	·327
b	·547	·547	·463	·479	·297	·335
c	·529	·463	·529	·412	·313	·393
d	·533	·479	·412	·533	·291	·376
e	·523	·297	·313	·291	·523	·341
TOTAL	3·006	2·668	2·639	2·624	2·288	2·165
First factor loading	·766	·680	·673	·669	·583	·552

After extracting the first factor loading of the respective tests, the first factor matrix and the first residual matrix were next prepared.

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TABLE 17

First Factor Matrix

First factor loading	·766	·680	·673	·669	·585	·552
	a	b	c	d	e	f
·766 a	·587	·582	·516	·512	·447	·423
·680 b	·521	·462	·458	·455	·397	·375
·673 c	·516	·458	·453	·450	·392	·372
·669 d	·512	·455	·450	·448	·390	·369
·583 e	·447	·397	·392	·390	·340	·322
·552 f	·423	·375	·372	·369	·322	·305

The correlations of each cell of the first factor matrix were then subtracted from the corresponding cells of the original correlation matrix to find out the residual matrix. The first residual matrix is given in Table 18.

TABLE 18

First Residual Matrix

	a	b	c	d	e	f
a	—·040	·026	·013	·021	·076	—·096
b	·026	·085	·005	·024	—·100	—·040
c	·013	·005	·076	·038	—·079	—·021
d	·021	·024	—·038	·085	—·099	·007
e	·076	—·100	—·079	·099	·183	·019
f	·096	—·040	·021	·007	·019	·088

To find out whether a second factor can be extracted from the residue, the criterion developed by Humphrey, known as Humphrey's Rule is applied. In the residual matrix, the signs of variables 5 and 6 are temporarily hanged so as to make totals of all columns positive. The same process as was adopted to extract the first factor was repeated.

TABLE 19

Residual Matrix

(Signs of e, f temporarily changed)

	a	b	c	d	e	f
a	—·040	·026	·013	·021	·076	(—)·096
b	·026	·085	·005	·024	(—)·100	(—)·040
c	·013	·005	·076	—·038	(—)·079	·021
d	·021	·024	—·038	·085	(—)·099	·007
e	·076	(—)·100	(—)·079	(—)·099	·183	·019
f	(—)·096	—·040	·021	·007	·019	·088
TOTAL	·192	·280	·156	·198	·556	·271 = 1·653 = (1·286)2
Second factor loading	·149	·217	·121	·154	·432	·210 = 1·283

In the present case, the product of two highest loading is (·432×217) *i.e.* 0·093724. The standard error of zero correlation for a sample of 100 is .1. The product 0·093724 is less than twice this standard error. It seems that the residual correlations are due to chance errors and do not admit of further analysis.

R. L. Thorndike had concluded as a result of factor analysis studies of George Washington Test of social intelligence that social intelligence was highly correlated with abstract intelligence. In the present study also only one general factor has been extracted. There are two possibilities regarding the interpretation of this general factor. Either this factor is identical with the G factor found in tests of general intelligence or it is a general factor of social intelligence different from G. Only factorial research designed especially to answer this question can throw light on the matter. It may, however, be mentioned that the scores of 100 pupils on the present test were correlated with I. Q. of pupils obtained on Dr. K. G. Desai's Test of Intelligence. The correlation co-efficient worked out at ·159 with a P.E. of ·0657. The value is statistically insignificant testifying to the relative independence of the functions sampled by the two tests.

Sex and Social Intelligence

The total sample of 4434 S. S. C. class pupils to whom the test was administered consisted of 3480 boys and 954 girls. The distributions of scores for boys and girls were found to be normal for all practical purposes. The mean scores of the boys and girls are given in the following table.

TABLE 20

Mean Scores of Boys and Girls

Sex	N	Mean Score	Standard Deviation	Difference (M_1-M_2) D	S.E. of D	C.R.
Boys	3480	53·8	18·9	..	..	..
Girls	954	57·2 (M2)	19·1	3·4	·696	4·8

The girls seem to have performed definitely better.

DESAI GROUP TESTS OF INTELLIGENCE IN GUJARATI

By

K. G. DESAI

Introductory

Standardisation of Desai Group Tests of Intelligence was undertaken in 1950 and it took three years and a half to finish the whole process. The tests were standardised on about 10,000 Gujarati speaking boys and girls. Perhaps this was the first attempt in India by an individual to standardize the test on such a big sample. The tests were published in 1954* and more than 50,000 copies of the tests have since been sold out. More than a dozen studies in education have made use of these tests for different purposes in Gujarat, Baroda and Bombay Universities and in various research institutions. A short account of how the tests were standardised and of some notable studies based on the tests is given in the following paragraphs.

Construction of the Tests

After a perusal of a number of English and American group tests of intelligence, it was decided to construct original tests in Gujarati on the models of Otis Group Intelligence Scale: Advanced Examination and the Army Alpha Tests, because it was no use translating tests from a foreign language which are based on entirely different environment. The following types of tests were selected for measuring various abilities with which intelligence has been found to have high saturation :

1. Following Directions
2. Opposites
3. Disarranged Sentences
4. Proverbs
5. Logical Inferences
6. Series
7. Analogies
8. Similarities
9. Story Completion
10. Memory

A number of items were then coined for inclusion in these tests out of which the best 210 were selected. The tests were to be administered one by one with explanations and demonstrations, as it was found that examinees below college level are unable to follow printed instructions without further explanation by the examiner. The tests were, therefore, timed separately as shown in the next paragraph.

The Preliminary Runs of the Test

As the items coined were selected and arranged arbitrarily in the tests, it was necessary to check their validity and to rearrange them according to their difficulty values. The age and grade range of applicability of the tests was also to be determined. For all these, the tests needed preliminary application to a small sample of Secondary school pupils. 500 booklets of the tests were printed for this purpose.

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* Published by Bharat Prakashan, 44 Kalyan Bhavan, Tilak Marg, Ahmedabad-1.

The tests were first applied to pupils of Standards VII and VI of two Secondary schools of Andheri for determining the lower limits of age and grade ranges to which the tests may be applicable. It was found that pupils below Standard VII were not able to follow the procedure of some of the tests. So it was decided to apply the tests only to pupils of Standard VII onwards of Secondary schools. Thus the lower limits of age and grade ranges for the tests were fixed as years 11-6 and Standard VII respectively. Moreover, this first preliminary run of the tests revealed some defects in the wording of a few items which were then corrected. The instructions to be given in the beginning of each test were also standardised.

The tests duly corrected were then administered to 395 pupils of ages 11-6 onwards studying in Standards VII to XI of two schools in Andheri. Full time was given to every group to enable them to answer all the items of the tests. The shortest time taken by the quickest pupil in each group in each test was noted. From this, the time limit for each test was determined, so that scarcely one in a thousand may be able to answer correctly all the test-items of all the tests thereby scoring almost full marks. Thus the total time to be given for answering all the test-items of the battery came to be 40 minutes and the time to be taken in giving instructions etc. approximately 30 minutes, so that the whole work could be finished within 70 minutes or two school periods.

The validity of each test-item was also checked to see whether it discriminated sharply between subjects differing in intelligence. An item is said to be valid if it is more often answered correctly by more intelligent children than by the less intelligent ones. Symonds's Method of checking the item-validity was used wherein it was found that all the items were valid.

Then the difficulty value of each test-item was calculated and accordingly the test items were re-arranged. Only the items of tests 9 and 10 could not be re-arranged for the tests are based on stories, wherein the sequence of events cannot be changed. The battery was then ready for the final run.

The Final Run of the Tests

Ten thousand booklets of the new script of the tests with standardised instructions and a practice test in the beginning were then printed for the final run. The addition of the practice test necessitated a re-arrangement of the tests in the battery for some of the tests spreading over two pages needed to be printed on pages facing each other. The following was the new order of the tests:—

Practice Test

1. Similarities
2. Following Directions
3. Opposites
4. Disarranged Sentences
5. Proverbs
6. Logical Inferences
7. Series
8. Analogies
9. Story Completion
10. Memory

The tests were then administered to 4,735 boys and 4,770 girls studying in Standards VII to XI of High schools in Gujarat and Bombay. In the beginning it was intended to restrict the testing to one district only as far as possible. Accordingly, High schools of Surat city and district were selected, but it was found that the required number of boys

could easily be available from these schools whereas the number of girls available was hardly one thousand, there being very few girls' schools in this area. So almost all girls' schools of Gujarat had to be visited to get the required number of girls. The following are the places where the tests had been administered:

Big Cities	Bombay, Ahmedabad, Surat, Baroda.
Towns	Navsari, Bulsar, Bilimora, Broach, Nadiad, Patan, Ankleshwar.
Villages	Chikhli, Kathor, Maroli.

The following table gives the percentage of Secondary school-going Gujarati population tested in the final run.

TABLE 1

Comparison of the Sample of Population Tested with the Secondary School-Going Population and the Total Population

	Males	Females	Total
Approximate Gujarati Population of Gujarat, Saurashtra, Kutch and Bombay	8,786,000	8,214,000	17,000,000
Approximate Number of Persons in the age-groups 11-6 to 18-6	1,230,000	1,150,000	2,380,000
Approximate Number of Persons in the above age-group studying in Stds. VII to XI of Secondary Schools	108,800	27,200	136,000
Number of Pupils of the above Group Tested* . .	4,230	4,595	8,825
Percentage of the Secondary school-going Population Tested	4	17	..

The Standardisation of the Tests: The test-booklets were then examined and raw scores in each test were obtained. Although many test-makers use these raw scores for fixing the norms, it is better to weigh the scores in the tests, since different tests have different characteristics and different degrees of difficulty. Two ways of weighing the scores are in vogue today:

(i) Some test-makers seem to determine the weights of different tests of their batteries arbitrarily, taking into account the relative importance of the tests as measures of intelligence.

(ii) There are some statistical methods of determining the weightage, *e.g.*, Spearman's formula (given in Abilities of Man) for fixing weights of scores in different tests to make the battery a best estimate of G.

*In addition to these, 505 boys and 175 girls above the age of 18-6 were also tested.

For weighing the test-scores in the present standardisation, an altogether new method has been adopted. The weights are assigned to the tests in proportion to the time-limit fixed for them. The actual time given to the pupils for answering the items of the whole battery is 40 minutes excluding the time taken in giving directions, etc. 100 marks are fixed for the correct answers of all the tests. So one minute's work has been given 2.5 marks. In this way, marks are assigned to each sub-test in proportion to the time allotted for attempting it. This scheme of weighing the scores of tests has the following advantages:

(*a*) It is a simple scheme not involving any complicated theory or calculation.

(*b*) The total score of the battery is 100, so the score obtained by an examinee is automatically expressed in percentage. For practical purposes, this per cent score may be used to show the degree of brightness, without going into the assessment of IQ.

(*c*) This method takes into account the relative difficulty of the tests, for a difficult test takes more time than an easier one and since the weight is assigned to it in proportion to the time taken, it is consequently proportional to the difficulty of the test.

(*d*) The marks have first been assigned to the whole tests and the weights to be multiplied with the scores in those tests are decided by dividing these marks by the number of items in the tests. Thus this method takes into account the number of items in different tests.

(*e*) The variability of a test is the result of its difficulty and the number of items in it. Since this method takes into account both of these as explained above, it automatically does justice to the variability of the tests.

(*f*) The factorial analysis of the tests shows that the co-efficient of correlation of each test with G closely resembles the co-efficient of correlation of that test with the whole battery. Thus the whole battery is a good measure of G.

Norms : After obtaining the weighted scores of all the 9,505 pupils tested, the next step was to determine norms or average scores for different groups, so that the performance of an individual could be compared with them. Two types of norms—(*i*) grade norms and (*ii*) age norms—have been fixed for boys and girls separately. The following table gives the grade norms :

TABLE 2

Grade Norms

Grade	Norms		SD	
	For Boys	For Girls	For Boys	For Girls
XI	60	60	11·77	12·70
X	57	57	12·25	12·10
IX	51	50	11·75	13·03
VIII	43	42	11·25	13·30
VII	36	31	11·35	10·93

For fixing the age-norms, median scores of all the age-groups were first calculated which needed some corrections to avoid abnormalities. The following table shows the median scores and the norms fixed therefrom.

TABLE 3

Median Scores and Norms

Age Group	Median Score calculated from the data		SD		Norms after correcting the Median Scores	
	Boys	Girls	Boys	Girls	Boys	Girls
12 (11—6 to 12—5) . .	43·64	41·26	10·91	13·65	36	36
13 (12—6 to 13—5) . .	43·77	41·61	13·00	14·35	40	40
14 (13—6 to 14—5) . .	43·92	44·42	14·30	15·25	44	44
15 (14—6 to 15—5) . .	47·90	46·64	13·85	15·31	48	47
16 (15—6 to 16—5) . .	50·51	48·64	15·00	15·80	51	49
17 (16—6 to 17—5) . .	51·51	50·53	13·85	14·65	52	51
18 (17—6 to 18—5) . .	51·97	51·53	13·50	15·50	52	52
18+ (18—6 and above) . .	51·93	48·69	12·65	14·65	52	52

The median scores of age-groups 12, 13 and 14 of boys are almost equal; so also the median scores of age-groups 12 and 13 of girls. The median score of age-group 18 plus of girls is lower than that of age-group 18. The reasons for these abnormalities are clear.

A very large number of 12 and 13 year-old children are found to be in grades below VII. Even if there is no retardation, the normal age of a pupil studying in Standard VII is 12.5. Since 12 year age-group ranges from 11-6 to 12-5, the children of ages 11-6 to 12-0 *i.e.* half the number of age-group 12 is to be expected in Standard VI. But ideal conditions do not exist in an educationally backward country like India. So the average age of Standard VII pupils tested in this experiment is found to be 14.22 in the case of boys and 13·70 in the case of girls. Therefore, most of the 12 year-old children are to be expected below grade VII and only a very small number of advanced children of 12 years are to be found in grade VII. A good number of 13 year-old children are also to be expected in grades below VII. These 12 and 13 year-old children below grade VII were not tested because it was found that they could not follow properly the test-procedure.

33—6 M. of Edu./60.

Consequently, the 12 and 13 year-old pupils in the present data are mostly advanced ones. The mental level of these advanced 12 and 13 year-old boys is equal to the mental level of 14 year-old boys, most of whom are found in the same grade *viz.*, VII. Similarly, 12 and 13 year-old girls are also of equal mental level. This fact explains the abnormality in the median scores at the lower end of the age-range in the present data.

But then the abnormality is less in girls than in boys. That is because of less average age of girls of Standard VII than that of boys of the same grade. Girls studying in Secondary schools come from only advanced families which care to send them to school at the right age; while boys studying in Secondary schools hail from both the advanced and middle class families, the latter of which are not so careful in sending them to school at the right age. As a result of this, the average age of girls in a grade is less than that of boys in the same grade. The girls of 12 and 13 years included in the data are therefore more normal than the boys of these age-groups. This explains the less abnormality in the median scores at the lower end of the age-range in the case of girls.

Lastly, the abnormality in the case of 18 plus girls. The cause of this abnormality is that normal girls pass S.S.C. Examination at the age of 17 or 18. So girls above 18 studying in various grades of Secondary schools are mostly backward in mental level. Therefore, girls upto 18 years in the present data are normal and those above 18 are duller showing a lower median score than the former. It is not so in the case of boys, because, as already discussed, many boys of normal intelligence are also found in the lower grades because of late entrance to school through negligence of their parents. Moreover, girls are married at the age of 18 or sometimes earlier and so very few girls above 18 who cannot get through the S.S.C. Examination are found in Secondary schools.

Correction of Median Scores : To avoid these abnormalities, two methods could be found useful.

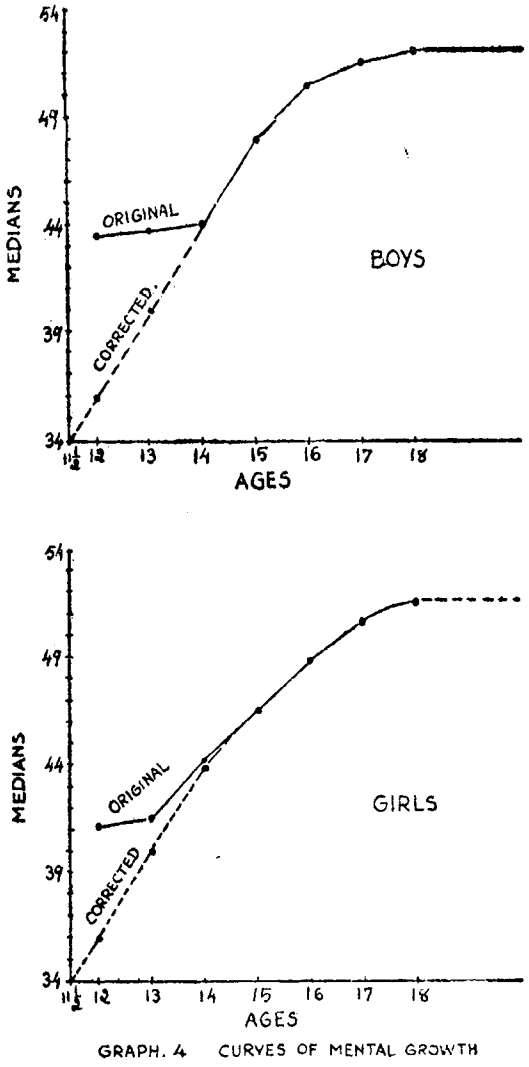
(*i*) *Thomson's Method :* Sir Godfrey Thomson, in standardising his Northumberland Mental Test No. 1 advanced the theory that the best way of overcoming any sampling difficulty in truncated data is to choose the right age in a right grade for basing the norms, *i.e.*, the sample from which the norm of a particular age is to be calculated should neither include the advanced pupils nor the retarded ones but only the normal pupils of that age who are studying in the grade normal to their age.

This method requires, therefore, fixing representative ages for various grades, which needs correct statistics of student population in all grades. The retardation or advancement of children in the grades should be solely a result of intellectual level of children and no other factor like the economic, social or cultural background of the children should influence their entrance to school and their subsequent progress.

Obviously, the composition of grades in Indian schools is affected by many causes. The economic backwardness and ignorance of intermediate and backward classes are chief causes of late entrance to school and subsequent neglect of studies. As a result of this, too much stagnation is found in the schools and from the statistics of student population in various grades, it is next to impossible to assign representative ages to the grades. Thus Thomson's Method is not practicable in an educationally backward country like India.

(ii) The Method of Correcting Norms : Otis also found, in standardising his Advanced Examination, that the median scores of lower and upper age-groups are affected by the truncated data. He therefore revised the distribution of scores of such age-groups and the new median scores of these distributions were taken as norms. But it is not clear how he did so.

In the present standardisation, the norms are corrected where required from the curves of mental growth plotted from the median scores obtained.



GRAPH. 4 CURVES OF MENTAL GROWTH

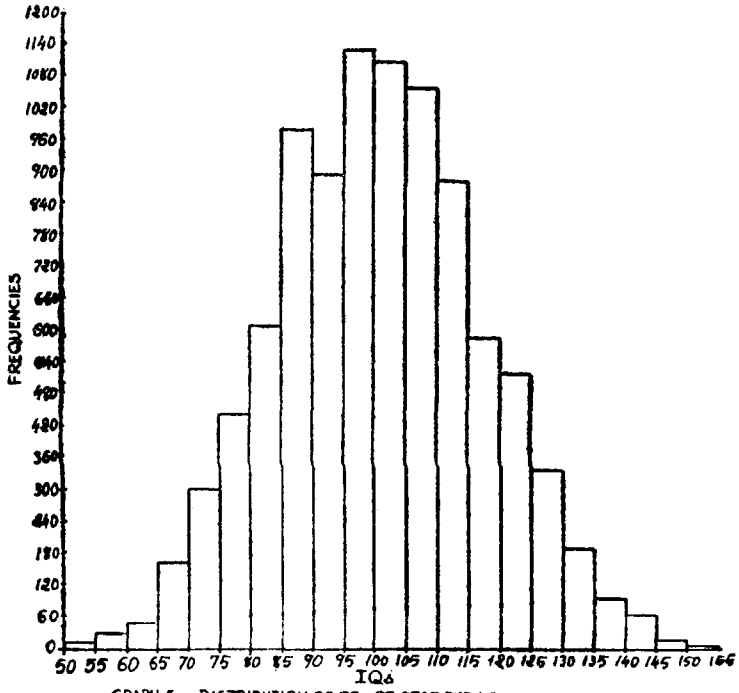
As shown in figs. 1 and 2, first the median scores of various age-groups are plotted and then a regular curve of mental growth resembling that obtained in standard tests like Otis Advanced Examinations is drawn. From this curve, the norms for various age-groups are taken as shown in Table 3.

Scheme of Obtaining IQs. : For obtaining IQs from the scores in the tests, the Indirect Method of Standardisation has been used. It was found that the SD of distributions of scores of different age-groups (except the truncated ones) was about 14 in the case of boys and about 15 in the case of girls. N. N. Shukla, who has adapted in Gujarati Kamat's Bombay Karnatak revision of Stanford-Binet Tests, has reported the SD of IQs of Gujarati children as 16.4 which is the same as reported by Terman and Merill in their second revision of Stanford-Binet Tests. This scatter of IQs is therefore superimposed on the scatter of scores of various age-groups. Percentile rank and IQ corresponding to each possible deviation of score from the norm of the age-group of the pupil are calculated and the following table is prepared therefrom.

TABLE 4

Conversion of Deviations of Scores from the Norms into Percentile Ranks and Intelligence Quotients

Deviation of Score		Plus Deviation		Minus Deviation		Deviation of Score		Plus Deviation		Minus Deviation	
For Boys	For Girls	PR	IQ	PR	IQ	For Boys	For Girls	PR	IQ	PR	IQ
0	0	50	100	50	100	26		96·6	130	3·4	70
1	1	52	101	48	99	27	28	97	131	3	69
2	2	55	102	45	98	28	29	97·4	132	2·6	68
3	3	57	103	43	97		30	97·8	133	2·2	67
	4	60	104	40	96	29	31	98·1	134	1·9	66
4	5	62	105	38	95	30	32	98·4	135	1·6	65
5		64	106	36	94	31	33	98·6	136	1·4	64
6	6	67	107	33	93	32	34	98·8	137	1·2	63
7	7	69	108	31	92		35	99	138	1	62
8	8	71	109	29	91	33	36	99·1	139	·9	61
9	9	73	110	27	90	34	37	99·3	140	·7	60
	10	75	111	25	89	35	38	99·4	141	·6	59
10	11	77	112	23	88	36		99·5	142	·5	58
11	12	79	113	21	87	37	39	99·56	143	·44	57
12	13	81	114	19	86	38	40	99·63	144	·37	56
13	14	82	115	18	85		41	99·7	145	·3	55
14	15	84	116	16	84	39	42	99·74	146	·26	54
15	16	85	117	15	83	40	43	99·79	147	·21	53
16	17	88	119	12	81	41	44	99·83	148	·17	52
17	18	89	120	11	80	42	45	99·86	149	·14	51
18	19	90	121	10	79	43	46	99·89	150	·11	50
19	20	91	122	9	78	44	47	99·91	151	·09	49
20	21	92	123	8	77		48	99·92	152	·08	48
	22	93·6	124	6·4	76	45		99·94	153	·06	47
21	23	94	125	6	75	46	49	99·95	154	·05	46
22	24	94·3	126	5·7	74	47	50	99·96	155	·04	45
23	25	95	127	5	73	48	51	99·97	156	·03	44
24	26	95·6	128	4·4	72	49	52	99·975	157	·025	43
25	27	96·1	129	3·9	71	50	53	99·98	158	·02	42



GRAPH. 5. DISTRIBUTION OF IQs OF 9505 PUPILS.

TABLE 5

Classification of Pupils According to Their IQs

Range of IQs	Class	Total No. of Pupils in the class		Percentage of the school population in the class	
				Actual	Theoretical
140 and above	Near genius or genius	Boys	52	1·1	·7
		Girls	38	·8	·7
130—139	Extraordinary	Boys	145	3·1	2·7
		Girls	148	3·1	2·7
120—129	Very Superior	Boys	424	9·0	7·6
		Girls	435	9·2	7·6
110—119	Superior	Boys	692	14·6	16·0
		Girls	781	16·4	16·0
90—109	Normal	Boys	2,142	45·2	46·0
		Girls	2,053	43·0	46·0
80—89	Backward	Boys	816	17·2	16·0
		Girls	772	16·2	16·0
70—79	Very Backward	Boys	361	7·6	7·6
		Girls	382	8·0	7.6
Below 70	Borderline Deficiency	Boys	103	2·2	3·4
		Girls	161	3·4	3·4

The Reliability of the Tests: The reliability of a test means the self-consistency with which it works at all times. A perfectly reliable test gives the same scores of persons when they are again tested by the same test or its alternate form. For determining the

reliability of the present tests by the test-retest method, 396 pupils were retested after about three months and the co-efficient of reliability came to be 0.77 which is fairly high.

Reliability by the split-half method was also found out. Splitting up the odd and even items of the tests, scores of 500 pupils were divided into two halves. The product-moment co-efficient of correlation between the two halves came to be 0.88. Applying the Spearman-Brown formula to this, the reliability co-efficient for the whole test was found to be 0.94 which is very high showing the high reliability of the tests.

The Validity of the Tests : (i) The validity of the sample of pupils tested was checked by the X^2 test which showed that the obtained distribution of IQs is normal.

(ii) The correlation between the IQs of 603 pupils obtained by the tests with their annual examination marks was found to be 0 42 which is fairly good since the examination marks are not a sure criterion of intelligence.

(iii) The co-efficient of contingency between the IQs of 504 pupils obtained by the tests and their teachers' opinion about their intelligence was found to be 0.53 which is also fairly good looking to the inconsistency among different teachers' opinion.

(iv) The correlation between the IQs of 101 pupils obtained by the present test and the Binet—IQs obtained by Shukla's Gujarati adaptation of Stanford-Binet Tests was found to be 0.82 which is fairly high showing that the tests are a valid measure of intelligence.

(v) The factorial analysis of the test showed the existence of only one general factor and the specific factors. The following table shows the G-saturation of different tests obtained by two methods.

TABLE 6

G-Saturations of the Tests and Their Comparison with the Self-Consistency of the Battery

Test	G-Saturation by Spearman's formula	G-Saturation by Thursone's Centroid Method	Order of the test as per G-Saturation	Correlation of the test with the battery
1. Similarities	·475	·519	10	·503
2. Following Directions	·707	·706	3	·766
3. Opposites	·666	·673	5	·637
4. Disarranged Sentences	·516	·551	8	·537
5. Proverbs	·785	·764	1	·845
6. Logical Inferences	·654	·660	6	·721
7. Series	·499	·523	9	·665
8. Analogies	·645	·644	7	·600
9. Story Completion	·738	·725	2	·723
10. Memory	·669	·677	4	·601
TOTAL	6·354	6·442		6·598

The G-Saturations of the tests and the agreement between each test and the whole battery show the validity of the test.

Subsequent Studies : The following studies have been based on the results obtained in the standardisation of the tests.

1. *Relation between the Occupation of Fathers and the Intellignce of Childern :* For this study the occupations have been grouped into six classes as shown below.

TABLE 7

Correlation between Occupations of Fathers and IQs of Children

Occupation of Father or Guardian	IQs.												Total		Mean IQ	
	Below 80		80—89		90—99		100—109		110—119		120 & above					
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
1. Professors, Collectors, Deputy Collectors, Judges, Barristers, Engineers, Doctors, Writers, Managers of Mills and Big Firms.	1	13	12	27	15	47	21	49	16	43	25	45	90	224	109	105
2. Pleaders, Secondary School Teachers, Middle-grade Officers, Income-tax Experts, Technical Experts, Managers of Small Firms and Share Brokers.	10	42	30	83	52	108	66	154	47	122	69	115	274	624	107	104
3. Primary School Teachers, Drawing Teachers, Artists, Clerks, Insurance Agents, Accountants.	58	99	94	156	154	209	232	230	139	168	141	139	818	1,001	104	101
4. Merchants, Landlords, Skilled Artisans, Typists, Middle-grade Mill-workers, Contractors, Village Officers. . .	193	261	304	386	367	504	429	455	292	359	243	249	1,828	2,214	100	99

5. Petty Traders, Shop-attendants, Farmers, Gymnasts, Compounders, Nurses, Hotel Owners, Priests, Astrologers.	158	123	304	112	322	153	326	112	163	82	119	69	1,392	651	97	96
6. Postmen, Policemen, Barbers, Cowherds, Menial Servants, Motor-Drivers, Sweepers, Labourers, Mill-Labourers, Sailors, Fishermen, Potters, Blacksmiths, Florists, Cooks.	44	5	72	8	78	17	80	15	35	7	24	4	333	56	96	98
TOTAL .	464	543	816	772	988	1,038	1,154	1,015	692	781	621	621	4,735	4,770		

Difference between the highest and the lowest mean IQ : Boys—13 ; Girls—9 Co-efficient of Contingency : 0.20.

The co-efficient of contingency which is 0.20 is not high showing that the intelligence of children depends only slightly on the occupation of their parents.

2. *Relation between Castes and Intelligence* : For this study the castes are also grouped into several classes as shown in Table 8.

TABLE 8

Correlation between Castes and Intelligence

Castes		IQs										
		Below 70	70—79	80—89	90—99	100—109	110—119	120—129	130—139	140 & above	Total	Mean IQ
1. Advanced Hindus and Jains : Brahmin, Bania, Brahma-Kshatriya, Kayastha, Rajput, Patidar, Jain	Boys	43	172	378	531	626	413	168	98	41	2,570	102.3
	Girls	145	318	645	859	848	660	366	120	34	3,995	100.0
2. Parsis	Boys	1	3	16	14	20	14	5	3	3	79	102.7
	Girls	2	6	21	26	35	24	15	8	0	137	103.3
3. Christians	Boys	0	0	1	5	5	1	1	3	0	16	107.6
	Girls	1	4	9	25	18	21	14	7	0	99	105.6
4. Intermediate Hindus : Khatri-Suthar, Luhar, Kumbhar, Soni, Ghanchi, Gola, Mali, Kansara, Barot, Darji, Koli, Bhavsar, Bhoi, Kachhia, Valand, Dhobi, Kadia, Mochi, Bava, Bhagat, Bhandari, Kandoi.	Boys	33	141	316	339	374	199	121	31	7	1,561	98.3
	Girls	9	38	75	99	76	58	31	9	2	397	98.5
5. Mohmedans and Bohras	Boys	13	26	49	58	69	41	20	9	0	285	98.3
	Girls	2	12	17	26	30	17	9	4	2	119	100.4
6. Backward Hindus : Dubla, Dhodia, Machhi, Mahyavanshi, Chamar, Bhangi, Dhed, Ahir, Vagri.	Boys	13	19	56	41	60	24	9	1	1	224	95.3
	Girls	2	4	5	3	8	1	0	0	0	23	90.6
TOTAL .	Boys	103	361	816	988	1,154	692	424	145	52	4,735	100.4
	Girls	161	382	872	1,038	1,015	781	435	148	38	4,770	100.0

Co-efficient of Contingency = 0.084

For computing the co-efficient of contingency, Parsis and Christians are taken together with the Advanced Hindus and Mohamedans are taken together with the Intermediate Hindus. IQs are also grouped in three : 1. Below 90, 2. 90-109, 3. 110 and above. The co-efficient of contingency comes to 0.084 which shows that there is almost no relation between the caste of a person and his intelligence.

3. *Sex and Intelligence :* Sex difference of a small degree is found in the levels of intelligence of boys and girls of ages above 14. The slightly lower mental level of girls may be due to their detention at home after puberty. The boys being free to move about anywhere get a richer environment than the girls. The variability of the scores of girls is sightly greater than that of boys.

4. *Gifted Children :* In the present investigation, an attempt is made to study the nature of 90 gifted pupils (IQ above 140) as per the test results. In addition to the information collected during the administration of the tests a questionnaire was prepared and copies thereof were despatched to the heads of schools concerned with a request to get them filled in by the teachers who were in close touch with those pupils. The following is the summary of information collected :—

(*a*) These children are found in all social classes. The most prominent caste to which many gifted children belong is Brahmin.

(*b*) Looking to the occupations of fathers or guardians of these children, it is found that all types of occupations except the lowest ones are followed by them. Many gifted children belong to parents engaged in higher professions like academic, technical and administrative.

(*c*) The gifted children are found in all types of localities—urban semi-urban and rural.

(*d*) Out of 90 gifted pupils, 36 are found to be in grades normal to their age, 14 show an advancement of one to two years and six an advancement of more than two years. Seven pupils show a retardation of a year to one and a half year probably because of late entrance to school.

(*e*) Most of these children score a high percentage of marks at their annual examinations and only a few show a mediocre performance. Many of them hold the first or the second rank in their classes.

(*f*) They are reported to be equally proficient in all subjects with the exception of a few who show more proficiency in Mathematics or Classical Language than other subjects.

(*g*) They show a uniform progress in all of their annual examinations.

(*h*) Most of them are emotionally stable, but a few do show some disturbance occasionally.

(*i*) About half of them are extrovert and half introvert.

(*j*) Scarcely any rebellious tendency is noticed in them ; but most of them do register their protest when they feel injustice is done to them.

(*k*) Some of these pupils do not like to make friends ; they rather prefer to remain engaged in their work. A good many of them like the friendship of pupils of their own temperament. None is found to be having bad company.

(*l*) Physicaly, most of them have normal constitution and health. There are a few havinga weak constitution and ill-health.

(*m*) They ake interest in extra-curricular activities like games, sports, excursions etc. Mny of them are also interested in hobbies like drawing, music, dramatics etc.

(*n*) Most c them participate in debates and elocution competitions.

(*o*) They ae much interested in extra-reading such as books, news-papers, periodicals etc.

(*p*) Most o them give responsible contribution to the social activities of their school, but ony a few of them show qualities of leadership by becoming prefects or holdin responsible positions in students' organisation.

5. *Bombay Norms :* Gujarat Research Society, Bombay, administered Desai Group Tests to 3,992 school pupils of suburban Bombay and fixed separate norms for them in 1954-5* Table 9 shows these norms obtained after correcting the median scores.

TABLE 9

Age Norms for Bombay Suburban School Pupils

Age	Norms for Boys	Norms of Girls
Y. M.		
11—6	37	36
12—0	41	39
12—6	45	41
13—0	47	44
13—6	49	46
14—0	50	47
14—6	51	49
15—0	52	50
15—6	53	51
16—0	54	52
16—6	54	52
17—0	54	52

Comparing the above norms with the norms given in Table 3, it will be found that the norms for Bombay Suburban boys and girls are constantly higher by 1 to 3 points than the norms obtained in the original standardisation. This difference is due to the better environmental condition of Bombay Suburban school pupils. In the original standardization, he sample is much more heterogeneous comprising urban, semi.

*D. E. Tarachand, "A Study of Intelligence of Gujarati speaking children in Suburban Bombay" J. Gujarat ResearchSociety, XIX, 1/73 (Jan., 1957), pp. 21-39.

urban and rural population. Although the Bombay Suburban norms are slightly higher than the entire population norms, the difference is not great. Even if somebody uses the original norms for Bombay Suburban school pupils, their IQs are not going to be estimated appreciably higher than those obtained by Gujarat Research Society norms.

6. *Norms for Primary School Teachers :* Sri A. S. Chokshi, lecturer at the H. K. Primary Teachers College, determined separate norms for the Desai Group Tests for Primary school teachers in 1958.* He administered the test to a sample of 1144 Primary school teachers under training at twelve Primary teachers colleges in Gujarat. The sample consisted of 562 male teachers and 582 female teachers. Since all teachers were above the age of eighteen, it was not found necessary to fix age norms. He however divided the sample into three different categories according to the education of these teachers as follows:

1. Candidates who had passed the Secondary School Certificate Examination.
2. Candidates who had passed the Primary School Certificate Examination and had also studied in Secondary Schools but who did not pass the S.S.C. Examination.
3. Candidates who had passed the P.S.C. Examination only.

Table 10 shows the norms of these three groups.

TABLE 10

Norms of Primary School Teachers

	I		II		III	
	S.S.C.E. passed		P.S.C.E. plus some secondary education		P.S.C.E. passed	
	Males	Females	Males	Females	Males	Females
Norms	70	70	62	56	56	48
SD	8.8	8.9	8.4	12.8	13.78	12.6

Shri Chokshi has prepared a fresh ready-reckoner of PRs for different scores for the three groups of Primary teachers.

The test-retest reliability calculated on 40 Primary teachers was found to be .86. The correlation between the scores on the Desai Group Tests and the annual examination marks of 50 teachers was found to be .51.

*A. S. Chokshi, *Adaptation of Desai Group Test of Intelligence on Primary Teachers under Training in Gujarat.* Unpublished M. Ed. Dissertation, Gujarat University, 1958.

7. *Correlations with Tests of various other Abilities*

Dr. (Mrs.) M. R. Shah has established correlations between Desai Group Tests and some other abihties.* The sample on which those correlations are based consisted of over 400 boys and girls reading in the two upper classes in Secondary schools of Greater Bombay. Table 11 gives the summary of the results.

TABLE 11

Correlations between Desai Group Tests of Intelligence and Tests of various other Abilities

Correlation between Desai Group Tests of Intelligence and....	r
1. D. A. T. Abstract Reasoning Test	.57
2. Minnesota Paper Form Board	.34
3. Bennet's Mechanical Comprehension Test	.38
4. N. P. Dave's Arithmetic Ability Test	.58
5. N. P. Dave's Vocabulary Test	.64
6. N. P. Dave's Reading Comprehension Test	.68

8. *Correlations with Scholastic Achievement*

Miss V. R. Parekh studied the relation between intelligence as measured by Desai Group Tests and the performance of girls in various subjects at the Secondary School Certificate Examination.** She based her study on a sample of about 500 girls studying in co-educational and girls' schools of Ahmedabad. She has also established correlations between scores in various types of tests in the Desai Battery and the scores in different subjects at the S.S.C. Examination. The summary of her results is given in Table 12.

TABLE 12

Correlatiions Established in Miss Parekh's Study

Correlation between	r
1	2
1. S.S.C.E. total scores and IQs of all girls	.528
2. Preliminary examination total scores and IQs of all girls	.572
3. S.S.C.E. total scores and IQs of girls of co-educational schools	.544
4. S.S.C.E. total scores and IQs of girls of girls' schools	.491
5. Mathematics Scores and IQs.	.590

*M. R. Shah, "*Informal Observations in Guidance, J. Gujarat Research Society, XIX, J* 73, *Jan.* 1957. *pp.*38-43.

**V. R. Parekh, *The Relation of Intelligence of Girls studying in Secondary Schools of Ahmedabad to Their Performances at the S. S. C. Examination.* Unpublished M. Ed. Dissertation, Gujarat University, 1957.

TABLE 12—*Contd.*

1	2
6. Arithmetic Scores and Series Test Scores	.600
7. Geometry Scores and Reasoning Test Scores	.440
8. Sanskrit Scores and IQs	.473
9. Sanskrit Scores and Verbal Test Scores	.421
10. English Scores and IQs	.415
11. English Scores and Verbal Tests Scores	.421
12. Gujarati Scores and IQs	.412
13. Gujarati Scores and Verbal Tests Scores	.390
14. Gujarati Scores and Proverbs Test Scores	.400
15. History Scores and IQs.	.244
16. History Scores and Memory Test Scores	.344
17. Geography Scores and IQs.	.341
18. Science Scores and IQs.	.403

Dr. N. N. Shukla also studied the correlation between IQs on the Desai Group Tests and scholastic achievement of the pupils in different subjects in the two top classes of Secondary schools of Greater Bombay.* The sample consisted of 510 pupils—202 girls and 308 boys. Table 13 gives the summary of his result.

TABLE 13

Correlation between Desai IQs and Scholastic Achievements of Secondary School Pupils

Correlation between Desai IQs and Scores in	r
Gujarati	.71
English	.52
Second Language	.58
History	.46
Geography	.45
Mathematics	.62
Science	.46

*N. N. Shukla, "The Relation of Intelligence and Ability to Scholastic Achievment of Pupils in the S. S. C. Class." J. *Vocational and Educational Guidance*, V 1. (Aug., 1958) pp. 38-41.

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